

# ANALYSIS OF COMPOSITE STOCK PRICE INDEX IN INDONESIA, 1988-2020

Yova Tri Lestari<sup>1</sup>, Eva Yovanda<sup>2</sup>, Lisa Damayanti<sup>3</sup>, Risya Yuandita<sup>4</sup>, Firsty Ramadhona Amalia Lubis<sup>5</sup>, Nurul Azizah Az Zakiyyah<sup>6</sup>, Lestari Sukarniati<sup>7</sup>

Ahmad Dahlan University

E-mail: [yova1900010022@webmail.uad.ac.id](mailto:yova1900010022@webmail.uad.ac.id), [eva1900010028@webmail.uad.ac.id](mailto:eva1900010028@webmail.uad.ac.id),  
[lisa1900010026@webmail.uad.ac.id](mailto:lisa1900010026@webmail.uad.ac.id), [risya1900010007@webmail.uad.ac.id](mailto:risya1900010007@webmail.uad.ac.id),  
[firsty.ramadhona@ep.uad.ac.id](mailto:firsty.ramadhona@ep.uad.ac.id), [nurul.azzakiyyah@ep.uad.ac.id](mailto:nurul.azzakiyyah@ep.uad.ac.id), [lestari.sukarniati@ep.uad.ac.id](mailto:lestari.sukarniati@ep.uad.ac.id),

## ABSTRACT

**Purpose:** Research this aim to prove that existence influences variable macroeconomics namely GDP, money supply, and inflation against the Composite Stock Price Index. **Method:** The method used is Autoregressive Distributed Lag (ARDL) model approach, for study this could see dynamics with long-term and short-term relationships on the variables of GDP, money supply, inflation, and Composite Stock Price Index. **Data analysis:** This type of research includes correlation research. **Result and discussion:** Results of a study using the ARDL model with long term relationship only the money supply that affects the Composite Stock Price Index significantly significant because have score probability of 0.0001 less from the alpha value of 0.05. Third short-term relationship variable independent directly affect the Composite Stock Price Index significant i.e. GDP value probability 0.0083, JUB value probability 0.0443, and inflation score probability is 0.000, three variable the scoring probability not enough from the alpha value of 0.05, **Conclusion:** This is the government to stabilize and analyze all macroeconomic factors to attract investors to invest so that later it will help the economy in Indonesia.

**Keywords:** Composite Stock Price Index, Gross Domestic Product, Money Supply, Inflation

## INTRODUCTION

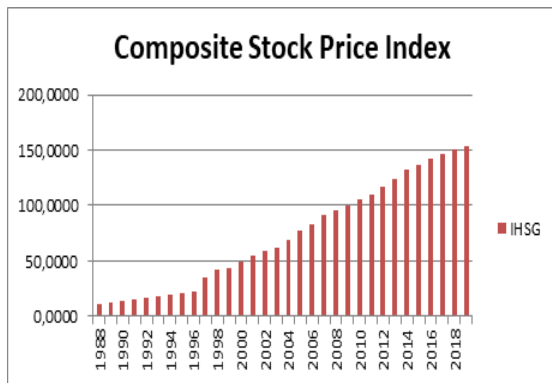
In today's era, many people, especially young people who already can invest in the capital market, of course only carry out investigations that have low risk to high risk. Not only are investments made in the domestic public but almost all countries pay attention to the capital market. The capital market itself provides a strengthening role in the economy in Indonesia. This will have an impact on investors to invest shares in the form of investigations in the capital market, but sometimes the stock price is not always constant, the stock price should move to fluctuate.

One method to determine stock price movements is to analyze the combined stock index prices. The composite stock price index or in English called the IDX Composite is the number of stock index price action that has been compiled and calculated by this method. generate trends in the evolution of stock prices. This index

includes all IDX normal and preferred stocks. The combined stock index price is one of the guidelines for investors to invest in the capital market because the Composite Stock Price Index is a reflection of the capital market (Subagyo et al.)

Stock prices do not always go up, but fluctuate. Stock price developments can be reflected in the Composite Stock Price Index, where an increase in the stock price index indicates a sluggish market. Changes in the Composite Stock Price Index do not only reflect the development of a country's company or industry, it can even be considered a fundamental change in a country. That is, the Composite Stock Price Index of a country experiencing a decline can be caused by economic conditions in that country experiencing problems. On the other hand, if the Composite Stock Price Index increases, it can indicate an improvement in the performance of the domestic economy. Therefore, an in-depth study is needed to determine the factors

associated with changes in stock prices (Murwaningsari, 2008:1).



Source: data processed from excel  
Figure 2. IHSG Chart

The graph of the Composite Stock Price Index above in 1988-1999 fluctuated movements but in 2000-2020 the movement tended to be stable in its increase. In the chart above, there should be something that affects the movement of the composite stock price index value. For this reason, this study will examine macroeconomic factors such as Gross Domestic Product, Money Supply, and inflation by testing using the Autoregressive Distributed Lag (ARDL) model

## BASIC THEORY

### Composite Stock Price Index (IHSG)

The basis for calculating the Composite Stock Price Index is the total market value of the listed shares. The total market value is the total multiplication of each listed share with the IDX price on the index day. The calculation is the point at which the share price has occurred in the market/exchange through various auction trading systems. The base value will be adjusted quickly if there is a change in the issuer's capital or if there are other factors that are not related to the share price. (Basit, 2020). Composite Stock Price Index is the average price share for current investor pattern will investment.

### Product Domestic Gross and Composite Stock Price Index

According to (Kurniawati & Khairunnisa, 2020) , *Gross Domestic*

*Product* (GDP) effect positive by significant on the Composite Stock Price Index from regulators and investors are advised for more notice policy related *Gross Domestic Product* (GDP) because of the effect on the Composite Stock Price Index. More GDP growth big will increase the power of society. This thing is an opportunity for the company to increase its sale. Enhancement sales result in the company getting the accompanying benefits with an increased price share company, so pushing the Composite Stock Price Index to become strong (Asmara & Suarjaya, 2018)

### Money Supply and Composite Stock Price Index

In study (Asmara & Suarjaya, 2018) the increase in the money supply was accompanied by a decrease in interest rates, thus supporting the increase in stock prices that accompanied the strengthening of the Composite Stock Price Index. And vice versa, when the money supply falls and interest rates rise, causing the JCI to fall, the stock price weakens. Study from (Rozak, 2015) stated that if the JUB experienced a decline, then the JCI would increase. In the study of circumstances when the money supply increases or decreases in value depending on the interest rate, it allows investors to experience losses or gains. For example, if the money supply falls, investors will choose the stock market and vice versa.

### Inflation and Composite Stock Price Index

Inflation is a price event that generally increases continuously by way of expansion. According to Ascension, inflation will hurt the capital market and money market investors and will have a positive impact on company performance. An increase in the selling price of products can increase per capita costs, labor costs, and raw materials (Sari, 2019) .

## HYPOTHESES

Based on the explanation of the theory above, the hypotheses that can be made in this study are:

H1 = Gross Domestic Product (GDP) has a positive effect on the Composite Stock Price Index.

H2 = The Money Supply hurts the Composite Stock Price Index.

H3 = Inflation has a positive effect on the Composite Stock Price Index.

## METHOD

This type of research includes correlation research which aims to determine the effect of the independent variable on the dependent variable. This writing is the Composite Stock Price Index (Y), while the independent variables are Gross Domestic Product (X1), Money Supply (X2), and Inflation (X3). In this study, quantitative secondary data was used in the form of time series data from 1988-2020. This data is processed using E-views 10, the data analysis technique used is the Autoregressive Distributed Lag (ARDL) model. The equation formed from the ARDL model is as follows:

$$\begin{aligned}
 Y_t = & \beta_0 + \beta_1 IHS G_{t-1} + \beta_1 IHS G_{t-2} \\
 & + \beta_1 IHS G_{t-3} + \beta_1 IHS G_{t-4} \\
 & + \beta_2 PDB_{t-1} + \beta_2 PDB_{t-2} \\
 & + \beta_2 PDB_{t-3} + \beta_2 PDB_{t-4} \\
 & + \beta_3 JUB_{t-1} + \beta_3 JUB_{t-2} \\
 & + \beta_3 JUB_{t-3} + \beta_3 JUB_{t-4} \\
 & + \beta_4 INFLASI_{t-1} \\
 & + \beta_4 INFLASI_{t-2} \\
 & + \beta_4 INFLASI_{t-3} \\
 & + \beta_4 INFLASI_{t-4}
 \end{aligned}$$

## RESULTS AND DISCUSSION

### Root Test

Root Test Test is a data test to determine whether each variable is used in stationary research or not. This test can use the *Augmented Dickey-Fuller*, *Phillips Perron*, and *Kwiatkowski Phillips Schmidt Shin* models. The third customizable type tested with E-Views 10 yields the following table.

Table 2. Test Root Test

Variable	t-Statistic	Probability	Description
Composite Stock Price Index	-7,045	0,0000	Stasioner
Gross domestic product	-5,662	0,0001	Stasioner
Amount of Money Supply	-5,402	0,0001	Stasioner
Inflation	-6,813	0,0000	Stasioner

Source: data processed from E-views 10

Source : Data processed

Based on the table above, shows that all dependent variables and independent variables have a probability value of less than alpha 0.05, so it can be declared that it has passed the stationary test. This test uses the *Augmented Dickey-Fuller* (ADF) model type with *first difference*.

### ARDL Model Estimation

The root test results in all stationary data with the same type at the first difference level, then already Fulfill condition in approach to the Autoregressive Distributed Lag (ARDL) model. Then the estimation results of the ARDL model are as follows.

Table 3 ARDL Model

Variable	Coefficient	t-Statistic	Prob.	Description
Log (Gross domestic product)	7,5634	3,1578	0,0083	Significant
Log (Amount of Money Supply)	-7,2896	-2,2463	0,0443	Significant
Inflation	0,3269	7,2087	0,0000	Significant
Adjusted-R Square	0,999			
F-stat	5154,698			
Akaike info criterion	2,804			

Source : Data processed

In table 2. the model selection uses the Akaike Info Criterion (AIC) that the Autoregressive Distributed Lag model (6,3,1,1).

### Bound Test

Table 3. Bound Test

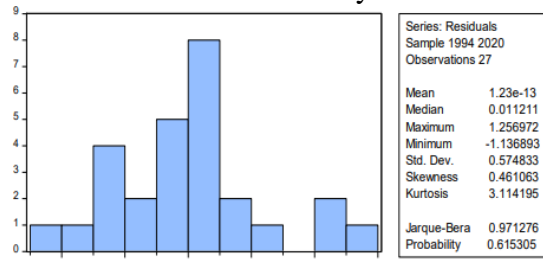
Test Statistic	Value	K
F-statistic	6,953	3
<b>Significant</b>	<b>I(0)</b>	<b>I(1)</b>
10%	2,37	3,2
5%	2,79	3,67
2,5%	3,15	4,08
1%	3,65	4,66

Source : Data processed

The results of table 4 show the F-statistic value of 6.953 which exceeds the upper and lower limits at significant levels of 10%, 5%, and 2.5%. and 1%. This means that all the data used in the study have cointegration over a long period, this test includes the qualified ARDL test.

### ARDL Estimation Residual Test

Table 4. Normality Test



Source : Data processed

Based on the graph above, the Jarque-Bera value is 0.971276 with a probability of 0.615305, the probability value is greater than alpha 0.05, which means that H0 is accepted, so this normality test is normally distributed.

### Heteroscedasticity Test

Table 5. Heteroscedasticity Test

F-statistic	2,0358
Obs*R-squared	19,0005
Scaled explained SS	3,9675
Prob. F(14,12)	0,1120
Prob. Chi-Square(14)	0,1649
Prob. Chi-Square(14)	0,9957

Source : Data processed

Based on table 3 the heteroscedasticity test using the Brusch Pagan Godfrey test method, the prob value. Chi-Square (14) of 0.1649 is greater than alpha 0.05, then H0 is accepted which means there is no heteroscedasticity problem.

### Autocorrelation Test

Table 6. Autocorrelation Test

F-statistic	0,7462
Obs*R-squared	3,5060
Prob. F(2,10)	0,4988
Prob. Chi-Square(14)	0,1732

Source : Data processed

Based on table 4, the autocorrelation test with the Breusch Godfrey method produces prob values. Chi-Square(14) is 0.1732. If this result is more than the alpha value of 0.05, then H0 is accepted, which means that there is no autocorrelation problem.

### ECT Test, Short-Term and Long-Term Estimation Test

Table 7. ARDL Long Run Form and . test results

Variable	Coefficient	Probability
CointEq(-1)	-0,105	0,0000
<b>Short-term</b>		
D(PDB1)	7,563	0,0083
D(JUB1)	-7,289	0,0443
D(INFLASI)	0,327	0,0000
<b>Long-term</b>		
PDB1	6,116	0,5731
JUB1	54,984	0,0001
INFLASI	6,116	0,0758
C	-725,309	0,0092

Source : Data processed

Based on table 5, the test uses the ARDL approach to obtain short-term and long-term estimation results. CoinEq test results (-1) are -0.105 and a probability value of 0.0000 which is significant at the 5% level, then cointegrated in the short estimation period in this model. The ARDL model (6,3,1,1) has included the requirements of this test because the coefficient of Quintiq is negative and the probability of the score is below 0.05 alpha. Furthermore, it can be concluded that the model will get equilibrium at a rate of 10.5% per year.

### Estimated results period short

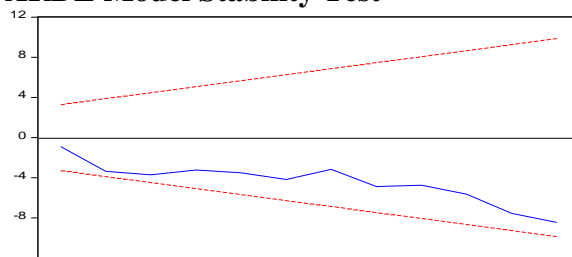
The first variable is the probability GDP value of 0.0083 which is smaller than alpha 0.05 with a coefficient of 7.563 so that the Gross Domestic Product (GDP) has a significant positive effect on the Composite Stock Price Index. When GDP increases by 1 billion, the Composite Stock Price Index will increase by 7.563 percent. The second variable is the Probability Value of the Money Supply (JUB) of 0.0443 which is smaller than the alpha of

0.05 with a coefficient of -7.289. So that JUB has a significant negative effect on the Composite Stock Price Index. When x goes up, y goes down. The third variable is the probability of an inflation score of 0.000 less than alpha of 0.05 with a coefficient of 0.327. So inflation has a significant positive effect on the Composite Stock Price Index. This means that at the time of inflation the Composite Stock Price Index will also increase.

### Estimated results long term

The first variable, Gross Domestic Product has no significant effect on the Composite Stock Price Index, because it has a probability score of 0.5731 greater than alpha 0.05. The second variable, the money supply has a significant positive effect on the Composite Stock Price Index, because this variable has a probability score of 0.0001 which is smaller than alpha 0.05 with a coefficient of 54.984. If the JUB increases by 1 billion, the JCI will increase by 54.98 percent. The third variable, inflation has no significant effect on the Composite Stock Price Index, because the probability of scoring 0.0758 is greater than the probability of scoring 0.05.

### ARDL Model Stability Test



Based on the two pictures above, there are the results of the CUSUM test and the squared cusum test. Results Figure 3 CUSUM test results have a stable model because the CUSUM test line (blue) is between the 5% significant line (red). Then the results of the sum of the quadratic test models are also still in a stable state because the number of squared test lines (blue) is between the 5% significant line (red).

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