

FEASIBILITY OF MACROECONOMIC VARIABLES IN STOCK PRICE

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ABSTRACT

The purpose of this study is to test the feasibility of macroeconomic variables (INF, IR, JUB and NT) in determining stock prices (JCI). There are three methods used to test the feasibility of macroeconomic variables in determining stock prices, namely: stationary test; multiple regression and classical assumption test. The result is using stationary test using Dickey Fuller Test, at the level test results showed that five variables, namely JCI, INF, IR, JUB and NT in the region of stationary, ie below the critical value of 10%. The multiple regression test results are IR and JUB have a positive influence significant on JCI. Inflation and NT have a negative effect significant. The classical assumption test is met, where the data is close to normal, there is no Autocorrelation and Multicollinearity, and Homoscedasticity, the residue has the same variance. Thus it can be concluded that macroeconomic variables are feasible in determining stock prices.

Keywords: JCI; Inflation; Exchange Rate; Interest Rate; Money Supply

Introduction

The capital market is one of the alternatives where investors go to invest. The capital market consists of various financial instruments or long-term securities traded, either in the form of debt or own capital. In the history of the history of the capital market the largest instrument traded is stock, that is proof of ownership of a company.

Investors use various information in conducting a stock valuation that is information about macroeconomic conditions, industry performance and company conditions. Macroeconomic conditions are very influential on decisions taken by investors. When macroeconomic conditions are declining or declining, stock prices are expected to decline as well. Changes in macroeconomic variables such as inflation, interest rates, exchange rates and money supply will affect stock price movements. An increase in the rate of inflation will decrease real income, which in turn is expected to decrease demand for stocks that result in declining stock prices.

The increase in interest rates and exchange rates resulted in an increase in asset portfolio allocation to SBI (Certificate of Indonesia Bank) and foreign currencies due to higher returns.

Shares as one of the investment substitution assets of SBI and foreign exchange is expected to decrease demand, which then affects the fall in stock prices.

An increase in the money supply will increase demand for money for transactions as well as speculation. Increased demand for speculation among others is expected to increase demand for stocks, which resulted in rising stock prices.

The existence of the effect of macroeconomic variables on stock price movements, making macro variables as one indicator that can be used to predict stock prices. Based on the description above the purpose of this study is to test the feasibility of variables Inflation, SBI interest rate, Exchange Rate and Money Supply in the determination of JCI.

Theoretical Review

The caution in investing should be a concern for investment risks to be minimized, thus investment decision-making requires not only information about the condition of the company but also the economic conditions of a country. This is due to the overall macroeconomic conditions affecting the economic activities of society, entrepreneurs, investors and corporate performance. Changes in company performance can affect cash flow in the future that is affected by macroeconomic conditions.

The macroeconomic variables are often used to predict stock price movements such as inflation, interest rates, exchange rates and money supply. The following analysis will discuss how the influence of each variable to the stock price.

Inflation

In general, inflation is defined as general and continuous price increases. The causes of inflation are two, namely demand pull (Demand Pull Inflation) and cost push (Cost Push Inflation). The impact of inflation has resulted in decreasing in the purchasing power of the people which then resulted in a decrease in demand for goods and services.

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The inflation of demand is dominated by Monetary Policy. Expansive monetary policy or growing money supply results in increased demand for money for transactions and speculation. Increased demand for money transactions resulted in rising prices or inflation, while for speculation leads to demand for stocks, resulting in an increase in stock prices. Thus, there is a positive relationship between inflation and stock prices.

According to Reilly (1992) in Jatiningsih, Oksiana and Musdholifah (2007) suggests there are about the relationship between the rate of inflation with stock prices. The first opinion states that there is a positive correlation between inflation and stock prices. This opinion is based on the assumption that the inflation is Demand Pull Inflation. In this circumstances, the company may charge the cost increase to the consumer with a larger proportion so that the company's profits increase. This will increase the company's ability to pay dividend and will have a positive impact on stock prices.

The second opinion states that there is a negative correlation between inflation and stock prices. This opinion is based on the assumption that the inflation is Cost Push Inflation. Given the rising prices of raw materials and labor, while the economy is in a state of inflation, producers do not have the courage to raise the price of their products. This will result in the company's profit to pay any dividend decreased which will impact the decline in stock prices.

Kuwornu (2012) argues that the price of a stock is determined by a firm's net receipts, depending on how much profit the firm makes in the long run. If the resulting profit increases, then the stock price is expected to rise, reflecting a positive relationship between earnings and stock prices. In other words, the stock price is directly proportional to the company's performance. In the event that inflation rises, corporate earnings will decline, reflecting the negative effect of inflation on stock prices.

Exchange rate

Foreign currencies as known as substitute assets of shares. The movement of the exchange rate or exchange rate provides an indication of the opportunity to earn a profit in foreign exchange trading. A rise in the exchange rate will impact the portfolio allocation of investors to the foreign exchange, partially resulting from the sale of shares. Thus, there is a negative relationship between exchange rate or exchange rate with stock price.

However, when viewed at the macroeconomic level, the depreciation of the domestic currency will boost the export industry and suppress the import industry. The impact on domestic output will be positive. The increase in output is seen as an indicator of economic mounting by investors and tends to push up stock prices. Thus seen a positive relationship between the exchange rate with stock prices.

Overall according to Dimitrova (2005) the impact of exchange rate on stock prices can not be concluded because there are many arguments that support the two relationships, positive or negative. Based on Ajayi and Mougoue's (1996) studies, Dimitrova (2005) assumes a more dominant negative relationship. In the short term investors' expectations affect the stock market, somewhat larger than the fundamentals of the economy.

Interest Rate of SBI

Certificates of Indonesian banks (SBIs) are principally denominated on the rupiah denominated bonds issued by the Central Bank of Indonesia in recognition of short-term debt. The objective is as a means of monetary control through open market operations.

SBI issuance is performed on a certain nominal basis and the issuance of SBIs is usually done with government policy of open market operation in the problem of handling the amount of money in circulation. By adjusting the interest rate of SBIs the Indonesian central bank indirectly can influence the interest rate in the money market by announcing a stop out rate (SOR). So simply if the SBI interest rate rises then the general interest rate will also increase. If the SBI interest rate falls, the general interest rate will also decrease.

The question is how does SBI interest rates affect the movement of JCI? Illustration: let's say Bank Indonesia raises the interest rate from 5% to 7.5%. The policy is then followed by banks in Indonesia by increasing their deposit rates, for example from 4% to 7%. What happens next?

A rational investor, will see this situation as a financial endowment. Imagine if he had 100 billion dollars? With a 7% deposit interest rate, within a year then his money will be 107 billion. Only by depositing it in the bank without doing anything. With this increase in interest rates, investors will have another alternative to double their money without having to bother in the stock market. This will cause the demand for shares to decrease, and in a certain period cause the movement of JCI to be down.

According to Moya, Lapena and Sotos (2013) interest rate fluctuations can also have a significant effect on the stock price or the value of nonfinancial corporations through multiple channels. First, increased interest rates increase the interest expense of a highly leveraged company, thereby reducing the cash flow available for future dividends, with consequences negatively impacting stock prices. Second, fluctuations in interest rates affect the market value of financial assets and liabilities held by nonfinancial corporations. Third, interest rate movements affect the opportunity cost of equity investments. Higher interest rates make bonds more attractive based on their risk-return characteristics, motivating investors to adjust their portfolios by buying bonds and selling stocks, thus depressing stock prices. Fourth, changes in interest rates can have an impact on the level of real activity in the economy in the short and medium term, and this affects stock prices by changing future cash flow expectations.

Money Supply

The money supply is one of the monetary policy tools. Theoretically, the increase in money supply or expansionary monetary policy will increase the demand for money for speculation that impacts on the strengthening of stock prices. Thus the influence of the money supply is positive to the stock price.

The money supply is a macroeconomic variable that is influential in determining stock prices. According to Sirucek (2013) money supply can affect stock prices directly and indirectly. Directly, when there is more money in the economy they are allocated for investment, one of them buying shares. Thus, the increase in the money supply has an impact on rising stock prices. Indirectly, the increase in the money supply lowers interest rates that lead to increased investment in the stock market, tend to strengthen stock prices.

Mukherjee and Naka (1995) in Rise and Padhi (2012), indicating that the money supply carries economic stimulus resulting in an increase in corporate earnings, which in turn raises stock prices.

Previous Research

Purnamawati and Werastuti (2013) tested the macroeconomic fundamental influence on LQ45 stock prices. The selected macroeconomic variables are economic growth rate, inflation, exchange rate of rupiah to dollar, and interest rate of SBI. The result of research indicates that economic growth rate and SBI interest rate have negative effect in the short and long term to stock price LQ45. Variabel inflation has a positive impact in the short and long term to LQ45 stock prices. While the exchange rate variable has a negative effect in the short term and a long-term positive impact on LQ45 stock price.

Mireku, Sarkodie and Poku (2013) examined the effect of macroeconomic variables on stock prices in Ghana using monthly data 1991-2010. Using the Vector Error Correction Model tested the dynamic relationship between stock market indices and macroeconomic variables. The empirical results obtained show that all variables are stationary and show that the Interest Rate (XR) has a negative effect on Stock Price, while Inflation (CPI) shows a positive effect on Stock Price (DSI).

Khan Studies (2014) examined the relationship between KSE-100 index and a set of macroeconomic variables during the sampling period from (1992) to (2011). The Pearson Regression and correlation model is used to study the relationship between stock prices (KSE - 100 index) and macroeconomic variables. Found (80%) variations in the dependent variable are explained by independent variables, that the exchange rate, inflation and GDP (growth rate) are positively associated with stock prices (KSE - 100index). While a negative impact is found on the stock price of the KSE - 100 index is the interest rate.

The Amaringshe Research (2015) examines the causal relationship between stock prices and interest rates, using monthly data for the period January 2007 to December 2013. All Index Stock Rates (ASPI) on the Colombo Stock Exchange for share prices and details on interest rates have been collected from the data issued by the Central Bank of Sri Lanka. Augmented Dickey Fuller test is used to know the stationarity of the data series and test results show that, ASPI data and interest rates are stationary at first difference. The Granger causality test is used to examine the causal relationship between the stock return and the interest rate outcomes indicating that, there is a causal relationship between the variable interest rate and stock returns having a negative relationship.

The Naik and Padhi (2012) study examines the relationship between the Indian stock market index (BSE Sensex) and the five macroeconomic variables, namely Industrial Production Index, Wholesale Price Index, Money Supply, Rate Treasury Bills and Exchange Rate 1994-2011 period. The model is applied to explore long-term equilibrium relationships between stock market indices and macroeconomic variables. The analysis reveals that macroeconomic variables and stock market indices are co-integrated and, hence, there is a long-term equilibrium relationship between them. The results show that stock prices are positively related to money supply and industrial production but negatively related to inflation. Short-term exchange rates and interest rates are found to be insignificant in determining stock prices.

The Tripathy Study (2011) investigates the causal relationship between selected macroeconomic variables and the Indian stock market over the period January 2005 through February 2011 using the Ljung-Box Q test, the Breusch-Godfrey LM test, the Root Unit test and the Granger causality test. Provide assertiveness of autocorrelation presence in Indian stock market. Furthermore Granger-causality tests show evidence of two-way relationship between interest rates and stock markets, exchange rates and stock markets. Indicates that any changes to the Exchange Rates, interest rates and international markets significantly affect the stock market. The study also shows that the Indian stock market is sensitive to changes in market behavior, international exchange rates and interest rates in the economy and they can be used to predict fluctuations in stock market prices.

Research Methods

The Goodness of Fit test is used to measure the accuracy of the sample regression function in estimating the actual value. Statistically Goodness of Fit test can be done through measurement coefficient of determination, F statistic value and statistical value t. Models that use time series data according to Nachrowi and Usman (2006) require stationarity, that is, about the constant of averages and time series data variants, do not change systematically over time, to prevent spurious regression. Linear Regression Model has some basic assumptions that must be met to produce a good estimate otherwise known as BLUE (Best Linear Unbiased Estimator). The basic or Classical assumptions include homoscedastic, no-multicollinearity, and no-autocorrelation.

Thus there are several tests that need to be done to test the feasibility of the model, including:

I. Data Stasionerity Test

Used to detect the presence of Spurious Regression which usually occurs in time series data that is not stationary, although the amount of observation used is very much. The following equation to know whether there is root unit:

$$\Delta Y_t = \delta Y_{t-1} + u_t \tag{1}$$

where, Δ is the first difference operator from IHSG, Inflation, SBI Selling Level, Exchange Rate and Money Supply. With the hypothesis as follows:

H0: $\delta = 0$ (there is a root unit, meaning time series data is not stationary)

H1: $\delta = 1$ (there is no root unit, meaning stationary time series data)

If a unit root test exists, it means spurious regression occurs. The model is not worth testing.

II. Test Multiple Linear Regression Model

Multiple regression model is a regression model consisting of more than one independent variable, with the following equation:

$$JCI_t = \alpha + \beta_1 Inf_t + \beta_2 IR_t + \beta_3 NT_t + \beta_4 JUB_t + \epsilon_t \tag{2}$$

where, JCI = Composite Stock Price Index;

α = Constants

Inf = Inflation rate

IR = SBI rate of interest

NT = Exchange Rate

JUB = Total Money Supply

ϵ = Error

$\beta_1, \beta_2, \beta_3, \beta_4$ = Inflation parameters, SBI interest rate parameters, exchange rate parameters and money supply parameters

t = time period (month)

This regression test aims to see the influence of each variable such as Inflation, SBI interest rate, Exchange Rate, Amount of Money Supply (JUB) against JCI.

III. Classic assumption test

The classical assumption testing process is performed together with the regression test process so that the steps taken in classical assumption testing use the same work step with the regression test. There are five assumption test that must be done to a regression model that is normality test, autocorrelation, linearity test, multicollinearity test, and heteroscedasticity test.

Result Analysis and Discussion

Result Analysis

Data Stationality Test

As already known that time series data is a set of values of a variable taken at different times. Each data is collected periodically at specified intervals, eg monthly, yearly or weekly.

In various econometric studies time series data is very widely used. But behind the importance of the data, it saves a variety of problems, one of which is autocorrelation. This is the cause of the data being non-stationary. So, if the stationary data then the problem of autocorrelation will disappear by itself.

A set of data is stationary if the mean and variance of the time series data are not systematically altered over time, or the mean and variance are constant.

Stationary test using Dickey Fuller Test, the level of results can be seen in Table 1. The test results show that the five variables, namely IHSG, INF, IR, JUB and NT are in the stationary area, which is below the critical value of 10%. JCI with probability 9.123%, INF 9.547%, IR at 9.737%, JUB at 9.648% and NT at 4.979%.

Table 1. Stationary Test

IHSG		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.647166	0.09123
Test critical values:	1% level	-3.562669	
	5% level	-2.918778	
	10% level	-2.597285	
INF		t-Statistic	Prob.*
I			

Augmented Dickey-Fuller test statistic		-2.549164	0.09547
Test critical values:	1% level	-3.562669	
	5% level	-2.918778	
	10% level	-2.597285	
<hr/>			
IR		t-Statistic	Prob.*
<hr/>			
Augmented Dickey-Fuller test statistic		-2.619727	0.09737
Test critical values:	1% level	-3.562669	
	5% level	-2.918778	
	10% level	-2.597285	
<hr/>			
JUB		t-Statistic	Prob.*
<hr/>			
Augmented Dickey-Fuller test statistic		-2.571752	0.09468
Test critical values:	1% level	-3.565430	
	5% level	-2.919952	
	10% level	-2.597905	
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NT		t-Statistic	Prob.*
<hr/>			
Augmented Dickey-Fuller test statistic		-2.914158	0.04979
Test critical values:	1% level	-3.562669	
	5% level	-2.918778	
	10% level	-2.597285	
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Similarly, Kurihara's research (2006, p.378) found several estimated variables such as Japanese Stock Price (Jstock), US stock price (Ustock), Yen exchange rate against US (EX), Japan interest rate (Call) with the sample period from 19 March 2001 to 30 September 2005 was stationary at prob 1%.

In contrast to Kuwornu's (2012, p.7) research using natural log (Ln), LASI (Ghana Stock Index), LCPI (Consumer Price Index), LEXR (Exchange Rate), LTBR (Treasure bill rate, 91 day) and LCRO (crude oil prices), find all non stationary variables at levels and stationary on first differencing.

So, the five variables mentioned above, namely IHSG, INF, IR, NT and JUB qualify testing time series data.

Multi Regression Test

The result of testing of equation 2 can be seen in Table 2.

Tabel 2. Multi Regression Test
Dependent Variable: JCI
Method: Least Squares
Date: 03/02/16 Time: 08:46
Sample: 2011M05 2015M09
Included observations: 53

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2444.871	201.5824	12.12840	0.0000
INF	-90.84161	49.40112	-1.838857	0.0721
IR	154.0609	36.55423	4.214586	0.0001
JUB	2.736024	0.250367	10.92806	0.0000
NT	-0.772060	0.092718	-8.326984	0.0000
R-squared	0.837036	Mean dependent var	4502.132	
Adjusted R-squared	0.823455	S.D. dependent var	510.3160	
S.E. of regression	214.4206	Akaike info criterion	13.66334	
Sum squared resid	2206856.	Schwarz criterion	13.84922	
Log likelihood	-357.0786	Hannan-Quinn criter.	13.73482	
F-statistic	61.63577	Durbin-Watson stat	1.435056	
Prob(F-statistic)	0.000000			

Judging from the statistical probability t, the three variables are IR, JUB and NT significant on the probability of decline by 0 percent. While INF variable significantly under 10%, that is 7,21%. Inflation Influence (INF) is negative against JCI, assuming other variable is constant, 1 percent increase of inflation will decrease IHSG by 90,842 points. The increase of SBI interest rate (IR) by 1 percent will increase the JCI by 154,061 points. The increase in the exchange rate of Rp 1 will decrease the JCI by 0.772 points. The increase in the money supply (JUB) of 1 unit will increase the JCI by 2,736 points.

The explanatory strength of the model is quite large seen from the coefficient of determination, amounting to 0.8234 which means the JCI variable is determined by INF, IR, JUB and NT variables of 82.34 percent. The remaining 17.67 percent is determined by other variables. Testing of variables simultaneously significant is shown by Probabilita Statistic F equal to 0,0000.

Classic assumption test
I. Normality

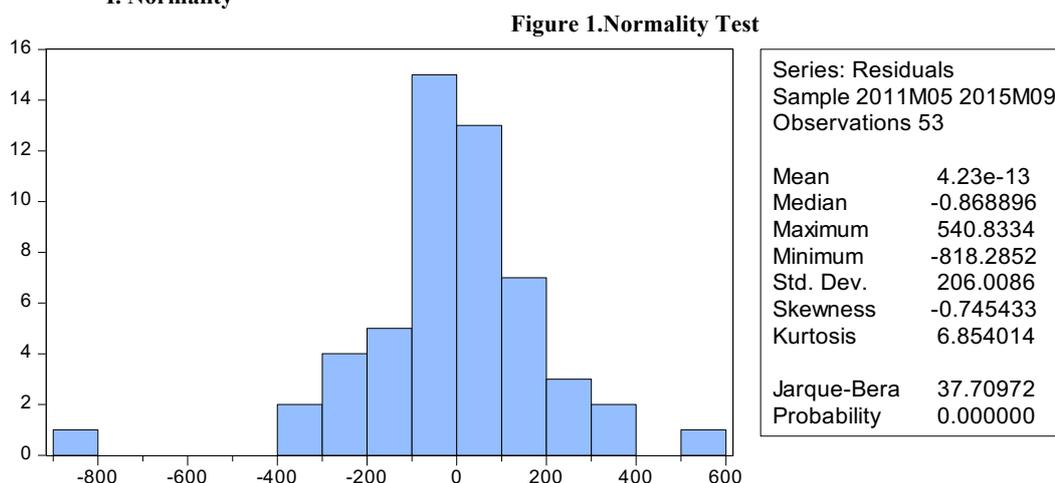


Figure 1. shows the Jarque-Bera Probability is 0.00 below 0.05, indicating that the data is not normally distributed. However, the normality test is only required if the number of observations is less than 30, to determine whether the error term approaches the normal distribution. As for the number of periods in this study 53 months, from May 2011 to September 2015, no normality test is required. For the sampling error the term distribution is near normal.

II. Autocorrelation

Table 3. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.751932	Prob. F(2,46)	0.1848
Obs*R-squared	3.751318	Prob. Chi-Square(2)	0.1533

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 03/02/16 Time: 08:50

Sample: 2011M05 2015M09

Included observations: 53

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.44354	199.0064	0.102728	0.9186
INF	9.949035	49.37146	0.201514	0.8412
IR	-3.770941	36.12960	-0.104373	0.9173
JUB	-0.044651	0.248602	-0.179609	0.8582
NT	0.013938	0.091865	0.151724	0.8801
RESID(-1)	0.263220	0.151292	1.739806	0.0886
RESID(-2)	0.041933	0.153821	0.272608	0.7864
R-squared	0.070780	Mean dependent var	4.23E-13	

Adjusted R-squared	-0.050423	S.D. dependent var	206.0086
S.E. of regression	211.1385	Akaike info criterion	13.66541
Sum squared resid	2050656.	Schwarz criterion	13.92563
Log likelihood	-355.1333	Hannan-Quinn criter.	13.76548
F-statistic	0.583977	Durbin-Watson stat	1.936437
Prob(F-statistic)	0.741212		

Autocorrelation shows the correlation between members of a series of observations that are sorted by time or space. To detect autocorrelation, via LM Test (Bruesch Godfrey method). This method is based on the value of F and Obs * R-Squared, where if the probability value of Obs * R-Squared exceeds the level of trust(5%), then there is no autocorrelation problem. Test results using the method, obtained Prob. 0.1533 (See Table 3). The probability of Chi Squarenya is 15.33% > 5%, then there is no autocorrelation problem.

III. Heteroskedasticity

Heteroscedasticity is a state in which all the disorders that appear in the population regression function do not have the same variance. Heteroschedasticity testing may be performed with White

Table 4. Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.951147	Prob. F(4,48)	0.4429
Obs*R-squared	3.892381	Prob. Chi-Square(4)	0.4208
Scaled explained SS	9.344795	Prob. Chi-Square(4)	0.0530

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 03/02/16 Time: 08:51

Sample: 2011M05 2015M09

Included observations: 53

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-98706.28	95799.88	-1.030338	0.3080
INF	-22423.26	23477.36	-0.955102	0.3443
IR	396.7553	17372.01	0.022839	0.9819
JUB	34.16905	118.9843	0.287173	0.7752
NT	2.779510	44.06317	0.063080	0.9500
R-squared	0.073441	Mean dependent var	41638.80	
Adjusted R-squared	-0.003772	S.D. dependent var	101709.5	
S.E. of regression	101901.1	Akaike info criterion	25.99098	
Sum squared resid	4.98E+11	Schwarz criterion	26.17686	
Log likelihood	-683.7610	Hannan-Quinn criter.	26.06246	
F-statistic	0.951147	Durbin-Watson stat	2.202710	
Prob(F-statistic)	0.442862			

Heteroscedasticity Test. The observed results of this test are the values of F and Obs * - Squared. If the Probability value is greater than 0.01, then there is no heteroscedasticity. White Heteroscedasticity test results can be seen in Table 4. Probability F and Obs * - Squared is 0.4429 and 0.4208 is greater than 0.01. The conclusion is with a 99% confidence level, no heteroscedasticity or Homoscedasticity, the residue has the same variance.

IV. Multicollinearity

Multicolininity means the existence of a perfect or definitive linear relationship, among some or all of the explanatory variables of the regression model. The presence or absence of multicollinearity can be known or seen from the correlation coefficient between each variable greater than 0.8, then the multicollinearity occurs.

Tabel 4. Multicolinearity Test

	INF	IR	JUB	NT	
INF	1.000000	0.002886	0.061085	-0.004911	
IR	0.002886	1.000000	0.494937	0.601846	
JUB	0.061085	0.494937	1.000000	0.669605	
NT	-0.004911	0.601846	0.669605	1.000000	

Test results can be seen in Table 4. Of the four explanatory variables none of which have a correlation coefficient above 0.70. The largest correlation coefficient is 0.669605 between JUB and NT. It means no multi-clustering occurs between explanatory variables.

Discussion

Influence of Inflation on JCI

Seen from partial testing, Inflation has a positive but insignificant effect. However, in simultaneous or simultaneous testing, inflation has a negative and significant impact on JCI. The negative effect of Inflation on stock prices is related to the second opinion. Opinion based on the assumption that the inflation is Cost Push Inflation. Given the rising prices of raw materials and labor, while the economy is in a state of inflation, producers do not have the courage to raise the price of their products. This will result in the company's profit to pay any dividend decreased which will impact the decline in stock prices.

Viewed from the period of observation 2011-2015 is the time of the ongoing rise of fuel price hikes and the rupiah exchange rate as a contributor to inflation from the cost push inflation. In addition, demonstrations of wage increases from unions led to a rise in the UMP (provincial minimum wage) in various regions.

Considering the effect of inflation on people's purchasing power, with the higher rate of inflation, the purchasing power of the community decreases, so some of the investors sell their shares to cover the rise in inflation, which will lower the stock price. Kumar & Puja Research (2012) in Purnamawati & Werastuti (2013) found that inflation has a negative effect on stock prices.

Effect of SBI Lending Rates on JCI

The influence of SBI interest rates either partially or simultaneously shows a positive and significant impact on the JCI, 1% increase in the SBI interest rate resulting in an increase in JCI by 154,061 points. This gives an indication that SBI is not a substitute asset to the stock. Rather it is a complementary asset.

Pasaribu and Firdaus (2013) in Pasaribu and Kowanda (2014) also show that the interest rate of BI has a positive effect on Indonesia's sharia stock index. Positive relationship between BI interest rate and Indonesian sharia stock index indicates that there is a substitution relationship between banking sector and capital market. This means that the capital market is not a substitution of banking, but it is complementary from banking. The same results also result from Sutanto, Murhadi and Ernawati (2013), Kewal (2013) and Wijaya (2013) studies which stated that the SBI has positive implications although it does not significantly affect the JCI. On the other hand, the results of Ariyadi (2005), Mu'minin (2007), Anwar (2010) studies stated that SBI has no significant effect on return of equity funds.

Pasaribu and Kowala (2014) based on the calculation, the SBI interest rate has only a positive and significant effect on almost all equity funds (except YPDM), this result supports research conducted by Rivai (2008), and Amin (2012). Based on the results of empirical calculations, this study does not support research conducted by Riantani and Tambunan (2013), Pasaribu and Kowanda (2013), Chiarella and Gao (2004), Kandir (2008), Alam and Uddin (2009), and Haryanto and Riyatno (2007) stated that SBI interest rate has negative implication and significant effect on stock return.

The positive effect of SBI interest rate on JCI has implication on monetary policy conducted by Bank Indonesia. The SBI rate is a monetary instrument in controlling inflation. When inflation is high, SBI interest rates are raised which affects the rise in stock prices. Conversely, when inflation falls, SBI interest rates are also lowered. This means, a portion of the JCI changes will be determined by monetary policy.

The Effect of Exchange Rates on JCI

As seen from the results of multiple regression tests, Exchange Rate (NT) has a negative and significant effect of - 0.772. This raises the exchange rate of Rp 1 will lower the JCI by 0.772 points JCI. This means that NT is a substitute share asset. If the foreign exchange rate rises, then investors will sell some of its shares that impact the decline in stock prices which are then bought foreign exchange.

The results of this study are consistent with Ajayi and Mougoue's studies (1996), Dimitrova (2005) assumes a more dominant negative relationship. In the short term investors' expectations affect the stock market, somewhat larger than the fundamentals of the economy.

In the research of Astuti, Apriani and Susanta (2013, p.7) The exchange rate (Exchange Rate of Rupiah to US Dollar influences JCI, which can be seen from the result of significant and negative influence to JCI, so if the exchange rate (Exchange Rate) Rupiah to Dollar experienced an increase precisely Composite Stock Price Index (CSPI) has decreased and vice versa. Any increase in the Rupiah Exchange Rate (Rupiah) to the Dollar of 1% will cause a decline in the Composite Stock Price Index (JCI)

of 57.9%. This is supported by the theory of Sri Maryanti (2009: 16) which states that the value of the Dollar exchange rate is one factor that is quite influential on the ups and downs of JCI. If the exchange rate is high then investors will prefer investments in US Dollars compared to investments in securities because investment in securities is a long-term investment and vice versa. This implies an uncontrolled depreciation Foreign Exchange Rate could knock the Stock Market, as it did during the 1997/1998 economic crisis.

Observe if the Exchange Rate has a positive effect on JCI. The increase in the foreign exchange rate raises the recipients for export-oriented firms which then impact on rising stock prices. However, this fact does not occur in this study, giving an indication that most of the TBK companies on the stock market are not export-oriented.

Influence of Money Supply Against JCI

The test result of multiple regression model shows that the influence of the Total Money Supply (JUB) is 2.736, the increase of JUB Money Supply 1 unit will raise the JCI by 2.736 points. Money supply can affect stock prices directly and indirectly. Directly, when there is more money in the economy they are allocated for investment, one of them buying shares. Thus, the increase in the money supply has an impact on rising stock prices. Indirectly, the increase in the money supply lowers interest rates that leads to higher investment in the stock market, tend to strengthen stock prices.

The results of Kristiyawati and Widjajanti's research (2012) of JUB positively influence the JCI also support the opinion of Robbert Ang (1997), which states that the growth of the money supply the economy and the short-term equity markets.

According to Abdulrahim (2011), the level of money supply available in the economy can be contraction, due to inflation. When this happens, the value of the stock price is negatively affected. On the other hand, a stable rate of money supply expansion with low inflation has a tendency to increase stock prices. For this reason, lower central bank reserve rates in banks, stock market prices can be pushed to altitude. This means JUB's influence in handling inflation.

Conclusions and Recommendations

Conclusion

1. Stationary test using Dickey Fuller Test, at level level of the result shows that the five variables, namely IHSG, INF, IR, JUB and NT are in the stationary area.
2. The results of testing the variables simultaneously or Multiple Linear Regression, the three variables are IR, JUB and NT are significant on the probability of decline of 0 percent. While INF variable significantly under 10%, that is 7,21%. The coefficient of determination is big enough, that is 82,34% and simultaneous model test is valid because of Probabilita Stat. $F = 0,0000$.
3. The classical assumption test is met, where the data is close to normal, there is no Autocorrelation and Multicollinearity, and Homoscedasticity, the residue has the same variance.
4. From the results of these three tests it can be concluded that macroeconomic variables are feasible in determining stock prices.

Recommendation

1. Given the Composite Stock Price Index is strongly influenced by macroeconomic variables, then in the formulation of economic policy or monetary policy needs to consider the impact on JCI. Given that the NT is negatively affecting the JCI, it is necessary to intervene in the forex market continuously to stabilize the JCI.
2. This study does not take into account the external data, then for further the need to include the development of foreign stock price index or capital inflows / outflows Indonesia.

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