International Journal of Multidisciplinary Research and Growth Evaluation.

Analysis of the effect of Southeast Asia stock index on the Indonesia stock exchange (IDX) composite

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Abstract
This study was conducted with the aim of analyzing and knowing the development of the composite stock price index in the Southeast Asia region in relation to the size of the Indonesia Stock Exchange (IDX) Composite as well as determining the effect of the three Southeast Asia Stock Indexes, either partially or simultaneously on the Indonesia Stock Exchange (IDX) Composite. The three Southeast Asia Stock Indexes are the Bursa Malaysia Index (Malaysia), the Philippine Stock Exchange Index (Philippine) and the Straits Times Index (Singapore). The simple sampling method used was by collecting data for 48 months from January 2019 to December 2022. The data analysis used to test the research hypothesis was SPSS 15 (Statistical Product and Service Solution version 15.0), namely multiple linear regression. The results show that the effect of the three Southeast Asia Stock Indexes partially or simultaneously has a significant effect on the Indonesia Stock Exchange (IDX) Composite.

A. Introduction
Economic development in a country as a whole can be seen from the development of the capital market in that country—where, in this 21st century, it is greatly affected by the impact of globalization and the revolution in information and technology. This happens because the world is experiencing the impact of globalization and the revolution in information and technology. As a result, economic events in one part of the world can quickly affect other parts of the world. The impact of globalization and the revolution in information and technology are also followed by the economic sector. This means that in today's global market, every investor can make an investment anywhere.

In this era of the global economy, economic interaction between countries is one of the important aspects of the development of an increasingly open country's economy. The increasingly integrated financial market which is supported by the rapid development of information and communication technology has caused the shift of models to move more quickly—and often, in large numbers, following economic development and change in policies of a country. Thus, the greater the linkages between countries, the more open the economy is, as reflected in trade transactions and capital flows between countries.

The Indonesian capital market through the Indonesian stock exchange (IDX) is an inseparable part of the activities of the global stock exchange. Besides, stock exchanges that are close to each other usually have the same investors. The phenomena that occur due to the impact of globalization and Indonesia as a member of the ASEAN Free Trade Area (AFTA) have opened the stock market for foreign investors who invest in the Southeast Asia region. AFTA or ASEAN Free Trade Area is a forum for cooperation between ASEAN countries that aims to create a free trade area throughout the ASEAN region. Therefore, changes in an exchange in a country will also be transmitted to exchanges in other countries. In this case, usually, the larger exchange will affect the smaller exchange.

The crisis that occurred in Southeast Asia generally occurs in countries with capital markets that are in an emerging market condition. Countries in the Southeast Asia region also have a very high contagion effect—and generally, have the same characteristics. Besides, the crisis that occurred has also caused several countries to exempt foreign investment limits, including

Indonesia. This indicates that theoretically the Indonesian capital market is strongly affected by capital markets in other countries, so it is necessary to prove this empirically. This study aimed to analyze the effect of stock price indexes from several capital markets in Southeast Asia on the Indonesia Stock Exchange (IDX) Composite.

Based on the explanation above, the author was interested in conducting a re-examination of what has been done several years before. For this research, the author takes a title of "Analysis of the effect of southeast Asia stock index on the Indonesia stock exchange (IDX) Composite."

B. Formulation of the Problems
Based on the background that has been described, the problems formulated were:
1. Does the Bursa Malaysia Index (^BM) have any effect on the Indonesia Stock Exchange (IDX) Composite?
2. Does the Philippines Stock Exchange Index (^PSE) have any effect on the Indonesia Stock Exchange (IDX) Composite?
3. Does the Straits Times Index (^STI) have any effect on the Indonesia Stock Exchange (IDX) Composite?

4. Does the Bursa Malaysia Index, the Philippine Stock Exchange Index and the Straits Times Index have simultaneous effect on the Indonesia Stock Exchange (IDX) Composite?

Based on the background and problem formulation that have been described, the objectives of this study were
1. To determine the effect of the Bursa Malaysia Index (^BM) on the Indonesia Stock Exchange (IDX) Composite.
2. To determine the effect of the Philippine Stock Exchange Index (^PSE) on the Indonesia Stock Exchange (IDX) Composite.
3. To determine the effect of the Straits Times Index (^STI) on the Indonesia Stock Exchange (IDX) Composite.
4. To determine the effect of the Bursa Malaysia Index, the Philippine Stock Exchange Index and the Straits Times Index simultaneously on the Indonesia Stock Exchange (IDX) Composite.

C. Research Methods
To avoid misinterpretation and facilitate the assessment of the variables studied, it is necessary to emphasize the operational definitions and the measurement methods of variables used in this study, which are as follows:

1. The Bursa Malaysia Index (X1)
Unweighted Index Methods
This method is used by considering the factors that will affect the rise and fall of the index number. The rise and fall of the index number is caused by the influence of the issuer's corporate actions such as rights issue (addition of new shares to increase capital) and stock split (breakdown of nominal shares into smaller fractions).
The formula is as follows

$$BM = \frac{\in Pt}{\in Po} \times 100\%$$

Notes

JSX = Jakarta Composite Index (the IDX Composite)
$\in$Pt = Total all shares price at current time
$\in$Po = Total share price at time base

2. The Philippine Stock Exchange Index (X2)
Unweighted Index Method
This method is used by considering the factors that will affect the rise and fall of the index number. The rise and fall of the index number is caused by the influence of the issuer's corporate actions such as rights issue (addition of new shares to increase capital) and stock split (breakdown of nominal shares into smaller fractions).
The formula is as follows:

$$PSE = \frac{\in Pt}{\in Po} \times 100\%$$

Notes

JSX = Jakarta Composite Index (the IDX Composite)
$\in$Pt = Total all shares price at current time
$\in$Po = Total share price at time base

3. The Straits Times Index (X3)
Unweighted Index Method
This method is used by considering the factors that will affect the rise and fall of the index number. The rise and fall of the index number is caused by the influence of the issuer's corporate actions such as rights issue (addition of new shares to increase capital) and stock split (breakdown of nominal shares into smaller fractions).
The formula is as follows:

$$PSE = \frac{\in Pt}{\in Po} \times 100\%$$

Notes

JSX   = Jakarta Composite Index (the IDX Composite)
$\in$Pt   = Total all shares price at current time
$\in$Po   = Total share price at time base

4. Dependent Variable (Y)
The dependent variable (Y) in this study is the Indonesia Stock Exchange (IDX) Composite which is calculated based on the average monthly value which measurement used a ratio data scale with monthly units. Calculation of the Indonesia Stock Exchange (IDX) Composite includes all stocks listed on the IDX—which formula is as follows:

$$JSX = \frac{\in Pt}{\in Po} \times 100\%$$

Notes

JSX= Jakarta Composite Index (the IDX Composite)
$\in$Pt= Total all shares price at current time
$\in$Po= Total share price at time base

C1. Sampling Technique
This study used monthly data samples. The data for the three Southeast Asia closing stock indexes and the IDX Composite were obtained from the Bapepam, Harian Bisnis Indonesia and IDX websites as well as other supporting sources. The sampling technique used was simple sampling and the samples were is the Bursa Malaysia Index (^BM), the

Philippine Stock Exchange Index (^PSE) and the Straits Times Index (^STI) as well as the IDX Composite from January 2019 to December 2021 (48 months).

C2. Data Analysis Technique and Hypothesis Testing
Data analysis techniques in this study were used to answer research problems and test research hypotheses. The data analysis process in this study was carried out using statistical product and service solution (SPSS) version 15.0. The following are the analysis techniques and hypothesis testing that were carried out in this study.

C3. Data Analysis Technique
The analytical technique used to test the hypotheses is Multiple Linear Regression Analysis. Regression analysis was used to determine the effect of the independent variables, namely the Bursa Malaysia Index, the Philippine Stock Exchange Index and the Straits Times Index on the dependent variable, namely the IDX Composite. The model used by the multiple regression analysis equation in this study is as follows:

$$Y = \beta 0 + \beta 1 X 1 + \beta 2 X 2 + \beta 3 X 3$$

Notes
Y = the IDX Composite
0 = Constant
X 1 = the Bursa Malaysia Index
X 2 = the Philippine Stock Exchange Index
X 3 = the Straits Times Index
1 = Regression coefficient of the Bursa Malaysia Index
2 = Regression coefficient of the Philippine Stock Exchange Index
3 = Regression coefficient of the Straits Times Index

D. Research Results Analysis
Data analysis in this study was carried out using the statistical product and service solution (SPSS) version 15.0 program. Hypothesis testing in this study was carried out in three stages, namely simultaneous test (F test), partial test (T test) and coefficient of determination test (R2).

D1. Simultaneous Test (F Test)
Testing the simultaneous effect of the independent variables on the dependent variable was carried out using the F test, the statistical data obtained are as follows:

Table 1: Simultaneous Test Results

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10202999	3	3400999.582	120.069	.000^a
	Residual	1246318	44	28325.417		
	Total	11449317	47			

a. Predictors: (Constant), BM, PSE, STI
b. Dependent Variable: JSX

The results of the F test for the coefficients of the regression equation obtained the results of F count of 120.069 with a significance level of 0.000 and F table of 2.311. Thus, it can be concluded that by using an error rate of 5%, it turns out that F count > F table (120.069 > 2.311). Thus H0 is rejected and Ha is accepted, this shows that there is a significant influence between the variables ^BM, ^PSE and ^STI simultaneously on the IDX Composite variable.

D2. Coefficient of Determination Test (Adjusted R Square)
The coefficient of determination test is needed to measure how much effect the ^BM index, ^PSE Index and ^STI Index have on the IDX Composite.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.944 ^a	.891	.884	168.30157

a. Predictors: (Constant), KLSE, PSE, STI

Based on the results of calculation using SPSS version 15.0 program, it can be seen that the Adjusted R Square value obtained was 0.884 or 88.4%. This figure means that changes in the IDX Composite are affected by the ^BM Index, the ^PSE Index and the ^STI Index by 88.4%, the remaining 11.6% are other factors that are not included in this model such as global economic conditions, trade relations between countries and social, political and security situations as well as issues that give certain sentiments to stock trading on the Indonesia Stock Exchange.

D3. Partial Test (T Test)
Partial test is used to determine whether the independent variable has a significant effect or not on the dependent variable partially for each variable.
To use the t table, it is necessary to first know α and df (degrees of freedom) namely n – k where (n) is the number of samples and (k) is the number of variables included. So the df for this study was 48 - 4 = 44, where in the t table, it was 2.01537.
Testing the partial effect between the independent variables on the dependent variable using a partial test (T test) obtained statistical data as follows:

Table 1.2: Partial Test Coefficients ^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	-1842,493	388,025		-4.748	.000
	BM	4.132	-.369	1,529	11,189	.000
	PSE	1989	.824	.445	2.415	.000
	STI	-.923	.234	-1066	-3.939	.000

a. Dependent Variable: JSX

Based on the hypothesis testing using the T test, it can be seen that the effect of the Straits Times Index on the IDX Composite was -0.923 points, meaning that the stock market has a negative effect on the IDX Composite. Meanwhile, the effect of the Philippine Stock Exchange Index on the IDX Composite was 1,989 points and the Bursa Malaysia Index on the IDX Composite was 4.132 points, meaning that the stock market has a positive effect on the IDX Composite.

E. Conclusion
Based on the results of data analysis and hypothesis testing on the composite stock price indexes of four countries, namely: The Bursa Malaysia Index (^BM), the Philippine Stock Exchange Index (^PSE) and the Straits Times Index (^STI) as well as the IDX Composite from January 2019 to December 2022. (48 months), some conclusions that can be drawn are as follows:
1. Partially shows that the Bursa Malaysia Index (^BM) and the Philippine Stock Exchange Index (^PSE) have a

significant positive effect on the IDX Composite while the Straits Times Index (^STI) has a significant negative effect on the IDX Composite.

2. Simultaneously shows that there is a significant effect between the ^BM, ^PSE and ^STI variables on the IDX Composite variable.

3. Based on the results of the Adjusted R Square test, the results obtained showed 88.4% effect while the remaining 11.6% are affected by other factors.

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