ANALYSIS OF THE EFFECT OF FTSE 100, NIKKEI 225, AND DOW JONES INDUSTRIAL AVERAGE ON COMPOSITE STOCK INDEX IN INDONESIA STOCK EXCHANGE

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Abstract: This study aims to analyze the effect of FTSE 100, Nikkei 225, and Dow Jones Industrial Average on Composite Stock Index in Indonesia Stock Exchange (IDX). The research method used is a quantitative method with time series data type and secondary data obtained the Indonesia Stock Exchange (IDX) website and Bloomberg Data Terminal. The sampling technique used purposive sampling method with monthly data and research period from January 2015 to December 2019. The data analysis technique used is multiple linear regression with normality test, classic assumption test (multicollinearity test, autocorrelation test) and t-statistical hypothesis and f-statistic to test the simultaneous effect with a significance level of 5%. The results of this study indicated that. DJIA Index and FTSE 100 Index variable shows a positive effect and significant to Composite Stock Index and Nikkei 225 Index variable partially has shown a negative effect and significant to Composite Stock Index. Then simultaneously independent variable DJIA Index, Nikkei 225 Index, and FTSE 100 Index together had a significant relation to the dependent variable Composite Stock Index. The determination coefficient of this study indicates the number 87% shows that independent variable variations in DJIA Index, Nikkei 225 Index, and FTSE 100 Index can explain the fluctuating of the dependent variable in Composite Stock Index by 87%. While the remaining of 13% influenced by other independent variables.

Keywords: FTSE 100; Nikkei 225; Dow Jones Industrial Average; Composite Stock Index

INTRODUCTION

The capital market has an important role for the economy of a country because the capital market carries out two functions, namely first as a means of financing business or as a means for companies to obtain funds from investors (investors).

Indonesian Capital Market activities are protected by law. This of course makes the capital market an investment vehicle that is guaranteed by the Government for its safety. The Capital Market Law Number 8 of 1995 serves as a legal umbrella for the creation of a safe, effective, and efficient capital market industry.

Investment through the capital market is of the greatest interest to every country, especially considering its strategic role in strengthening a country's economic resilience. If a country wants long-lasting investment in its country, the government must maintain stable political conditions, stable currency values, and maintain economic growth.

In the development of investment in the capital market, technological and information advances have occurred which have transformed shares in physical form or script into scriptless which have made it easier for investors from all over the world to conduct stock trading transactions. With the integration of capital markets around the world through investment cooperation relationships between countries, openness and access to every detail of information and security guarantees in investing are considered by investors in making investment decisions both at home and abroad.

Realizing the large potential revenue that the state can obtain through the capital market due to the wide reach of the market share, it is not only necessary to reform in the field of technology and information, but knowledge in the field of international investment must also be developed through cooperation in the investment sector with other countries. This is done when a company that is big enough wants to do a dual listing on another country's stock exchange. This is what PT Telekomunikasi Indonesia, PT Indosat, and PT Tambang Timah did, which did a dual listing on the New York Stock Exchange (NYSE), United States. This makes it easier for the company to obtain alternative sources of funding as capital for the company to expand its business.

The interests of investors, companies and the government make all three need each other. Investors want to get a return through their investment, companies need additional funds or alternative funding from the sale of their shares that are bought by investors and governments who want to increase economic growth through activities in the capital market where the government must control so that the domestic investment climate is stable and provides confidence as well as security for investors and companies.

In the world of capital markets, the term is known. According to Sudirman (2015), the is an indicator that shows stock price movements. The index serves as an indicator of market trends, meaning that the movement of the index describes market conditions at any time, whether the market is active or sluggish. By looking at the, investors can perform technical analysis to determine the decision to buy or sell shares.

Many es in the world are used as investment references. Some of these stock price indices are the Dow Jones Industrial Average Index, the Nikkei 225 Index, the FTSE 100 Index, and others. These indices will be a concern for investors in the capital market when investing in the broader stock market. Therefore it requires knowledge and insight regarding global investment so that there is no wrong decision to make.

On the Indonesia Stock Exchange, there is an index which is a combination of all shares listed on the IDX, namely the Composite (IHSG). The JCI is also divided into 9 sectoral indices that serve as a reference for market conditions in their respective business sectors. There are sectors of agriculture, mining, basic industry, various industries, consumption industry, consumer property, property & real estate, infrastructure, finance, and trade. This sectoral index will later contribute to shaping the JCI chart. The JCI chart is not only a reference for the capital market nationally but also a reference for capital market players globally.

LITERATURE REVIEW

1. Management

   According to Terry (2014, p.9) management is an activity; the implementation is called manager and the person who does it is called manager. Management includes activities to achieve goals carried out by individuals who contribute their best efforts through actions that have been predetermined.

2. Financial management

   According to Salamun and Isworo (2014, p.1), Financial Management or often called company spending can be interpreted as all company activities related to various businesses to get company funds at low costs, which are then used and allocated efficiently.

3. Investation

   Tandelilin (2017, p.2) defines investment as a commitment to a number of funds or other resources made at this time, with the aim of obtaining a number of benefits in the future.

4. Capital market

   Based on the Capital Market Law Number 8 of 1995, the Capital Market is an activity concerned with Public Offerings and securities trading, Public Companies related to the securities issued, as well as institutions and professions related to securities.

   According to Manan (2017, p.11), the capital market is a means of bringing together those who have excess funds (surplus funds) and those who lack funds (deficit funds), where the funds traded are long-term funds.

5. Global Capital Market

   According to Samsul (2015, p.23), several countries have tried to make alliances between stock exchanges in their country and stock exchanges in other countries. Each country that will join an alliance must first think in depth about the consequences of this alliance. Advantages and disadvantages, benefits and disadvantages must be calculated so that the alliance does not run aground in the middle of the road. An alliance between stock exchanges that are still in one country will strengthen the stock exchange nationally, while stock exchange alliances between countries can have positive or negative consequences.

6. Indonesian Capital Market

   According to Samsul (2015, p.40), the Indonesian Capital Market has experienced rapid progress since deregulation in 1988. The number of issuers, from only 24 issuers in 1988 to 588 in 2012, or an average of 24 new issuers every year. The value of the shares until the end of August 2012 reached IDR 569.3 trillion. The market capitalization has reached a value of Rp. 3,844 trillion, with private bonds of Rp. 304.4 trillion and state bonds of Rp. 802.8 trillion and the number of stock exchange members reaching 125. The value of trade transactions is between 3 and 5 trillion every day. The stock's performance is also ranked the best among stock exchanges in Asia Pacific. The has also continued to increase over the past 5 years from a position of 1,355 (2008) to 4300 (2012). The number of mutual funds reached 688 types with a NAV value of Rp 175 trillion.

7. Stock

According to Azis et.al (2015, p.56), shares can be defined as a sign of the capital participation of a person or party (business entity) in a company or limited liability company. By including this capital, the party has a claim on company income, a claim on company assets, and is entitled to attend the General Meeting of Shareholders (GMS).

8. Stock Price Index

According to Zulfikar (2016, p.75), the becomes a barometer before we invest in the stock market because from here we know the general picture, but in order to make the right decisions, of course we have to analyze other factors.

9. JCI

According to Tandelilin (2017, p.93), the Composite (IHSG) or composite stock index uses all listed stocks as a component of the index calculation. Each capital market has an index that is formed based on shares which is used as the basis for calculating the price index.

10. *DJIA*

In his book Bodie et.al (2018, p.43) states: *"The Dow Jones Industrial Average (DJIA) of 30 large, "blue-chip" corporations has been computed since 1896) is a price-weighted average of 30 blue-chip stocks that are generally the leaders in their industry. It has been a widely followed indicator of the stock market since October 1, 1928 ".*(The Dow Jones Industrial Average is the price-weighted average of 30 blue-chip stocks that are generally leaders in their industry. The DJIA has been the stock market's widely followed indicator since October 1, 1928).
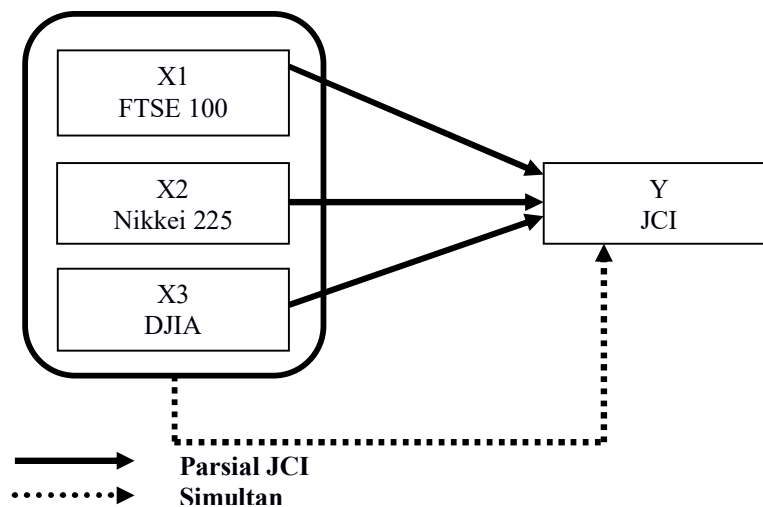
11. *NIKKEI 225*

According to the indexes.nikkei.co.jp site explains: *"The Nikkei Stock Average (Nikkei225) is used around the globe as the most popular benchmark of the Japanese Stock Market. It is comprised of 225 stocks listed on the Tokyo Stock Exchange First Section. This is an adjusted price index where its continuity is maintained by "Dow" method as well as the rules to integrate Japanese specific trading practices into the calculation. The 225 constituent stocks are reviewed periodically by the liquidity in the market and sector balance. By calculating with highly liquid stocks, the index is aimed at fulfilling two objectives, one is to maintain its long-term continuity and the other is to reflect the changes in the industry structure The index started on September 7, 1950. However, it was retroactively calculated back to May 16, 1949 when the Tokyo Stock Exchange reopened for the first time after the Second World War. The index has been calculated by Nikkei since 1970 although it had been calculated initially by the Tokyo Stock Exchange. ".*it retroactively goes back to May 16, 1949 when the Tokyo Stock Exchange reopened for the first time after the Second World War. The index has been calculated by the Nikkei since 1970 although it was originally calculated by the Tokyo Stock Exchange).

12. *FTSE 100*

According to the Londonstockexchange website explains: *"FTSE (pronounced Footsie) Group is an independent organization jointly owned by the Financial Times and*

the London Stock Exchange. The group creates and manages indices of shares, the most famous of which in the UK is the FTSE 100. This index comprises the 100 largest companies whose shares are listed on the London Stock Exchange. The index began in 1984 with a base level of 1000 and it rises and falls according to the share price performance of the 100 companies within it. The highest value ever reached by the FTSE 100 was 6950.6 in December 1999. ".(FTSE (pronounced Footsie) Group is an independent organization jointly owned by the Financial Times and the London Stock Exchange. This group creates and manages stock indexes, most notably in the UK being the FTSE 100.This index is made up of the 100 largest companies whose shares are listed in London Stock Exchange. The index started in 1984 with a base level of 1000 and rises and falls according to the stock price performance of the 100 companies in it. The highest value ever achieved by the FTSE 100 was 6950.6 in December 1999).

Source: Author compiled, 2020

Figure 1, Conceptual framework

RESEARCH METHOD

Based on the characteristics of the problem that discusses the influence of the FTSE 100, Nikkei 225, and DJIA Index on the JCI. The period studied was January 2015 to December 2019. Where the type of research used in this research is quantitative research.

The population that is the object of this research is the JCI movement for the period January 2015 - December 2019.

Determination of the sample used in this study using non-random or non-probabilty samples, namely by using purposive sampling technique. Where the sample used is the JCI movement data for the period January 2015 - December 2019 as many as 60 samples.

Technical Data Analysis

This research uses multiple linear regression analysis method with OLS (Ordinary Least Square) method so that it will still be able to get BLUE β0, β1, β2, and β3 in order to obtain the regression line as close as possible to the actual data. The general form of the multiple linear regression equation used in this study is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where :

Y	= Composite
$\beta 0, \beta 1, \beta 2, \beta_3$	= Constants / Slope
X1	= *FTSE 100*
X_2	= *Nikkei* 225
X3	= *Dow Jones Industrial Average*
E	= Random error *(error term)*

RESULT AND DISCUSSION

Where the descriptive statistical results below will provide an overview of the research object that is used as the research sample.

Table 1 Descriptive Statistics Table

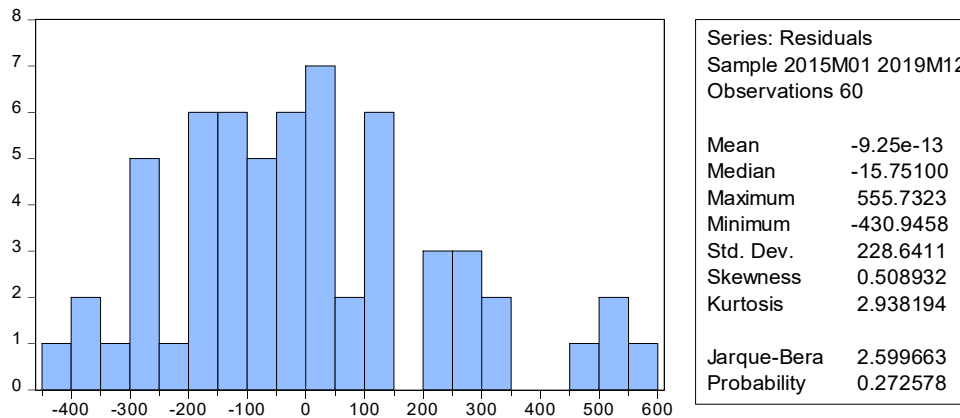|	JCI	DJIA	NIKKEI_225	FTSE_100
Mean	5628,693	21801.01	20123.68	7029,443
Median	5814,475	21620.38	20134.58	7135,465
Maximum	6605,630	28538.44	24120.04	7748,760
Minimum	4223,910	16284.70	15575.92	6061,610
Std. Dev.	641.6169	3793,548	2172,473	471.6212
Skewness	-0.384902	0.072564	-0.233386	-0.588133
Kurtosis	2.069158	1.4844027	2.113370	2.269054
Jarque-Bera	3,647661	5.798092	2.509972	4.794712
Probability	0.161406	0.55076	0.285080	0.090958
Sum	337721.6	1308060.	1207421.	421766.6
Sum Sq. Dev.	24288659	8.49E + 08	2.78E + 08	13123167
Observations	60	60	60	60

Source: Eviews 10, 2020 data processing results

Based on Table 1 above, it can be concluded that the average value of the Composite during the observation period 2015 to 2019 is 5628,693. The highest IHSG was 6605,630 and the lowest IHSG was 4223,910. Where the standard deviation value of the JCI variable is 641.6169.

The average value of the FTSE 100 Index during the 2015 to 2019 observation period is 7029,443. The highest FTSE 100 Index value is 7748,760 and the lowest FTSE 100 Index value is 6061,610. Where the standard deviation value of the FTSE 100 Index variable is 471.6262.

The average Nikkei 225 Index value during the 2015 to 2019 observation period was 20123.68. The highest Nikkei 225 index value was 24120.04 and the lowest Nikkei 225 index value was 15575.92. Where the standard deviation value of the Nikkei 225 Index variable is 2172,473.

The average value of the DJIA Index during the 2015 to 2019 observation period is 21801.01. The highest DJIA Index value is 28538.44 and the lowest DJIA Index value is 16284.70. Where the standard deviation value of the DJIA Index variable is 3793,548

Series: Residuals
Sample 2015M01 2019M12
Observations 60

Mean	-9.25e-13
Median	-15.75100
Maximum	555.7323
Minimum	-430.9458
Std. Dev.	228.6411
Skewness	0.508932
Kurtosis	2.938194
Jarque-Bera	2.599663
Probability	0.272578

Source: Eviews 10, 2020 data processing results
Figure 2. Normality Test

The results of the histogram test appear to be symmetrical and if a line is formed at each point it will form a bell pattern which indicates a normal distribution pattern, besides that, Jarque-Bera which was carried out using the Eviews 10 program in this study resulted in a calculation of 2.599663 with a probability of 0.272578. When viewed based on the chi-squares value using $\alpha = 5\%$ and df = 4, then the chi-squares value is 9.48773. On the basis of decision making as follows:

H0: Residual variables in the regression model used are normally distributed
H1: Residual variables in the regression model used are not normally distributed

Based on these results it appears that the statistical value of the Jarque-Bera test is JB (2.599663) <X2 (9.48773) or p-value (0.272578)> α (0.05), so the null hypothesis fails to be rejected, which means that the residuals of the research model are normally distributed so that the t test and the F test can be done to see the significance of the model.

Based on the results of the normality test that has been carried out above, the results of multiple regression calculations are obtained as follows:

Classic assumption test
 a. Multicollinearity Test
<div align="center">Table 2 Multicollinearity Test</div>

	FTSE_100	NIKKEI_225	DJIA
DJIA	0.786510	0.854226	1,000000
NIKKEI_225	0.744887	1,000000	0.968471

FTSE_100	1,000000	0.744887	0.786510

Source: Eviews 10, 2020 data processing results

From the results of the correlation coefficient test between the independent variables, there is multicollinearity between the independent variables of the DJIA and Nikkei 225 where the correlation value between the independent variables is above 0.85. On the independent variables DJIA and FTSE 100, as well as Nikkei 225 and FTSE 100, there are no multicollinearity symptoms where the correlation value is below 0.85.

The multicollinearity problem in the regression equation in this study, the estimator is still BLUE so that individually the independent variable does not affect the dependent variable through the t test and f test. Therefore, the authors did not make changes. With the multicollinearity problem, the regression results still produce BLUE estimators because the BLUE estimator problems do not require the assumption of no correlation between independent variables. (Widarjono 2017).

Regression Analysis Results

Table 3, Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	818.5440	798.7640	1.024763	0.3099
DJIA	0.148939	0.027644	5.387685	0.0000
NIKKEI_225	-0.082811	0.031140	-2.659306	0.0102
FTSE_100	0.459436	0.153411	2.994806	0.0041

In analyzing the Dow Jones Industrial Average, Nikkei 225 Index and FTSE 100 Index against the Composite , multiple regression analysis is used, which together the regression model is:

Y (IHSG) = 818.5440 +0.459436 (FTSE 100– 0.082811 (NIKKEI 225) +) 0.148939 (DJIA) + e

The constant value of 818.5440 illustrates that if the DJIA Index, Nikkei 225 Index, and the FTSE 100 Index do not have a constant or zero effect on the JCI value, then the JCI value will still be worth 818.5440 points.

Hypothesis Results (t-Test)

From the results of the t test for the FTSE 100 Index variable, it is obtained that the tcount is 2.994806 with a probability of 0.0041. So it can be concluded that tcount (2.994806)> t table (2.00324), which means rejecting H0 and accepting H1. So that the first hypothesis that is proposed states that there is an effect of the FTSE 100 Index on the value of the Composite for 2015-2019, can be accepted.

From the results of the t test for the DJIA Index variable, it is obtained tcount of 5.387685 with a probability of 0.0000. So it can be concluded that tcount (5.387685)> t table (2.00324), which means rejecting H0 and accepting H1. So the third hypothesis that is proposed states that there is an effect of the DJIA Index on the value of the Composite for 2015-2019, can be accepted.

From the results of the t test for the Nikkei 225 index variable, the tcount is -2.659306 with a probability of 0.0102. So it can be concluded that tcount (-2.659306)> t table (2.00324), which means rejecting H0 and accepting H1. So that the second hypothesis that is put forward states that there is an effect of the Nikkei 225 Index on the value of the 2015-2019 Composite , can be accepted.

Simultaneous results (F test)

From the calculation results, it can be seen that the results of the F-test are 128.3307 with a probability of 0.000000. So it can be concluded that Fcount (128.3307)> Ftable (2.77), which means rejecting H0 and accepting H1. So that the fourth hypothesis proposed that there is an effect of the FTSE 100 Index, the Nikkei 225 Index, and the DJIA Index together on the value of the 2015-2019 Composite , can be accepted.

Coefficient of Determination

From the calculation results obtained the magnitude of the influence of the independent variable on the dependent variable which can be explained by the model in this equation is 0.873014 or 87%. This shows that the variations in the FTSE 100 Index, Nikkei 225 Index and the DJIA Index are able to explain the variations in the increase / decrease in the value of the Composite by 87% while the remaining 13% is explained by other variables which are not included in this regression model.

CONCLUSIONS AND SUGGESTIONS
Conclusion

Conclusions can be drawn regarding the influence of the FTSE 100, Nikkei 225, DJIA and IHSG 2015-2019 are as follows:

1. The results of this study indicate that the increase in the Nikkei 225 Index during January 2015 to December 2019 has an effect on the decline in the value of the Composite . The Nikkei 225 index is a price-weighted for the Tokyo Stock Exchange which includes the top 225 blue-chip companies listed on the Tokyo Stock Exchange.
2. The results of this study indicate that the increase in the FTSE 100 Index from January 2015 to December 2019 has an effect on the increase in the JCI value. The FTSE 100 index is a market capitalization-weighted index of the largest 100 companies traded on the London Stock Exchange.
3. The results of this study indicate that the increase in the Dow Jones Industrial Average (DJIA) during January 2015 to December 2019 has an effect on the increase in the value of the Composite . The DJIA Index is an index of 30 major companies listed on the United States stock exchange

Suggestion

Suggestions that can be taken from research on the analysis of the effects of the DJIA, Nikkei 225, FTSE 100, and IHSG 2015-2019 are as follows:

1. For the public or investors, the results of this research can be used as knowledge about the international capital market as well as internal considerations determine investment decisions in its stock portfolio.
2. For The government, this study illustrates that the Indonesian capital market cannot be separated from the influence of the global index. This can be the government's attention to further develop cooperation with other countries so that it has coordination in determining monetary and economic policies and makes the Indonesian capital market more attractive to many Indonesians and the world. This will create a safe investment climate for investors.
3. For further research, where the results of this study can still be reviewed by adding global and domestic macroeconomic variables and adding research periods and samples because capital market conditions can change over time so it would be better to take more samples and variables to produce research that is good. more accurate.

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