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The Differences in Stock Market Performance: A Comparative Study on Capital Market

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Abstract

The purpose of this study was to examine the differences in stock market performance in the capital market in several countries. This research is a comparative study that aims to compare one or more variables in two or more different samples, or at different times. The results reveal there were differences in stock performance with the Sharpe and Jensen methods, while using the Treynor method there was no difference. In conclusion, the combined test results for all three methods show that there is no difference in stock market performance between several countries.

Keywords: Stock Market, Performance, Sharpe, Method.

Las diferencias en el rendimiento del mercado de valores: un estudio comparativo sobre el mercado de capitales

Resumen

El propósito de este estudio fue examinar las diferencias en el desempeño del mercado de valores en el mercado de capitales en varios países. Esta investigación es un estudio comparativo que tiene como objetivo comparar una o más variables en dos o más muestras diferentes, o en diferentes momentos. Los resultados revelan que hubo diferencias en el rendimiento del stock con los métodos de Sharpe y Jensen, mientras que al usar el método de Treynor no hubo diferencias. En conclusión, los resultados de las pruebas combinadas para los tres métodos muestran que no hay diferencia en el desempeño del mercado de valores entre varios países.

Palabras clave: Bolsa, Rendimiento, Sharpe, Método.

1. INTRODUCTION

A capital market is one of the important factors in a country's system of economy. The condition of the capital market can reflect the condition of the economy of a country, the capital market which tends to stabilize and increases identifying the economic condition is also stable and good. On the contrary, if the condition of its capital market tends to be unstable and has a significant decrease, it identifies that its economic condition is also unstable. One of the products offered by

the capital market is stock. Stocks are an attractive investment alternative. As technology progresses, the more efficient stocks are being integrated. So that the incoming information will be reflected directly on the stock price index. Based on the results of the Bapepam (2008) Cointegration and Causality Study Team stated that the Indonesian capital market.

This condition turned out to have an impact on the Indonesian stock exchange which made market volatility high and this would certainly attract foreign investors to invest in Indonesia. According to Franke (1993), the existence of economic globalization will make it easier for investors to allocate their capital. However, in addition to bringing the good influence globalization also causes a bad influence, namely the linkage between one exchange and another, which according to Tan (1998) is called the Contagion effect, this theory explains that the economic condition of a country will affect the state of the economy.

While in the United States, stock indexes are used to observe stock price movements namely Dow Jones (DJIA), which DJIA Index is formed to measure the performance of existing industry components in the United States capital market. This index is comprised of the 30 largest companies in the United States that have been widely Go Public, where the calculations use value-weighted. Dow Jones (DJIA) is the world's financial center because the United States economy is dominating the world economy. Stocks in the United States have a major impact on stock prices in other countries. So the economic, political, and security conditions that occur in the United States have a

very high effect on other countries. The DJIA Index is the world's largest index in the world because of its movement can affect the movement of other global indices including the IHSG.

The DJIA Index is the world's largest index in the world because of its movement can affect the movement of other global indices including the IHSG. In the event of a crash in one of the stock market as happened in the Dow Jones Index (DJIA) in the United States, it will cause crashes on the exchange market all over the world. As a result of globalizing the world economy there is a phenomenon that occurs in developing countries like Indonesia. According to Jogiyanto (2014), the stock price index is required as an indicator for observing the price of securities. In Indonesia, stock price movements can be seen on the Composite Stock Price Index (IHSG). Haryogo (2013) also stated that Dow Jones has significant effect to Composite Stock Index in Indonesia.

This condition is seen in 2016 when the US presidential election became the world's attention. Moreover, at the time of the issue of the Dow Jones email leak, the Dow Jones stock index fell for 9 consecutive days, the longest decline in the last 30 years. After the presidential election, the United States stock price index rose sharply. Meanwhile the stock price index in developing countries including Indonesia fell. The Fed Fund Rate (FFR) also contributed to the drop in stock price index at the beginning of trading, speculation investors will raise interest rates in the United States. The interest rate hike reflecting the improvement in favorable economic conditions in the country. On the contrary, the economic conditions in the world

simultaneously have a negative impact (Abbasi & Zare, 2016; Muyambiri & Chabaefe, 2018).

Indonesia also included countries that felt the impact of volatility Dow Jones stock index. The Composite Stock Price Index (JCI) on the Indonesia Stock Exchange (IDX) slid 56.36 points (1.03%) to 54.14 points. In addition, the rupiah exchange rate against the US dollar also closed 43 points or dropped 0.32% to Rp 13,127 per the US \$ to date the rupiah was still weakening. In addition to Indonesia, according the stock index in Europe and Asia also weakened, for example, the DAX index in Germany fell 0.87%, the CAC index in France fell 0.82%, and the Nikkei225 index in Japan also fell.

Based on the issue above, this study focuses on a comparative study on stock performance. This issue is interesting to investigate the differences in stock market performance on the capital market in several countries when there was volatility (fall) on the global index. In fact, based on the empirical evidence, there are only a few studies directly examined the differences in stock market performance. Therefore, this study aims to examine the differences in stock market performance in several countries, because of the movement index global would affect the other index. The finding of this study would be used as information for investor and potential investor as the decision maker and can be a reference for further researchers.

2. LITERATURE REVIEW

A stock market is where the shares of publicly listed companies are issued and traded. Levine and Zervos (1998) stated that the stock market performance and development played a significant role in predicting the future economic growth. More recently, the emphasis has increasingly shifted to stock market indexes and the effect of stock markets on economic development. Murdifi et al. (2018) explained that the capital market has a very important role and increasingly interested by investors. Investor has the expectation investment decision in the portfolio, and it requires supporting information, such as rate of return and risk (standard deviation). Undeniable, the problem is determining a stock portfolio is to produce high returns with a low risk based on historical history. Portfolio performance testing is carried out to determine the extent of the portfolio owned for the results obtained for investors.

Portfolio performance is not only measured by the magnitude of portfolio return, but also should consider the amount of risk that will be obtained to obtain the amount rather than return or in other words it should be considered both known return compliance return (risk adjusted return). To measure portfolio performance, it can use three parameters developed by William Sharpe, Jack Treynor and Michael Jensen. All three return models as a basis for past analysis to predict future returns and risks. The existence of the capital market is a facility provided by the government to transfer funds from excess funds to party in need. Investors make investments hoping they will get rewards for the funds invested, while the issuer need funds to carry out

activities that can provide value added. This some methods of stock performance measurement according to Halim (2015) are as follows:

Sharpe Method

In this method, portfolio performance is measured by comparing the portfolio risk premium (i.e. the difference in the average rate of return on the portfolio with the average risk-free rate) and portfolio risk expressed by the standard deviation (total risk). The result of the calculation is the slope of the line that connects the portfolio at risk with risk-free interest. The slope of the line is expressed as $(R_p - R_f) / \sigma_p$. Thus, the greater the slope of the line means the better the portfolio that forms the line. Because, the greater the ratio of portfolio risk premium to standard deviation can be said that the performance of the portfolio is getting better.

$$\text{Sharpe Method} = \frac{(R_{pi} - R_f)}{SD_{pi}}$$

Treynor Method

In this method, portfolio performance is measured by comparing the portfolio risk premium (i.e. the difference in the average rate of taking portfolios with the risk-free average interest) and portfolio risk expressed by beta (market risk or systematic risk). The result of the calculation is the slope of the line that connects the risky portfolio with

risk-free interest. The slope of the line is expressed $(R_m - R_f) / \beta_p$. Thus, the greater the slope of the line means the better the portfolio that forms the line. Because, the greater the ratio of portfolio risk premium to beta, it can be said that the performance of the portfolio is getting better.

$$\text{Treynor Method} = \frac{(R_{pi} - R_f)}{\beta_{saham}}$$

Jensen Method

This method is based on the concept of a securities market line (market line security-SML) which is a line connecting the market portfolio with investment opportunities that are risk-free, so that mathematically formulated $R_p = R_f + (R_m - R_f) \beta_p$. The slope of SML is stated as $(R_m - R_f) / \beta_p$ and the constant is R_f . In a state of equilibrium, all portfolios are expected to be in SML. If there is a deviation, it means that with the same risk of return on SML, the difference is called the Jensen index where the risk is expressed in beta (market risk or systematic risk). If the actual rate of return of a portfolio is greater than the rate of return that corresponds to the SML equation, then the Jensen index will be positive. Conversely, if the actual rate of return of a portfolio is smaller than the rate of return that corresponds to the SML equation, it means that the Jensen index is negative.

$$J_{\alpha} = (R_{pi} - R_f) - (R_m - R_f)\beta_{saham}$$

Jogiyanto (2010) explained that Sharp index emphasis on the total risk (standard deviation), which Treynor index emphasis on systematic risk as measured by beta, and the Jensen index emphasis the difference between the actual rate of return earned by the portfolio expected rate of return if the portfolio on the Capital Market Line. According to Halim (2015) stock performance can be measured using the level of return (return) of a stock. Stock returns are the level of profit offered by a stock within a certain period, generally one year, through investments made by investors. To measure stock performance in this study using total stock returns. In the line of discussion, according to Jogiyanto (2014) states that total return is the overall return of an investment in a certain period. Total stock return is the difference from the current investment price relative to the price of the past period plus the percentage of the dividend to the previous period's stock price. Furthermore, stock market performance has been the subject of intensive theoretical and empirical studies.

Whereas, based on Suryani and Herianti (2015) study which stated that there is no significant difference between the Sharpe, Treynor and Jensen index as a measurement of risk-adjusted performance of LQ 45. The aim of this study is to analyze the consistency of Sharp, Treynor and Jensen index as a measurement of risk-adjusted performance. This research uses Kruskal Wallish test to analyze the consistency of those indexes. In addition, there is a mixed

result of the three methods. Conclusively, the three methods have a difference emphasizing to measure stock performance. The hypotheses proposed in this study are as follow:

H₀: There is a significant difference of Sharpe, Treynor, and Jensen methods between measuring the stock market performance in several countries

H_a: There is a significant difference of Sharpe, Treynor, and Jensen methods between measuring the stock market performance in several countries

3. METHODOLOGY

This research is a comparative descriptive study, which aims to compare one or more variables in two or more different samples or at different times. The variables used are stock market performance, where the stock performance is the level of achieving total monthly returns in the stock portfolio in the Stock Price Index in the world with the Sharpe, Treynor, and Jensen method indicators. Data for this study is obtained from secondary sources. The data is obtained from www.yahoofinance.com. Observation sample in this study was observed 5 years (2012-2016). The population consists of 154 stock exchanges in the world. Sample was selected from the population using purposive judgment sampling, with selection criteria, namely 1) the stock exchange of developed or developing countries; 2) has a stock index price in 2012 up to 2016; and 3) represent each continent.

After compiling data for all population. The data which representative and selected on this study have 8 stock market. Sample list in this study is as follows:

No	Stock Market	Code of Stock Market	Stock Index	Code
1	Tokyo Stock Exchange	TSE	Nikkei 225	N225
2	Australian Securities Exchange	ASX	ASX all Ordinaries	AORD
3	Bourse De Paris	BP	Cac 40	FCHI
4	Bolsa de Comercio de Buenos Aires	BCBA	Merval	MERV
5	New York Stock Exchange	NYSE	Dow Jones Industrial Average	DJIA
6	Johannesburg	JSE	FTSE/JSE Top 40	SA40
7	Singapore Exchange	SGX	FTSE straits Singapore	STI
8	Indonesia Stock Exchange	IDX	(IHSG)	JKSE

Table 1: The Stock Market, Code and Stock Index several countries

In this study using the ANOVA test with one-way classification testing, one-way classification testing is a hypothesis testing three different means or more with one influential factor (Indriastuti, 2019).

4. FINDINGS AND DISCUSSION

The empirical findings are shown in the tables below. The test aims to find out whether there is a difference in the stock market performance. The result of this study can be seen in the following table:

A. The Differences of Stock Market Performance Using Sharpe Method

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1640,600	4	410,150	3,272	0,022
Within Groups	4387,000	35	125,343		
Total	6027,600	39			

Table 2: The Test of Stock Market Performance Using Sharpe Method

Table 2 presents the resulting test of the differences in stock performance using Sharpe method. Based on the table above, obtained F value of 3.272 while the F table value at alpha 5% and df of 35 is 2.64. The calculated F value is greater than the F table value, so it can be concluded that accepts H_a , as predicted. The result also gives evidence that a significantly in p-value is 0,022 (p-value $0,022 < 0,005$). It means that stock market performance on several countries using Sharpe method is a difference.

B. The Differences of Stock Market Performance Using Treynor Method

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	261,650	4	65,413	1,093	0,375
Within Groups	2094,250	35	59,836		

Total	2355,900	39
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Table 3: The Test of Stock Market Performance Using Treynor Method

Based on table 3 above, F calculated value is 1.093 while F table value is alpha 5% and df is 35 for 2.64. The calculated F value is greater than the F table value, so it can be concluded that H_0 is rejected. The results show that significant p-value is 0,375. According to this result is not significantly ($p\text{-value} = 0,375 > 0.05$). This finding documented there is no difference in the stock market performance in several countries using Treynor method.

C. The Differences of Stock Market Performance Using Jensen Method

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	579,150	4	144,788	3,505	0,017
Within Groups	1445,625	35	41,304		
Total	2024,775	39			

Table 4: The Test of Stock Market Performance Using Jensen Method

According to the result from table 4 concluded that F value is 3.505 while the F table value is alpha 5% and df 35 is 2.64. The result gives evidence that there are differences in the stock market performance of several countries. The results also show that significant of p-value is 0,017 or $p\text{-value} = 0,375 > 0.05$, mean that stock of several countries is a significantly difference.

D. The Comparative in Stock Market Performance of Sharpe, Treynor and Jensen Methods

By looking at the difference of the stock market performance with three mean of Sharpe, Treynor and Jensen method, the hypothesis expected the three methods is the difference. Some of the previous research stated that three methods have a difference emphasizing and stock performance measurement (Jogiyanto, 2010). The test of comparison can be seen this following table below (Yang et al., 2019; Soo et al., 2019):

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6878,524	4	1719,631	1,285	0,280
Within Groups	153943,494	115	1338,639		
Total	160822,018	119			

Table 5: Comparative in Stock Market Performance of Sharpe, Treynor & Jensen Methods

As shown in Table 5 obtained that the calculated F value is 1,285 while the F table value is 2, 64. The calculated F value is smaller than the F table value, this concluded that H_a is rejected. While based on the table 5, the result of p-value is 0,280 or p-value $> 0,005$. This finding means that through the Sharpe, Treynor, and Jensen methods, there is no significantly difference between the stock performances of several countries. Thus the hypothesis in this study is not received (Suryani and Herianti, 2015; Banam & Mehrazeen, 2016). This finding reveals that Sharpe, Treynor and Jensen methods was not significant differences on the stock market performance during the period of observation.

Therefore, the results of this empirical evidence also show that the performance of Dow Jones shares is the strongest. This is allegedly due to the fairly stable condition of the American economy and good economic growth. While the performance of shares on the Indonesia Stock Exchange and several other developing countries experienced are negative performance. Basically, the performance of a country's stock is largely determined by the economic, political and security conditions of the country. Stock performance has a very high sensitivity, just a little of the economic, political or security conditions of a country is disturbed, the stock market will respond very quickly.

5. CONCLUSION

This study provides empirical evidence which is focused on the comparative of stock performance measurement in several countries. The three methods of stock market performance assessed with Sharpe, Treynor and Jensen methods. The mean findings with Analysis of Variance (ANOVA) analysis show that when a comparative test conducted between the three methods, there is no significant difference in stock market performance in several countries. Meanwhile, there is no difference in stock performance in several countries, using the Treynor method. This finding also has implication to investor and potential investor related to the value of information of the stock market performance measurement when its deemed to investment decision making.

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