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THE EFFECT OF DOW JONES INDEX AND INDONESIA MACRO VARIABLES INDEX ON FINANCIAL SECTOR PRICE INDEX POST GLOBAL FINANCIAL CRISIS 2008

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Abstract: This study aims to determine whether the Dow Jones Index, exchange rate, interest rates, and inflation affect the Financial Sector Stock Price Index. The population in this study is the Financial Sector Stock Price Index (CSPI) data from December 1995 to December 2018. The sample in this study is the monthly data of the Dow Jones Index, Rupiah Exchange Rates, SBI Interest Rates, Inflation, and CSPI within 10 years (120 months) from January 2009 to December 2018 where the CSPI experienced fluctuations during this period. The data analysis technique used is multiple linear regression. Research results show that Simultaneously, the Dow Jones Index variables, Dollar Exchange Rate, BI Rate, and Inflation significantly influence the dependent variable of the JCI movement with a coefficient value of 96.53%. The Dow Jones Index variable partially has a significant effect and is positively correlated with the CSPI dependent variable. Dollar Exchange Variable partially has a significant effect and negatively correlates to the CSPI dependent variable. The BI Rate variable partially has no significant effect and positively correlates to the CSPI dependent variable. Inflation variable partially has no significant effect and positively correlated to the CSPI dependent variable.

Keywords: Dow Jones Index, Dollar Exchange Rate, BI Rate, Inflation, Financial Sector Stock Price Index (CSPI)

INTRODUCTION

The economic conditions in Indonesia are inseparable from the influence of the global economic cycle. The existence of financial crises experienced in various countries can destructively damage the country's economy. One of them can be seen from the fall in stock prices and the bankruptcy of many financial institutions both in developed and developing countries.

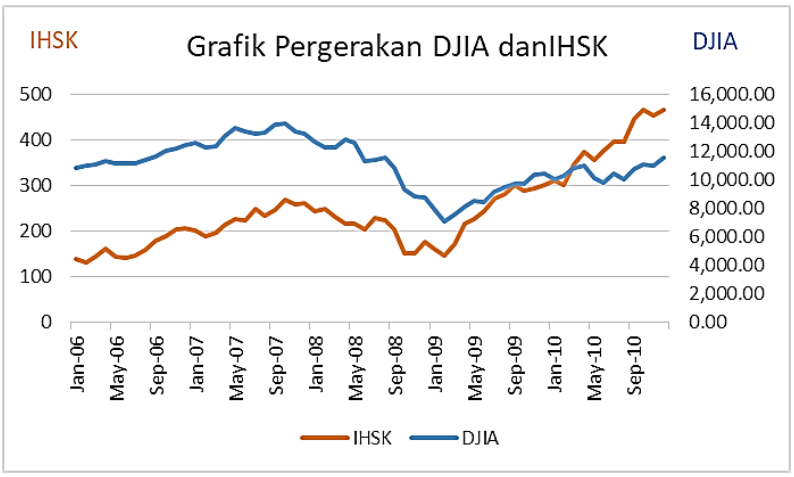


Figure 1. Graph of the Dow Jones Movement and Stock Price Index of the Indonesia Stock Exchange Financial Period from January 2006 to December 2010

Based on the graph above, it shows that the BEI Financial Sector Price Index (CSPI) increased by 49.09% in 2006 and in 2007 increased by 29.56%, but in 2008 it actually decreased by 27.92%. The existence of these fluctuations commonly known as the contagion effect (contagion-effect). According to Franke (1993) the existence of economic globalization will further facilitate investors in allocating their capital. However, it also has a bad influence, which is the relationship between one stock exchange with another exchange, which according to Tan (1998) is called Contagion effect. Basically, the Stock Index is influenced by two factors, namely micro factors and macro factors. Micro factors can be seen from the company's financial performance, while macro factors are conditions of the country's economy such as the exchange rate (exchange rate), BI interest rates, inflation, etc.

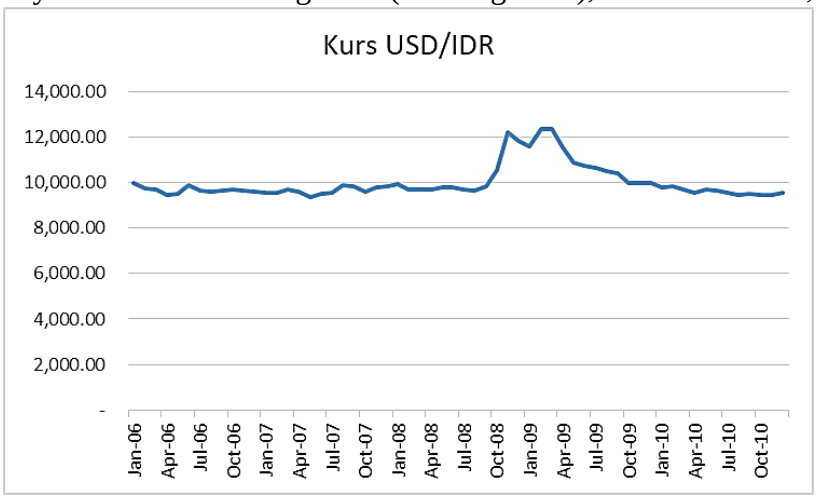


Figure 2. Graph of the Rupiah Middle Exchange Rate against the US Dollar from January 2006 to December 2010

Source: www.bi.go.id processed

The data illustrated in the graph above shows the exchange rate (exchange rate) of the Rupiah against the United States Dollar starting from the period January 2006 to December 2010. Based on the graph shows a significant increase in the exchange rate between 2008 and September 2009, amounting to 19.37 %. This condition is a sign that the 2008 Global Financial Crisis was also felt in Indonesia, which can be seen from the increasing exchange

rate of the Rupiah against the US Dollar. This also had an impact on the decline in the CSPI in the period.

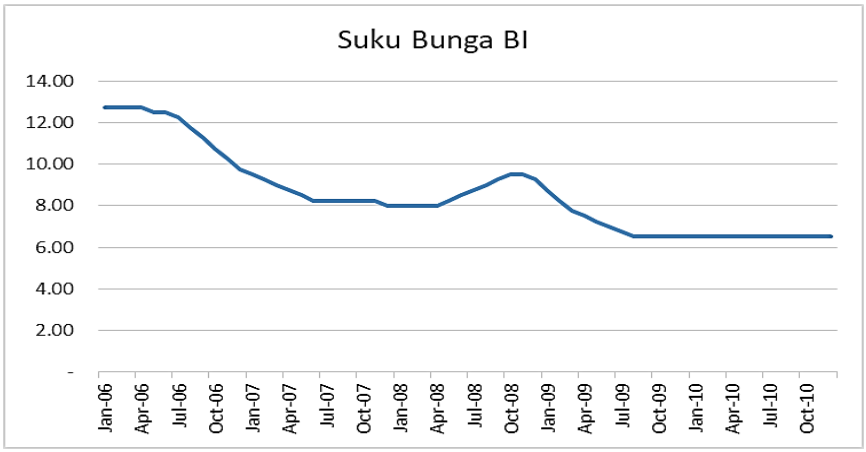


Figure 3. BI Rate for the period of January 2006 to December 2010
Source: www.bi.go.id processed

The data shown in the graph above is the BI interest rate for the period of January 2006 to December 2010. Based on the graph, it shows the government's actions to implement contractionary monetary policy by raising interest rates 6 times in 2008 or also known as the Tight Money Policy (tight money) policy). The increase can also have an impact on the performance of the Financial Sector Stock Price Index for the period.

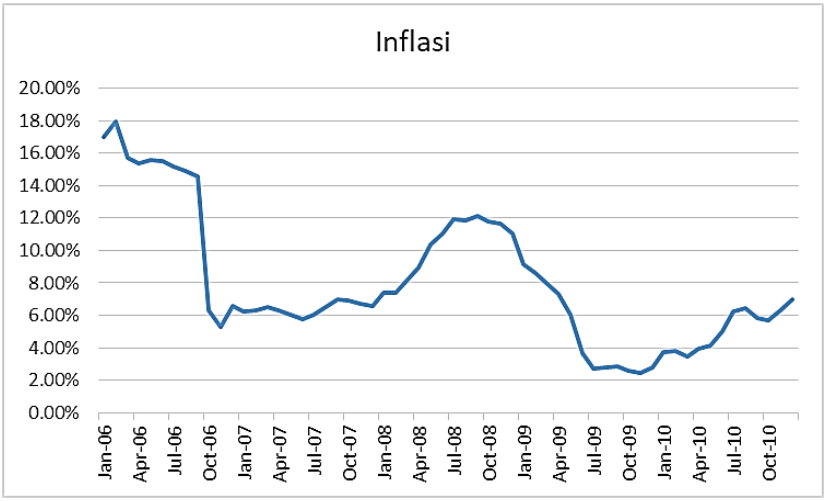


Figure 4. Inflation between January 2008 and December 2017
Source: www.bi.go.id processed

The graph above shows inflation data from the period January 2006 to December 2010. Based on the graph shows that there has been a significant increase in inflation in early 2008 of 7.36% to 11.06% at the end of 2008. The increase in inflation is a signal of the phenomenon of a decline in Indonesia's macroeconomic performance that has an impact on the CSPI.

LITERATURE REVIEW

1. Efficient Market Hypothesis

The concept of an efficient market was first put forward and popularized by Fama (1970). A market is said to be efficient if no one, both individual investors and

institutional investors, will be able to obtain abnormal returns after adjusting for risk, using existing trading strategies. That is, prices that are formed in the market are a reflection of existing information. The requirements for an efficient market (Tandelilin, 2001: 143) are:

a. The price of a security is determined by the demand and supply of many investors. This means that a market participant cannot influence the price of a security. Investors are recipients of price (price takers).
b. Information is widely available to all market participants at the same time and prices for obtaining such information are cheap.
c. Information is generated randomly (random walk) and each information announcement is random from one to another. Information generated randomly means that investors cannot predict when an issuer will announce new information.
d. Investors react by using information fully and quickly, so the price of securities changes accordingly. This condition occurs because market participants are sophisticated individuals who are able to understand and interpret information quickly and well.

2. Arbitration Pricing Theory (APT)

Ross (1976) formulated a balance model called the Arbitrage Pricing Theory (APT), which states that two investment opportunities that have the same identical properties cannot be sold at different prices. In this case the law adopted by APT is the law of one price. An asset that has the same characteristics (identical) if sold at different prices, then there will be an opportunity to arbitrage by buying assets that are cheap and at the same time selling them at a higher price so as to obtain profits without risk (Pratikno, 2009).

3. Contagion Effect

With globalization and rapid technological development, the economic condition of a country is no longer only determined by that country but the economic conditions in other countries are also a determining factor. According to Franke (1993) with the globalization of the economy it will make it easier for investors to allocate their capital. But besides having a good influence on globalization, it also causes a bad influence, which is the link between one stock exchange with another exchange, which according to Tan (1998) is called Contagion effect. If there is a crash in one of the exchanges, as happened in the Dow Jones Index (2008), it will also cause crashes on the stock exchanges around the world. In a broad sense, contagion is the transmission of shock between countries. If a country experiences a shock, the shock can be transferred to other countries in the vicinity.

4. Stock Price Index

The Financial Sector Stock Price Index (CSPI), also known as the Jakarta Finance Index or JKFINA, is one type of index on the Indonesia Stock Exchange. CSPI is to measure the performance value of all financial sector shares listed on a stock exchange by using all financial sector shares listed on the stock exchange as a component of

index calculation. The CSPI is used to determine developments and the general situation of the financial sector market, not the situation of certain companies. This index covers the price movements of all common shares and preferred shares listed on the IDX. In principle, the CSPI calculation is no different from the calculation of the individual stock price index. It's just that, in the CSPI calculation, we have to add up all the stock prices in the financial sector (listing). General formula for calculating CSPI (Widoatmodjo, 2009: 87-89), namely:

$$IHSK = \frac{\text{share price at the time of validity}}{\text{the price of all shares at a time base}} x100\%$$

If the CSPI is above 100, it means that the market is in a crowded condition, on the contrary if the CSPI is below 100, the market is in a lethargic state. If the CSPI appropriately designates 100, the market is stable.

5. BI Rate

"The BI Rate is the interest rate of Bank Indonesia sinyaling instruments set at quarterly RDG (Board of Governors' Meetings) to take effect during the current quarter (one quarter), unless determined differently by monthly RDG in the same quarter". (Bank Indonesia in the Inflation Targeting Framework). From this understanding, it is clear that the BI Rate serves as a signal of Bank Indonesia's monetary policy, thus conclusions can be drawn that the monetary policy response is expressed in an increase, decrease, or no change in the BI Rate. From the understanding issued by Dahlan Siamat, it can be concluded that the Bi Rate is used as a reference in monetary operations to direct the weighted average SBI-1 month interest rate. Furthermore, the 1-month SBI interest rate is expected to affect interbank money market interest rates (PUAB), deposit and credit rates as well as longer-term interest rates.

6. Exchange Rates

The exchange rate is the price of a currency against other currencies or the value of one currency against the value of other currencies (Salvatore 1997: 9). An increase in the value of a domestic currency is called an appreciation of foreign currencies. The decline in the value of the domestic currency is called depreciation of foreign currencies. Other exchange rates are called exchange rates, according to Paul R Krugman and Maurice (2008: 73) is the price of a currency of a country that is measured or expressed in another currency. According to Nopirin (2000: 163) Exchange is an exchange between two currencies Different money, it will get a value / price comparison between the two currencies. It can be concluded that the rupiah exchange rate is a comparison between the value of a country's currency with another country.

7. Inflation

One of the most important modern events that is found in almost all countries in the world is inflation. A brief definition of inflation is the tendency of prices to rise in general and continuously (Mankiw, 2012: 145). This does not mean that the prices of various types of goods go up by the same percentage. Maybe the increase can occur not simultaneously, the important thing is that there is a general increase in the price of

goods continuously for a certain period. An increase that occurs even once in a large percentage is not inflation.

8. Dow Jones Index

The Dow Jones index, also known as the Dow Jones Industrial Average (DJIA), is one of the stock market indices founded by The Wall Street Journal editor and founder of Dow Jones & Company Charles Dow. Dow made this index as a way to measure the performance of industrial components in the American stock market. At present DJIA is the oldest US market index that is still running. The Dow Jones index is the average value of 30 certain industrial companies known as Blue Chip Stock traded on the New York Stock Exchange (NYSE), this index is a reflection of the performance of stocks that have high quality and reputation. Eun and Shim (1989) say the Dow Jones Index is the average of the largest stock indexes in the world. Therefore, its movements can affect the movements of other global stock indices, including the CSPI. This is what is called the contagion effect theory. According to Mansyur (2005), there are linkages between exchanges globally because foreign investors invest their capital in exchanges throughout the world so that between exchanges in the world have global links.

9. Thinking Framework

Based on the existing theoretical basis, Stock Index fluctuations are influenced by macroeconomic factors such as Exchange Rates, Interest Rates, and Inflation. In addition, a country's index can also be influenced by other country's stock indexes, such as the Dow Jones Index. Previous research also showed the influence of the Dow Jones Index, Exchange Rates, Interest Rates, Inflation on the CSPI showed contradictory results. Based on this, then analyzing the movement of the CSPI becomes very necessary, especially for investors. Broadly speaking, the framework of thought in this study can be described as follows:

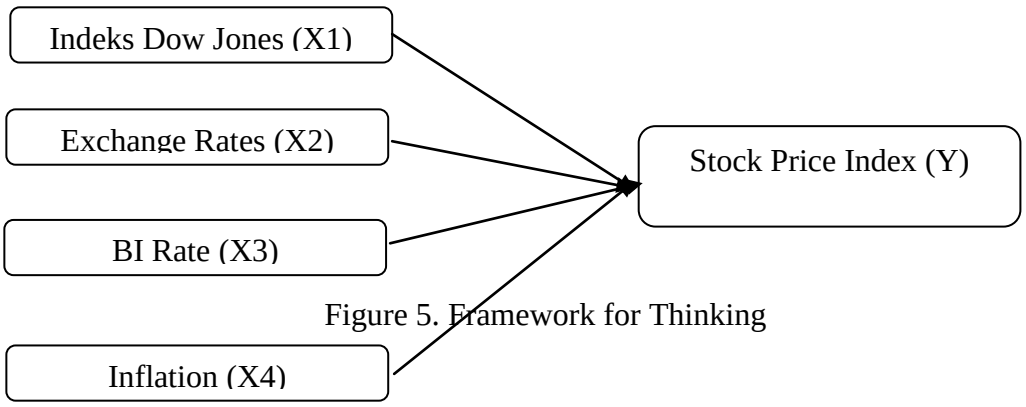


Figure 5. Framework for Thinking

H1: Dow Jones index is thought to have a positive effect on the CSPI.
H2: Rupiah Exchange Rate is suspected to have a negative effect on the CSPI.
H3: BI interest rates are suspected to have a negative effect on the CSPI.
H4: Inflation is thought to have a negative effect on the CSPI.

RESEARCH METHODS

Types of research

This type of research is causality, namely research that aims to test the hypothesis and determine the effect of the independent variables on the dependent variable. This study aims to examine the effect of independent variables, namely the Dow Jones Index, Exchange Rates, BI Interest Rates, and Inflation on the dependent variable, namely the Financial Sector Stock Price Index (CSPI). This research is applied research with quantitative analytical analysis. Quantitative research methods can be interpreted as research methods based on the philosophy of positivism, used to examine specific populations or samples.

Operational Definition and Variable Measurement

This study uses two types of variables, namely the dependent variable and the independent variable. Financial Sector Stock Price Index (Y) in this study is used as the dependent variable. Dow Jones Index (X1), Rupiah Exchange Rate (X2), BI Interest Rate (X3), and Inflation (X4) as independent variables

Table 1. Operational Definitions

Variable	Measurement
Financial Sector Stock Price Index (Y)	The CSPI is calculated using the value weighted method based on market capitalization. The CSPI calculation covers all financial sector shares contained in the Jakarta Stock Industrial Classification (JASICA) classification. This index is calculated based on the basic value on December 28, 1995. Indeks = $\frac{\Sigma (PxQ)}{Nd} \times 100\%$ Information : P = Share Price Q = Share Weight Nd = Basic Value
Dow Jones Index (X1)	The Dow Jones index is calculated using the price weighted method. The Dow Jones Index is the main index on the New York stock exchange and its calculation uses a sample of all stocks listed on the NYSE stock exchange. Indeks = $\frac{\Sigma P}{Nd} \times 100\%$ Information : P = Share Price Nd = Basic Value
Rupiah Exchange Rate (X2)	The Rupiah Exchange Rate used is the middle exchange rate of the monthly BI transactions in the 2009-2018 period. The measurement is in units of Rp / US $.
BI Interest Rate (X3)	The interest rate used is the Bank Indonesia Interest Rate with monthly data for the 2009-2018 period. The measurement is in units of percent (%).
Inflation (X4)	The inflation used is monthly inflation for the period 2009-2018. The measurement is in units of percent (%).

Population and Sample

The population in this study is the Financial Sector Stock Price Index (CSPI) data from December 1995 to December 2018. The sampling method used was purposive sampling method, where sampling is adjusted to the requirements. The sample in this study is the monthly data of the Dow Jones Index, Rupiah Exchange Rates, SBI Interest Rates, Inflation, and the CSPI within 10 years (120 months) from January 2009 to December 2018 where the CSPI experienced fluctuations in that period.

Table 2. Population and Samples

Information	Amount of data
Population of CSPI from December 1995 to December 2018	277 Months
CSPI from January 2009 to December 2018	120 Months
Number Of Samples	**120 Months**

Data analysis method

The data analysis method used in this study is using multiple linear regression which is used to determine the effect of the Dow Jones Index, Rupiah Exchange Rates, BI Interest Rates, and Inflation on the JCI movement. To see how much influence the independent variable has on the dependent variable the following regression line equation is used:

$$Yt = a + b1X1t + b2X2t + b3X3t + b4X4t + e \text{ .... …… ..... (3.1)}$$

Information:

Y = Financial Sector Stock Price Index (CSPI)

a = Constant

bi = Regression line coefficient

$X1$ = Dow Jones index

$X2$ = Rupiah Exchange Rates

$X3$ = SBI interest rate

$X4$ = Inflation

t = Time Series

e = Standard Error

The analysis tools used for processing statistical data in this study use the Eviews 10. program. By using the Eviews 10 program, accurate and precise results can be obtained, processing the data quickly. The tests conducted in this study are as follows:

1. Stationary Test

Before conducting data analysis, it is necessary to know whether the data used is stationary or not. Generally regression using time series data is not stationary. Data is said to be stationary if the data is flat, does not contain trend components with constant diversity, and there are no periodic fluctuations. To test the stationarity of the data, the unit root test method is used, namely the Dickey-Fuller (DF) test using the following equation (Gujarati, 2004: 814):

$$Yt = \rho\, Yt - 1 + \mu t \text{ …… ... …… .. (3.2)}$$

$$\Delta Yt = (\rho - 1)\, Yt - 1 + ut = \delta\, Yt - 1 + \mu t \text{ .. …… (3.3)}$$

The above equation will form the following hypothesis:

H0 : $\delta = 0$ or the data is not stationary

H1 : $\delta \neq 0$ or stationary data

In practice, there are three forms of the Dickey-Fuller test equation as follows:

1) Model without intercepts
2) Model with intercept
3) Model with interception and time-independent input

Determination of the model with or without intercept depends on the data that will be used for model selection. Previous models assume (μt) does not correlate. To anticipate these correlations, Dickey-Fuller developed the above test known as: Augmented Dickey-Fuller (ADF) test with the following equation (Gujarati, 2004: 817):

$$\Delta Yt = \beta 1 + \beta 2t + \delta Yt - 1 + \Sigma \alpha i \Delta Yt - 1 + mi = 1ut \ldots \ldots\ldots\ldots (3.4)$$

Based on the above equation, the Dickey-Fuller model can be determined to perform the ADF test.

2. Classical Assumption Test

a. Data Normality Test

This normality test is used to find out whether the independent variable data and the dependent variable data on the equation of the regression model are normally distributed or not. The statistical analysis used is Kolmogrov-Smirnov. In decision making, seen from the test results. If the significance probability results are greater than 5%, then the data used are normally distributed. Conversely, if the significance probability value is smaller than 5%, then the data is not normally distributed (Ghozali, 2012: 160).

b. Multicollinearity Test

Multicollinearity test aims to test whether the regression model found a correlation between independent variables (Ghozali, 2012: 105). A good regression model should not occur correlation between independent variables. If the independent variables are mutually correlated, then these variables are not orthogonal. Orthogonal variables are independent variables whose correlation value between variables is equal to zero. To detect the presence or absence of multicollinearity in the model by looking at the tolerance value and variance inflation factor (VIF), tolerant measuring the variability of the independent variable, looking at the condition index value (CI). The cut off value commonly used to show the presence of multicollinearity is a tolerant value <0.1 or equal to a VIF value> 10

c. Heterokedasticity Test

Heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. (Ghozali, 2012: 139). A good regression model is one that is homoscedasticity or one that does not experience heterokedasticity. Heteroscedasticity testing can be done using the Glejser test that is by way of regressing between independent variables with absolute residual values, if the significance value in the t test> 0.05 for all independent variables then heteroscedasticity does not occur

d. Autocorrelation Test

Autoceralization testing is used for the presence or absence of correlations or relationships between confounding variables during a certain period with the previous variable. To detect the presence of autocorrelation or can not be known using the Durbin Watson values then compared to the Durbin Watson table (dl and du). If du <d count <4-du then

there is no autocorrelation. Test criteria is to compare the value of d with the value of the Durbin Watson table (Gujarati, 2004: 470) and have conclusions as follows:
1) If 0 <d <dl or 4- dl <d <4, then the data is autocorrelated.
2) If du <d <4-du, then there is no autocorrelation in the data.
3) If dl ≤ d ≤ dl or 4- du ≤ d ≤ 4- dl, then there is no conclusion.

3. Hypothesis Test

a. F test

The F test is used to test the effect of all the independent variables simultaneously (together) on the dependent variable. If the results of the F test produce a significant value smaller than 0.05, it can be said that the independent variables together or simultaneously have a significant effect on the dependent variable. (Ghozali, 2012: 98)

b. Coefficient of Determination

Analysis of the coefficient of determination is also called the deciding coefficient which is used to determine the ability of the independent variable to explain simultaneously the effect on the dependent variable. The value of the coefficient of determination (R2) is between zero and one. independent of the dependent variable, or the variation of the independent variable used in the model does not explain the slightest variation in the dependent variable. Conversely, if R2 is equal to 1, then the percentage of the contribution of influence given by the independent variable to the dependent variable is perfect or the variation of the independent variable used in the study can be explained and influences the dependent variable to draw conclusions. (Ghozali, 2012: 97).

c. T-statistic test

The t test is usually used to show how far the influence of one independent variable, namely the ownership structure, the size of the board of commissioners, and the board's bonus scheme to the dependent variable is earnings management. T test can be done by assessing the probability of significance of each variable contained in the output of the regression results. If the significance value of t is less than 0.05, it can be said that there is a strong influence between the independent variables on the dependent variable. (Ghozali, 2012).

FINDINGS AND DISCUSSION

Research result

1. Descriptive Statistics Analysis

General description of the research data for the period January 2009 to December 2018 which is monthly data can be described as follows:

Table 3. Statistics on Stock Indices in the Financial and Macroeconomic Sectors

	LN_CSPI	LN_DJIA	LN_KURS	LN_BI_RATE	LN_INFLASI
Mean	2.769669	4.180697	4.051228	0.794135	0.672857
Median	2.805135	4.209119	4.066364	0.812913	0.650786
Maximum	3.075105	4.422562	4.181239	0.942008	0.962369
Minimum	2.164174	3.848985	3.931051	0.628389	0.382017

	LN_CSPI	LN_DJIA	LN_KURS	LN_BI_RATE	LN_INFLASI
Std. Dev.	0.191153	0.136067	0.077614	0.077827	0.149949
Skewness	-0.779567	-0.181573	-0.092495	-0.654831	0.202434
Kurtosis	3.695528	2.344183	1.426446	2.519527	1.889002
Jarque-Bera	14.57329	2.809854	12.55147	9.730344	6.991177
Probability	0.000685	0.245385	0.001881	0.007711	0.030331
Sum	332.3602	501.6836	486.1473	95.29622	80.74281
Sum Sq. Dev.	4.348177	2.203193	0.716844	0.720788	2.675671
Observations	120	120	120	120	120

Source: Eviews Data Processing Results

The table above shows that the study uses the dependent variable Financial Sector Stock Index while the independent variable is the Dow Jones Index, the USD Exchange Rate, the BI Interest Rate, and Inflation. The number of samples in each variable is 120 or the data used are monthly data in the period January 2009 to December 2009.

2. Stationary Test

This study uses time series data so that a data stationarity test is needed to determine whether the study data is stationary or not. The stationarity of a time series variable is important because it influences the results of the regression estimation. Regression between variables that are not stationary will produce the phenomenon of spurious regression (spurious regression). The data stationarity test was performed with the Augmented Dickey-Fuller unit root test using Eviews showing that the Dollar Dollar stationary variable at level I (0) for all confidence levels was 1%, 5% and 10%. Stationary Financial Sector Price Index Variable at level I (0) for a confidence level of 5% and 10%. While the stationary Dow Jones variable at level I (0) for a 10% confidence level. Then the variable BI Rate and Inflation are not stationary at level I (0) for all confidence levels of 1%, 5%, and 10%. But overall stationary variables on the 1st difference I (I) for all confidence levels are 1%, 5%, and 10%.

Table 4. ADF data stationarity test for variables Y, X1, X2, X3 at the level of level and level of 1st difference

Variabel	ADF Statistik			
	Level	Prob*	*1st Difference*	Prob*
Ln_CSPI	-4.01939	0.0105**	-11.01147	0.0000*
Ln_DJIA	-3.34193	0.0646***	-12.33488	0.0000*
Ln_Kurs	-4.45955	0.0026*	-8.27541	0.0000*
Ln_BI Rate	-1.79375	0.7017	-6.93653	0.0000*
Ln_Inflasi	-3.13586	0.103***	-7.62123	0.0000*
Critical Value 1%	-4.036983		-4.038365	

5%	-3.448021		-3.448681	
10%	-3.149135		-3.149521	
Catatan: **99% significance, **95% significance, ***90% significance*				

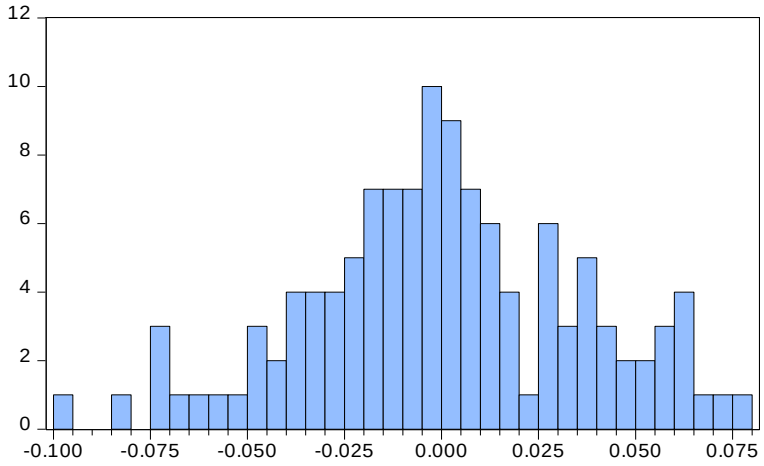
Source: Eviews Data Processing Results

3. Classical Assumption Test

a. Normality test

The normality test aims to test whether in the regression model, confounding or residual variables have a normal distribution. A good regression model is one that has a normal or near normal distribution. The method used is to use Jarque-Bera statistics. This test tool is usually called J-B which is available in the Eviews program. The criteria used in this test is to compare the level of probability obtained with the alpha level used, where the data is said to be normally distributed when sig> alpha (Ghozali, 2012). Following are the results of the Jarque_Bera test in the Table:

Table 5. Jarque-fallow Normality Test



Series: Residuals
Sample 2009M01 2018M12
Observations 120

Mean	-1.35e-15
Median	-0.000887
Maximum	0.078309
Minimum	-0.099240
Std. Dev.	0.035585
Skewness	-0.120373
Kurtosis	2.897129
Jarque-Bera	0.342708
Probability	0.842523

Source: Eviews Data Processing Results

From the results of normality testing, it appears that the residual (error) spread normally seen from the results of prob = 0.842523> 0.05, so the normality assumption is fulfilled.

b. Multicollinearity Test

Multicollinearity test aims to test whether the regression model found a correlation between independent variables. A good regression model should not occur correlation between independent variables. One way to analyze the presence or absence of the influence of multicollinearity in this study is to look at the value of Centered Variance Inflation Factor (VIF) using the Eviews program 10. A data can be said to be free from the symptoms of multicollinearity if it has a VIF value of less than 5. Following are the Eviews results from This multicollinearity test can be seen from the Table:

Table 6. Multicollinearity Test (Variance Inflation Index)

Variance Inflation Factors
Date: 10/29/19 Time: 23:51
Sample: 2009M01 2018M12
Included observations: 120

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LN_DJIA	0.002393	3834.663	4.023882
LN_KURS	0.005723	8605.389	3.130996
LN_BI_RATE	0.004308	251.1884	2.369846
LN_INFLASI	0.000820	35.68896	1.675178
C	0.035898	3287.554	NA

Source: Eviews Data Processing Results

Based on the table above, it can be seen that the value in the VIF column is the value of the independent variable <5. So it can be concluded that all the independent variables of this regression model do not have multicollinearity problems. This shows that the regression model is feasible to use because there are no variables experiencing multicollinearity.

c. Heteroscedasticity Test

Heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. To detect the presence or absence of heterokedasticity, the glacier model is used. This model is done by regressing the absolute value of ei with the independent variable. If there is no independent variable that significantly influences the dependent variable (absolute value ei), then there is no heterokedastisitas (Ghozali, 2012). If the calculated probability value> 0.05, then there is no heteroscedasticity. Eviews results from the heterokedasticity test can be seen from the following table:

Table 7. Heteroscedasticity Test (Glejser)

Heteroskedasticity Test: Glejser

F-statistic	1.810102	Prob. F(4,115)	0.1316
Obs*R-squared	7.107707	Prob. Chi-Square(4)	0.1303
Scaled explained SS	7.339889	Prob. Chi-Square(4)	0.1190

Source: Eviews Data Processing Results

Heteroscedasticity test results shown in table 4.8 show that each independent variable has a significance > 0.05. So it can be concluded that there is no heteroscedasticity in this regression model, in other words all independent variables in this model have the same variance / homogeneous so it is feasible to use.

d. Autocorrelation Test

The autocorrelation test aims to test whether in the regression model there is a correlation between the error of the intruder in the t period and the error of the intruder in the t-1 period. This problem arises because residuals are not free from one observation to another. To find out the existence of autocorrelation in a regression model, Durbin Watson test was performed with the following conditions (Ghozali, 2012: 111):

0 <d <dL = There is a positive autocorrelation

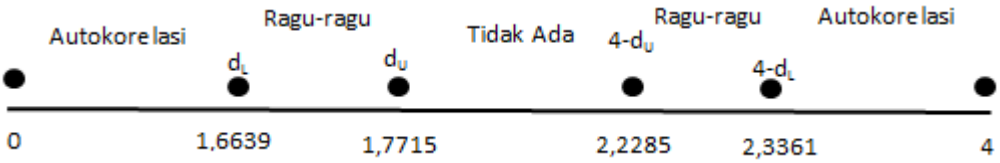
dL ≤ d ≤ du = There is no positive autocorrelation or doubt

4- dL <d <4 = There is a negative autocorrelation

4 - du ≤ d ≤ 4 - dL = There is no negative autocorrelation or doubt

du <d <4 - du = There is no positive or negative autocorrelation

The Durbin Watson table shows that the value of dL = 1.6639 and the value of du = 1.7715 so that the criteria can be determined whether or not autocorrelation occurs as shown in the figure below:



Source: Processed by Researchers

Figure 6. Regional Criteria for Occurrence of Autocorrelation

The following are the results of the autocorrelation test processing using Eviews 10 as follows:

Table 8. Autocorrelation Test (Durbin Watson)

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 10/30/19 Time: 00:02
Sample: 2009M01 2018M12
Included observations: 120
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_DJIA	-0.010011	0.035889	-0.278949	0.7808
LN_KURS	0.027712	0.055564	0.498749	0.6189
LN_BI_RATE	0.023838	0.048232	0.494244	0.6221
LN_INFLASI	-0.013109	0.021051	-0.622740	0.5347
C	-0.080150	0.139250	-0.575584	0.5660
RESID(-1)	0.738122	0.096203	7.672577	0.0000
RESID(-2)	-0.056400	0.096340	-0.585427	0.5594

R-squared	0.471743	Mean dependent var	-1.35E-15
Adjusted R-squared	0.443694	S.D. dependent var	0.035585
S.E. of regression	0.026541	Akaike info criterion	-4.363667
Sum squared resid	0.079602	Schwarz criterion	-4.201063
Ln likelihood	268.8200	Hannan-Quinn criter.	-4.297633
F-statistic	16.81852	Durbin-Watson stat	1.830755
Prob(F-statistic)	0.000000		

Source: Eviews Data Processing Results

Based on the results of the above processing, the value of Durbin Watson shows a figure of 1.830755. This value is at du <d <4 - du, which is 1.7715 <1.8307 <2.22285. So it can be concluded that there is no autocorrelation.

4. Hypothesis Testing

From the results of the classical assumptions that have been done, it can be concluded that the regression model in this study is feasible because the regression model is free from data normality problems, does not occur multicollinearity, heterocedasticity does

not occur, and there is no autocorrelation. Furthermore, hypothesis testing can be done including the F test, t test, and the coefficient of determination (R2) test.

Table 9. Regression Model Equation Test

Dependent Variable: LN_CSPI
Method: Least Squares
Date: 10/30/19 Time: 00:06
Sample: 2009M01 2018M12
Included observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_DJIA	1.686441	0.048920	34.47345	0.0000
LN_KURS	-0.722600	0.075652	-9.551665	0.0000
LN_BI_RATE	0.002757	0.065637	0.042011	0.9666
LN_INFLASI	0.008129	0.028642	0.283797	0.7771
C	-1.361070	0.189468	-7.183641	0.0000

R-squared	0.965345	Mean dependent var	2.769669
Adjusted R-squared	0.964139	S.D. dependent var	0.191153
S.E. of regression	0.036198	Akaike info criterion	-3.758827
Sum squared resid	0.150688	Schwarz criterion	-3.642682
Ln likelihood	230.5296	Hannan-Quinn criter.	-3.711660
F-statistic	800.8473	Durbin-Watson stat	0.561202
Prob(F-statistic)	0.000000		

Source: Eviews Data Processing Results

a. F test

The F statistical test basically shows whether all independent variables or independent variables entered in the model have an influence together on the dependent variable or the dependent variable. The hypothesis is as follows:

Ho: The independent variables together do not have a significant effect on the dependent variable.

H1: The independent variables together have a significant effect on the dependent variable.

The basis of decision making is as follows:

If Fcount <F table and P-value> 0.05, Ho is accepted.

If Fcount> Ftable and P-value <0.05 then Ho is rejected.

Based on the above table for the F test, the Fcount value is 800.8473> Ftable is 2.45 and the P-value is 0.00000 <0.05. So that Ho is rejected, which means that the independent variables together have a significant effect on the dependent variable.

b. T test

Financial Sector Stock Price Index = - 1.361070 + 1.686441 Dow Jones Index - 0.722600 Dollar Exchange Rate + 0.002757 BI Rate + 0.008129 Inflation

T test results can be seen in the table above. If the value of prob. t arithmetic (shown in Prob.) is smaller than the error rate (alpha) 0.05 (which has been determined) then it can be said that the independent variable has a significant effect on the dependent variable, whereas if the value of prob. t arithmetic greater than the error rate of 0.05, it can be said that the independent variable has no significant

effect on the dependent variable. The Dow Jones Index and Dollar Exchange Rate have prob. t count 0.0000 <0.05 so that it can be said to have a significant effect on the Financial Sector Stock Price Index (CSPI). While inflation has a problem. t count 0.7771> 0.05 so that it can be said to have no significant effect on the Financial Sector Stock Price Index (CSPI) and the BI Rate has a prob. t count 0.9666> 0.05 so that it can be said to have no significant effect on the Financial Sector Stock Price Index (CSPI).

c. Coefficient of Determination (R2)

The coefficient of determination essentially measures how far the model's ability to explain the variation of the dependent variable. The coefficient of determination is between 0 and one. A small R2 value means that the ability of independent variables to explain the variation of the dependent variable is very limited. A value close to one means that the independent variables provide almost all the information needed to predict variations in the dependent variable (Ghozali, 2012: 97).

Based on table 4.10 above, the value of R-square (R2) = 0.965345. This shows that 96.53% can be explained that together the Dow Jones Index, Dollar Exchange Rate, BI Rate and Inflation affect the movement of the CSPI by 96.53%. While the remaining 3.47% of the JCI movement was influenced by other factors not observed in this study.

Discussion of Research Results

Based on the results of the F test that has been done it can be concluded that the Dow Jones Index, Dollar Exchange Rate, BI Rate and Inflation have a significant effect on the Financial Sector Stock Price Index. While based on the results of partial tests (t tests) that have been carried out it can be concluded that the effects found in the table below:

Table 10. Relationship of Independent Variables to Dependent Variables

Variable	Influence	Significance (alpha 5%)
Dow Jones Index (X1)	Positive (+)	Significant
Dolar Exchange Rate (X2)	Positive (+)	Significant
BI Rate (X3)	Negative (-)	Not Significant
Inflation (X4)	Positive (+)	Not Significant

Source: Processed by researchers

1. Influence of the Dow Jones Index on CSPI

Hypothesis of the influence of the Dow Jones Index on CSPI

H0: The Dow Jones index is thought to have no effect on the CSPI.

H1: Dow Jones index is thought to have a positive effect on the CSPI.

Basic decision making:

If the value of t-statistics or t arithmetic <t table (1.9808) then H0 is accepted

If the value or t count> t table (1.9808) or (for the left) t-statistic value <-t table (-1.9808) then H0 is rejected.

Based on the results of the Eviews 10 data in table 4.10, the Dow Jones Index variable has a value of t arithmetic 34.47345> t table = 1.9808 and p-value 0.00 <0.05 so

that this variable is in the rejection area H0 which means that the Dow Index variable Jones is a variable that affects the CSPI. The basis for decision making can be interpreted with the figure in 4.2 where the t value of the Dow Jones Index variable is in the rejection area of H0 (shaded area) so that the Dow Jones Index variable partially influences the CSPI.

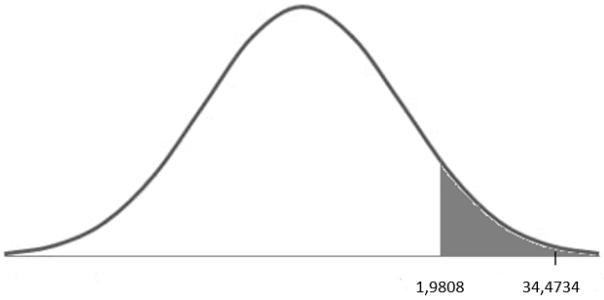


Figure 7. Acceptance & Rejection Areas Test Results t Dow Jones Index Variables
Source: Processed by researchers

Table 10 shows that the coefficient of the Dow Jones Index is 1.68. From these figures it can be interpreted that the relationship that occurs between the Dow Jones Index variable and the CSPI is a direct (positive) relationship. The results of this study are consistent with the initial hypothesis that the Dow Jones Index has a significant effect and is positively correlated to the CSPI. The Dow Jones Index is one of the largest stock indexes in the world, so any changes to the Dow Jones Index can affect almost all world stock indices including the financial sector. The influence of the Dow Jones Index on the CSPI is positive, which means that an increase in the Dow Jones Index will cause an increase in the CSPI on the Indonesia Stock Exchange. This is caused by the positive sentiment from investors about the condition of the world economy. Foreign investors, especially institutional investors, dominate the proportion of share ownership in the Indonesian Capital Market, so everything that happens in America will certainly affect the psychology of investors who invest in the Indonesian Capital Market.

2. Effects of Dollar Exchange Rates on CSPI

Hypothesis of the influence of the Dollar Exchange Rate on CSPI

H0: Dollar exchange rate is suspected to have no effect on CSPI.

H1: Dollar exchange rate is suspected to have a negative effect on CSPI.

Basic decision making:

If the value of t-statistics or t arithmetic <t table (1.9808) then H0 is accepted

If the value or t count> t table (1.9808) or (for the left) t-statistic value <-t table (-1.9808) then H0 is rejected.

Based on the results of Eviews 10 data in table 4.10, the Dollar Exchange variable has a value of t arithmetic -9.551665 <t table = - 1.9808 and p-value 0.00 <0.05 so that this variable is in the rejection region H0 which means that the Exchange Rate variable The dollar is a variable that affects the CSPI. The basis for decision making can be interpreted with the figure in 4.3 where the t value of the dollar exchange rate variable is

in the rejection area H0 (shaded area) so that the dollar exchange rate variable partially influences the CSPI.

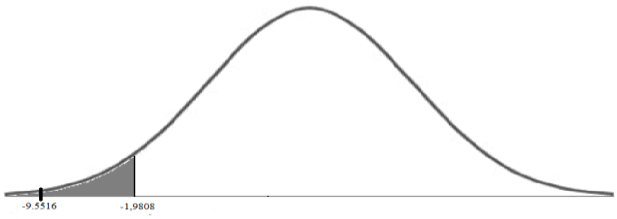


Figure 8. Acceptance & Rejection Areas of Test Results t Dollar Exchange Rate Variables

Source: Processed by researchers

In the results of table 4.10 it was found that the coefficient of the dollar exchange rate was -0.72. From these figures it can be interpreted that the relationship that occurs between the Dollar Exchange Rate variable and the CSPI is the opposite relationship (negative). The results of this study are consistent with the initial hypothesis that the dollar exchange rate has a significant effect and is negatively correlated to the CSPI. Dollar exchange rate is a strong currency so that the changes will affect almost the entire economy, especially the financial sector. When there is an increase in the Dollar Exchange Rate (appreciation), the performance of the Financial sector may decline due to one of its roles as an intermediary institution. Vice versa, when the Dollar Exchange Rate decreases (depreciation), the CSPI will increase.

3. Effect of BI Rate on CSPI

Hypothesis of the effect of the BI Rate on CSPI

H0: BI Rate is thought to have no effect on CSPI.

H1: BI Rate is thought to have a negative effect on CSPI.

Basic decision making:

If the value of t-statistics or t arithmetic <t table (1.9808) then H0 is accepted

If the value or t count> t table (1.9808) or (for the left) t-statistic value <-t table (-1.9808) then H0 is rejected.

Based on the results of the Eviews 10 data in table 4.10, the BI Rate variable has a t value of 0.042> t table = - 1.9808 and a p-value of 0.96> 0.05 so that this variable is in the H0 reception area which means that the BI Rate variable is a variable that does not affect the CSPI. The basis for decision making can be interpreted with the figure in 4.4 where the t value of the BI Rate variable is in the H0 reception area (the area that is not shaded) so that the BI Rate variable partially has no effect on the CSPI.

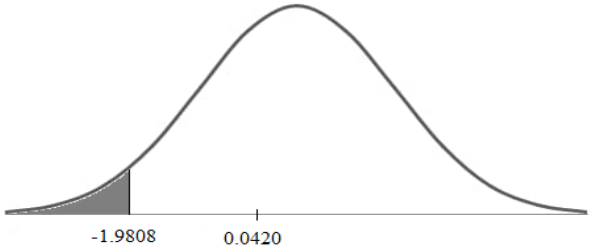


Figure 9. Acceptance & Rejection Region of Test Result of BI Rate Variable

Source: Processed by researchers

The basis of decision making can be interpreted in Figure 4.4 where the t value of the BI Rate variable is located in the H0 reception area (the area that is not shaded) so that the BI Rate variable partially has no effect on the CSPI. The treatment of the direction test found a coefficient value of 0.042. From these figures it can be interpreted that the relationship that occurs between the BI Rate variable and the CSPI is a direct (positive) relationship.

The results of this study contradict the hypothesis statement that was built at the beginning that changes in the BI Rate have a significant effect on the CSPI. When the BI Rate is raised by Bank Indonesia, owners of large funds will anticipate by selling their shares and allocating funds to banking products, but in their role in channeling loans will be hampered because loan interest rates also increase. The reaction will push stock prices down so that the CSPI will automatically decline. Empirical results show that the BI Rate has a positive effect on the CSPI, however, this does not have a significant effect. The results of this study are in line with the results of Lawrence (2013) and Kewal (2012) which states that the BI Rate has no significant effect on the CSPI. On the contrary, the results of this study are not in line with those of Kowanda (2015), Darwati (2014), Wibowo (2012), Sudarsana (2014), Pasaribu (2013), Manurung (2016), Machmud (2013), Sampurna (2016) and Astuti (2016) which states that the BI Rate has a significant effect on the CSPI.

4. Influence of Inflation on CSPI

Hypothesis of the effect of inflation on CSPI

H0: Inflation is thought to have no effect on the CSPI.

H1: Inflation is thought to have a negative effect on the CSPI.

Basic decision making:

If the value of t-statistics or t arithmetic <t table (1.9808) then H0 is accepted

If the value or t count> t table (1.9808) or (for the left) t-statistic value <-t table (-1.9808) then H0 is rejected.

Based on the results of the Eviews 10 data in table 4.10, the Inflation variable has a t value of 0.2837> t table = - 1.9808 and a p-value of 0.77> 0.05 so that this variable is in the H0 reception area which means that the Inflation variable is a variable that does not affect the CSPI. The basis for decision making can be interpreted with the figure in 4.5 where the t value of the Inflation variable is in the H0 reception area (the area that is not shaded) so that the Inflation variable partially has no effect on the CSPI.

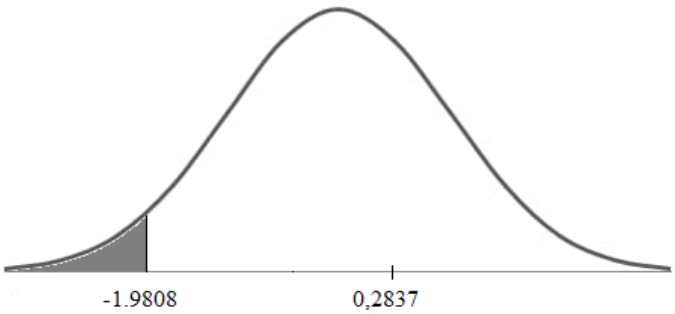


Figure 10. Acceptance & Rejection Areas of Test Results for Inflation Variables
Source: Processed by researchers

The basis for decision making can be interpreted in Figure 10 where the t value of the Inflation variable is in the H0 reception area (the area that is not shaded) so that the Inflation variable partially has no effect on the CSPI. The treatment of the direction test found a coefficient value of 0.0081. From these figures it can be interpreted that the relationship that occurs between the Inflation and CSPI variables is a direct (positive) relationship.

The results of this study contradict the hypothesis statement that was built at the beginning that inflation had a significant effect on the CSPI. Higher inflation is a negative signal for investors investing in the capital market. Investors will tend to release their shares if there is an increase in inflation. This is because an increase in high inflation causes an increase in investment risk in stocks. Empirical results show that inflation does not have a significant effect on the movement of the CSPI. This is because the rate of return from investing in stocks is above the increase in the rate of inflation. This can be seen from the movement of the inflation rate which has a trendline that tends to decline by an average of 5.00% during the 2009-2018 period, while the movement of the Financial Sector Stock Price Index has an increasing trendline during the 2009-2018 period with an average growth of 23 , 47% per year.

The results of this study are in line with the results of the study by Kewal (2012), Pasaribu (2013), Appa (2014), Kowanda (2015) and Lawrence (2013) who stated that Inflation had no significant effect on CSPI. In contrast, the results of this study are not in line with the research of Sudarsana (2014), Siregar (2014), Manurung (2016), Machmud (2013), Astuti (2016) and Alianty (2016) which state that inflation has a significant effect on the CSPI.

CONCLUSION AND SUGESTION

In a study of the Effects of the Dow Jones Index and Indonesian Macroeconomic Variables on the Indonesian Financial Sector Stock Price Index Post the 2008 Global Financial Crisis, the following conclusions can be drawn:

1. Simultaneously, the variables of the Dow Jones Index, Dollar Exchange Rate, BI Rate, and Inflation significantly influence the dependent variable of the CSPI movement with a coefficient value of 96.53%. This means that the Dow Jones Index variable, Dollar Exchange Rate, BI Rate, and Inflation affect 96.53% of the movement of the Financial Sector Stock Price Index (CSPI), the remaining 3.47% is influenced by other factors outside the study.
2. The Dow Jones Index variable partially has a significant effect and is positively correlated with the CSPI dependent variable. This condition shows that increasing the Dow Jones Index will cause an increase in the CSPI, and vice versa if the Dow Jones Index has decreased will result in a decrease in the CSPI.
3. Dollar Exchange Variable partially has a significant and negatively correlated effect on the CSPI dependent variable. These conditions indicate that an increase in the Dollar Exchange Rate will result in a decrease in the CSPI, and vice versa if the Dollar Exchange Rate has decreased will result in an increase in the CSPI.
4. The BI Rate variable partially has no significant effect and is positively correlated with the CSPI dependent variable. This condition shows that an increase in the BI

Rate will result in an increase in the CSPI, and vice versa if the BI Rate decreases will result in a decrease in the CSPI.

5. Inflation variable partially does not have a significant effect and positively correlated to the CSPI dependent variable. This condition shows that the increase in inflation will lead to an increase in the CSPI, and vice versa if the inflation has decreased will result in a decrease in the CSPI.

SUGGESTION

Based on the research results and conclusions obtained, the suggestions that can be given are as follows:

1. To predict the movement of the Financial Sector Stock Price Index in the Indonesian Stock Exchange in the future, it is necessary to consider the variables examined in this study because the correlation of independent variables explains the variation in changes in the Financial Sector Stock Price Index of 96.53% and for further research it is expected to consider adding other independent variables.
2. For Investors, it is better to pay attention to global information, namely fluctuations in the prices of foreign stock indexes such as the Dow Jones Index and pay attention to information regarding macroeconomic variables issued by Bank Indonesia such as the Dollar Exchange Rate, BI Rate, and Inflation due to the presence of This information can be used to predict the CSPI which is then used to make the right decision regarding the investment.
3. For further research, it is expected that the independent variable used is the Stock Price Index of the Financial sector whose country has a stock investment in the country's Stock Exchange which is used as the dependent variable of the study. The selection of the sample should also not only be limited to the Financial Sector Stock Price Index which represents every continent in the world, but can use the Financial Sector Stock Price Index of countries with weak economies that represent every continent in the world, such as Brazil, India, Turkey, Zimbabwe, and so on. Further research is also suggested to extend the observation period by more than a decade or 10 years so as to improve better data distribution.

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