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EVALUATION OF PORTFOLIO PERFORMANCE AT PT SINARMAS SEKURITAS INDONESIA IN THE JANUARY-DECEMBER 2021 PERIOD BASED ON THE SHARPE, TREYNOR AND JENSEN INDEX

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Abstract. *Stock Prices Fluctuation affected by market conditions indicates that the company is not doing well. Fluctuations in the share price of Sinarmas Sekuritas Indonesia are influenced by unstable market conditions. The aim of this study is to find out whether the stocks which have been recommended by PT. Sinarmas Sekuritas Indonesia 2021 is superior or inferior. The data used in this study were in the form of secondary data contained in the Market Outlook published by PT. Sinarmas Sekuritas Indonesia, which consisted of 33 stocks during the research period. Moreover, this type of research used case studies. The result of the study shows that the value of the regression constant is negative with a significance value smaller than the significance level of 0.05. Thus, it can be concluded that the performance of PT Sinarmas Sekuritas Indonesia's stock portfolio for the January–December 2021 period is inferior which shows that the performance of the portfolio with the index has bad performance. In addition, companies whose shares have good performance are expected to maintain their company's performance, while companies that have bad performance can improve their company's performance.*

Keywords*: Portfolio Performance, Sharpe Index, Treynor Index, Jensen Index*

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INTRODUCTION

Basically, investment aims to place a certain amount of funds for profit in the future. Investment hints at an estimate of expected results and the risks and possibilities of not obtaining the expected results (Tandelilin, 2010).

In the implementation of the investment process, the necessary funds are not small and have a long-term influence on the company. Furthermore, the expenditure of funds is quite large and bound over a fairly long period of time causing investors to need to be careful in investing their funds; for instance, planning errors and misinterpretation of the market lead investors to be aware of the risks which will be faced.

A high level of risk which occurs can cause investors not to know what threats will occur in order to anticipate problems which will lead investors to conduct diversify. Diversification is conducted as an effort to allocate investment funds into several assets so that if there is a loss in stock, it will be resolved since the profits obtained from other stocks cover the loss.

Price of PT. Sinarmas Sekuritas Indonesia fluctuates which shows that the company is not doing well. There are fluctuations in the stock price in the composite stock price index of PT. Sinarmas Sekuritas Indonesia. Sinarmas Sekuritas Indonesia is influenced by unstable market conditions. In this case, it can cause stocks with high prices to relatively decrease in demand since not many investors buy them, or in other words, only some investors can afford them even though the performance of the stock is said to be good. However, if the stock price is too low, investors are not interested in buying since investors think that the stock is underperforming.

Based on the capital market theory, there are three methods that can be used to measure portfolio performance. The method was invented by William Sharpe, Jack Treynor, and Michael Jensen. The method was created with the aim of analyzing the linear relationship between returns and some market indices. Moreover, evaluation is conducted to find out whether the securities which have been selected can provide better

Profits or vice versa. In addition, the Sharpe Index is an index whose division is conducted based on dividing excess return and variability. The basis used in Sharpe's performance measurement is the risk premium which means the difference between the average return on risk-free investments. Standard deviation is the risk of stock price volatility due to fluctuations in profits over a period.

The superior portfolio performance is chosen based on the main considerations, if capital market participants put more emphasis on portfolio beta as the main consideration, the use of the Treynor index is likely to result in better performance. The use of the Sharpe index puts more emphasis on the use of portfolio standard deviations as the main consideration. Meanwhile, the Jensen index is the most appropriate method if capital market participants emphasize more on the difference between the portfolio risk premium and the market risk premium as the main consideration (Sulistyorini, 2009).

Similarly, Suryani and Herianti's (2015) who conducted research on the analysis of risk-adjusted return portfolio performance share for the LQ45 index in the Indonesia stock exchange in the 2010-2014 periods, showed that there is no difference in stock portfolio performance between the Sharpe, Treynor, and Jensen methods with the Kruskal-Wallish method.

Meanwhile, Komara (2015) about the comparison of stock portfolio performance with the Sharpe, Treynor, and Jensen methods (empirical studies based on LQ45 and JII) showed the similarity of assessment results on stock portfolio performance with the Kruskal

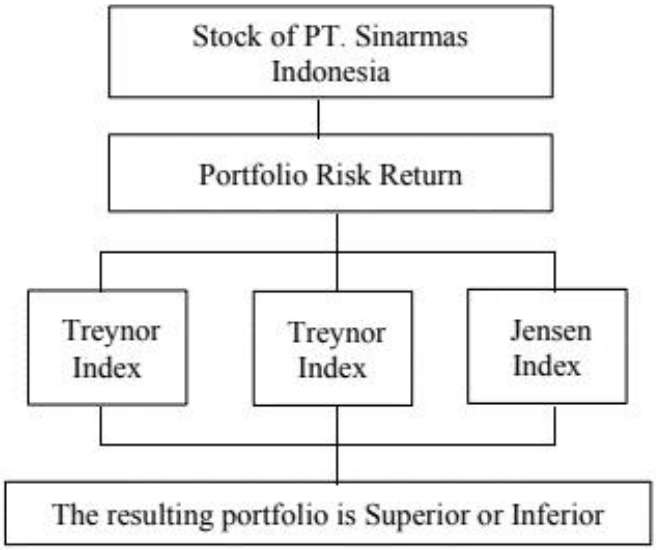
Wallish method. However, it results in a different assessment of the performance of the stock portfolio in Test F.

Sharpe and Treynor indices complement each other to provide different information. A portfolio that cannot be diversified properly will result in a higher rating for Treynor's size, but not for Sharpe. Meanwhile, a portfolio that can be well diversified will give it the same rating in its performance.

The Jensen index has similarities with the Treynor index which is based on CAPM. The Jensen Index uses a security market line as a benchmark for the index to focus on the difference generated between the actual return and the expected return if the portfolio is on the capital market line (Husnan, 2015). The use of the Jensen index in evaluating portfolio performance needs to be tested whether the two returns are significant since basically the Jensen index shows the difference between the portfolio and the return of the portfolio if it is not managed specifically using the same level of risk.

THE THEORETICAL FRAMEWORK OF THOUGHT

This study used data obtained from the Market Outlook of PT Sinarmas Sekuritas Indonesia which was used in comparing risk and return in order to determine the portfolio of these stocks. Furthermore, what needs to be taken is to find the value of the three indices, which one has the best value. Then tested using the Kruskal Wallis nonparametric difference test, then looked for calculations based on the three indices superior or inferior.



RETURN

It is a return on the courage of investors in bearing the risk to the investments which have been made (Tandelilin, 2010). Stock returns consist of yields and capital gains. Yield is a component of return which reflects the cash flow obtained periodically from an investment. Returns can be divided into 2, that are:

1. Realized Return

It is the return which has occurred. It is important since it is used as one of the performance gauges of the company. Realized return can be measured by using the following formula:

$$R_i = \frac{P_t - P_{t-1}}{P_{t-1}}$$

2. Expected return

It is a return which is expected to be obtained by investors in the future. Expected Return can be calculated by using the following formula:

$$E(Ri) = \frac{\Sigma R_i}{n}$$

Risk

Risk is said to be the possibility of a difference between the return of realization and the return of expectation. If there is a difference between the return on realization and the return on expectations, it means that the greater the risk of the investment.

Portfolio Returns

The return on the realization of a portfolio in a certain period is a weighted average based on the proportion of funds invested in each of the securities which make up the portfolio (Hartono, 2015).

The return of realization can be calculated by using the following formula:

$$Rp = \sum_{i=1}^{n} (w_i \, . \, R_i)$$

As mentioned in the calculation of the return on expectations of securities, calculating the future return and the probability of its occurrence is not easy. Therefore, investors use historical data as a basis for calculating the return on expectations of the portfolio.

Portfolio expectation return is a weighted average based on data invested in each securities which make up the portfolio (Hartono, 2015).

$$E(Rp) = \sum_{i=1}^{n} (w_i \, . \, E(R_i))$$

Portfolio Risk

Portfolio risk cannot be calculated simply by adding up each of the securities which make up the portfolio. By forming an unaffected portfolio is perfectly correlated positively (+1).

Portfolio risk in addition to being influenced by the proportion of funds and the risk of each stock is also influenced by the correlation of risk between stocks which in the context of being called covarian (Hartono, 2015).

Systematically the formula for calculating n- securities is as follows:

$$\sigma^2 Rp = \sum_{i=1}^{n} X_i^2 \sigma_i^2 + \sum_{i=1}^{n} \sum_{i=1}^{n} X_i X_j \sigma_{ij}$$

Single Index Model

It is based on the observation which the self-esteem of a security fluctuates in the same direction as the market price index. It can be said that most stocks tend to experience price increases when the stock price index rises. Single Model Index can be used to simplify the model of Markowitz by providing the parameters needed in the Markowitz model.

According to Elton & Gruber (2014) The Single Index Model has the following characteristics:

The Beta of the portfolio (βp) is the weighted average of the Beta of each security (Bi)

$$\beta_p = \sum X_i \beta_i$$

The alpha of the portfolio (αp) is also the weighted average of the Alpha of each security (αi)

$$\alpha_i = \sum X_i \alpha_i$$

Portfolio Performance Appraisal

It is conducted to analyze whether the portfolio which has been formed has been able to compensate for the level of risk which should be borne by investors; besides, to find out whether the goals which have been determined by investors for their investments have been achieved.

Frequently used parameters are Sharpe, Treynor, Jensen.

1. Sharpe Index

William Sharpe created the Sharpe index which can also be known as the "reward to variability ratio". The cost of capital used in the risks contained in the portfolio is evaluated by using rewards to variability. Moreover, the Sharpe Index is calculated by using the idea of a capital market line, which involves a premium for portfolio risk sharing through standard deviations (Kodrat & Indonanjaya, 2010).

The calculated ratio is the slope of the line connecting a risky portfolio with a risk- free investment. The slope of this line can be formulated as follows (Husnan, 2015):

$$S_{RD} = \{E(Rp) - Rf\} / \sigma$$

2. Treynor Index

It is an index created by Jack Treynor. The Treynor Index is the second index which can be used in analyzing portfolio performance. The Treynor Index uses the Security Market Line as a benchmark, on the basis of ex post.

In measuring portfolio performance, Treynor uses the Characteristic Line, which is a line that shows the relationship between a stock's return and market return. These lines can be searched by regressing each return or excess return of the portfolio with the return or excess return of the market. The slope line measures the relative magnitude of the portfolio's change to market returns and it is commonly referred to as the Beta Coefficient.

Measurements with this Treynor method are formulated as follows (Husnan, 2015):

$$T_{RD} = \{E(Rp) - Rf\} / \beta p$$

3. Jensen Index

It is an index created by Michael Jensen which is also the third option for analyzing portfolio performance. The Jensen Index is used to measure between the actual rate of return of a portfolio as well as the predicted rate of return, unless the portfolio is fully prepared on the capital market line. It is the same with the Sharpe and Treynor Indices. The Jensen Index is based on CAPM. The expected level of profit from such a portfolio (Husnan, 2015):

$$E(Rpt) = Rft + \beta p\,[E(Rmt) - Rft]$$

The equation shows that the realized rate of return of the portfolio during a given period is a linear result of the risk-free interest rate return added with a risk premium, which depends on the systematic risk of a portfolio added with random errors.

The equation can be written in the form of a risk premium form or excess return form by scanning the Rf to the left side and subtracting it by Rpt, thus become (Jones, 1996):

$$\mathbf{Rpt - Rft = \beta p\ [Rmt - Rft] + Ept}$$

The equation shows that the portfolio risk premium is equal to the multiplication of the portfolio beta by the market risk premium added with random errors. In other words, the risk premium on the portfolio is proportional to the risk premium of the market, if the CAPM model is correct and the expectations of investors in general are realized. Furthermore, the equation can be tested by regressing excess return portfolio with excess return market. If a return is obtained which is proportional to the assumed risk, then the relationship will be fulfilled. Thus, there is no alpha (intercept) in regression and regression past the point of origin.

If the condition is found, according to Jensen intercept or alpha and given the symbol α, it can be added to the equation as a tool in order to determine whether the performance of a portfolio is superior or inferior. Thus, the equation can be changed to:

$$\mathbf{Rpt - Rft = \alpha p + \beta p\ [Rmt - Rft] + Ept}$$

1. If significant alpha is positive, portfolio performance is superior
2. If the alpha is significantly negative, the performance of the portfolio is inferior
3. If alpha does not differ from zero significantly, the performance of the portfolio corresponds to the market on a risk adjusted basis

The equation above can be changed again to better understand the meaning of αp, to:

$$\mathbf{\alpha p = [Rp - Rf] - \{\beta p\ [Rmt\text{-}Rft]\}}$$

From the equation, αp is between the excess return of the portfolio realized over a certain period and the portfolio risk premium which should be obtained at a certain level of systematic risk according to CAPM. Thus, αP measures the constant return obtained by a portfolio manager, above or below the return of an "unmanaged" portfolio with the same (market) risk.

RESEARCH METHODS

Research Design

This study used a type of quantitative research that was presented descriptively. This method can be interpreted as a research method based on the philosophy of positivism. The quantitative research method is a type of research whose specifications are systematic, planned, and structured so that it is clear from the beginning to the creation of the research design (Sugiyono, 2004).

This study used a descriptive approach with the aim of describing the object of the study or the results of the study. The technique used in this study used a case

study. Meanwhile, quantitative descriptive research was used to analyze the performance of the portfolio recommended by PT. Sinarmas Sekuritas for the January-December 2021 period used Sharpe, Treynor, and Jensen indices.

Research Location and Time

Research and data collection were conducted by looking at the website of PT Sinarmas Sekuritas Indonesia. The results obtained from the research at PT. Sinarmas Sekuritas in the form of stocks recommended by PT. Sinarmas Sekuritas period January December 2021.

The time required in this study was 12 months starting from January to December 2021.

Data Collection Procedure

The data used in this study was secondary data. It is data obtained from several reports and existing sources or can be said to be indirect research. In order to obtain data on PT. Sinarmas Sekuritas Indonesia then found the company's recommended stocks before processing and found the index values of Sharpe, Treynor, and Jensen could be found on the PT. Sinarmas Sekuritas Indonesia for the period of January – December 2021.

RESULTS OF RESEARCH AND DISCUSSION

Portfolio Performance Evaluation

In order to evaluate the performance of the portfolio in this study, the parameters used are Sharpe, Treynor, and Jensen. Sharpe measurements emphasize the overall risk or standard deviation. The Treynor method uses historical returns as expected returns and beta as a risk measurement tool. Meanwhile, beta shows the high of changes in equity portfolio returns and changes in market returns. Jensen's method only accepts investments in excess of the expected return. The calculation of the Jensen method is based on CAPM. The portfolio performance evaluation data is attached to the following table:

Table 1: Sharpe, Treynor, and Jensen Index Portfolio Performance

No.	Stock	Sharpe	Treynor	Jensen
1	BMRI	-0.6531	-0.1138	-0.0301
2	BBRI	-0.5424	-0.0225	0.0075
3	BBNI	-0.3397	-0.0150	0.0310
4	BBTN	-0.2657	-0.0087	0.0823
5	SMGR	-0.3546	-0.0503	-0.0184
6	INTP	-0.3007	-0.0519	-0.0191
7	ADRO	-0.2460	-0.0465	-0.0167
8	INDY	-0.2751	-0.0265	0.0004
9	UNTR	-0.3448	-0.0653	-0.0232
10	WIKA	-0.3233	-0.0224	0.0078
11	PTPP	-0.3373	-0.0167	0.0239
12	WEGE	-0.3743	-0.0143	0.0344
13	JSMR	-0.6229	-0.0530	-0.0195
14	ICBP	-0.8506	0.2673	-0.0434
15	INDF	-0.8344	2.2568	-0.0399
16	UCID	-0.6444	-0.0930	-0.0281
17	MNCN	-0.4248	-0.0198	0.0140
18	ANTM	-0.3185	-0.0155	0.0286
19	ELSA	-0.3933	-0.0179	0.0197
20	AALI	-0.4331	-0.0195	0.0147
21	LSIP	-0.4441	-0.0261	0.0010
22	JPFA	-0.3081	0.0690	-0.0547
23	BSDE	-0.5784	-0.0295	-0.0036
24	SMRA	-0.3932	-0.0278	-0.0014
25	CTRA	-0.3356	-0.0121	0.0482
26	PWON	-0.4680	-0.0244	0.0038

No.	Stock	Sharpe	Treynor	Jensen
27	DMAS	-0.4607	-0.0219	0.0088
28	INKP	-0.3021	-0.0356	-0.0097
29	TKIM	-0.2445	-0.0199	0.0137
30	ERAA	-0.3460	0.0547	-0.0587
31	TLKM	-0.6112	-0.0322	-0.0066
32	EXCL	-0.4278	-0.0532	-0.0195
33	ISAT	-0.3397	0.2927	-0.0430

Source: Research Calculation Results

Among all companies, when viewed from the Sharpe index, ICBP companies do not show good performance since they have the lowest index value. Meanwhile, the TKIM Company shows the best performance since it has the highest index value. Furthermore, review based on the Treynor index, BMRI companies do not show good performance since they have the lowest index value while INDF companies show the best performance since they have the highest index value. In addition, reviewed based on the Jensen index, ERAA companies do not show good performance since they have the lowest index value while BBTN companies show the best performance since they have the highest index value.

Table 2: Kolmogorov-Shirnov Test

One-Sample Kolmogorov-Smirnov Test				
		Sharpe	Treynor	Jensen
N		33	33	33
Normal Parameters[a,b]	Mean	-,428436	,060158	-,002903
	Std. Deviation	,157525 4	,4026304	,0303323
Most Extreme Differences	Absolute	,165	,416	,069
	Positive	,121	,416	,069
	Negative	-,165	-,333	-,050
Statistical Test ,165 ,416 ,069 Asymp. Sig. (2-tailed) ,023[c],000[c],200[c,d]				

The results of the normality test using the Kolmogorov-Smirnov Test show that the significance value of the Jensen index is 0.200 which is greater than 0.05 so that the Jensen index data is normally distributed. However, the Sharpe and Treynor indices have significant values of 0.023 and 0.000 which are smaller than 0.05 respectively which also means that the data is not normally distributed. It causes the assumption of normality to perform an F or ANOVA differential test not to be met. Since the data is not normally distributed, in

conducting different tests, it is more appropriate to use nonparametric statistics, including the Kruskall-Wallis Test (Suliyanto, 2014).

Based on the results of the analysis by using the Kruskal-Wallis Test, a Kruskal Wallis H value of 67.939 and a significance value of 0.000 are obtained. Thus, the test results show that H0 is rejected since the Kruskal-Wallis H value (67.939) is greater than the chi-square table (5.991) and the significance value (0.000) is smaller than the alpha (0.05). Therefore, it can be concluded that there is a difference between the three indices (Sharpe, Treynor, and Jensen).

Table 3: Kruskal-Wallis Difference Test

Test Statistics[a,b]	
	Index Value
Kruskal-Wallis H	67,939
Df	2
Asymp. Sig.	,000
a. Kruskal Wallis Test	
b. Grouping Variable: Index	

Based on the results of the Kruskal Wallis Test, the average rank of each group is obtained as follows:

Table 4: Comparison between Indices

Ranks		
Index	N	Mean Rank
Index Sharpe	33	17,00
Value Treynor	33	60,80
Jensen	33	72,20
Total	99	

Based on the average plot between the Sharpe, Treynor, and Jensen indices, it can be seen that the Treynor index has the highest average value followed by the Jensen index then Sharpe. In other words, the Treynor index is the index with the most superior value.

DISCUSSION

Portfolio theory begins with the assumption that the rate of return on future securities can be estimated. With certain assumptions, portfolio theory produces a linear relationship between risk and return. In order to determine the performance of the portfolio requires a performance appraisal according to Sharpe, Jensen, and Treynor. The stock price, JCI, and risk-free investment are selected on a monthly basis so that they can be adjusted to the need to calculate the Sharpe index, Treynor index, and Jensen index.

Treynor defines the relationship between portfolio yield and market yield rate, where the slope of the line measures the relative volatility between the portfolio and the market (which is represented by beta) known as the concept of a securities market line. Furthermore, the Sharpe ratio is almost identical to the Treynor measurement. The difference is that the risk measurement on the Sharpe ratio is the standard deviation of the portfolio. Meanwhile, Jensen's measurement takes into account the excess return obtained by a portfolio in excess of the expected results.

In order to find out the performance of PT Sinarmas Sekuritas Indonesia's stock portfolio in the January-December 2021 period, a regression analysis is conducted. Before conducting regression analysis, there are several assumptions which should be met, including Normality, Heteroskedasticity, and Autocorrelation (for time series data). Using the help of SPSS software, for the assumption of normality, a significance value or 0.908 is obtained. Since the significance value (0.908) is greater than 0.05, it can be concluded that the residual data are normally distributed. Asymp. Sig. (2 − tailed) Then for the assumption of heteroskedasticity, based on the results it is known that the significance value (Sig.) for the excess return market variable is 0.131 since the significance value (Sig.) for the excess market return variable is 0.131 greater than the significance level of 0.05. In accordance with the basis of decision making in the glejser test, it can be concluded that there is no problem of heteroskedasticity in the regression model so that the assumption of heteroskedasticity is met. For the autocorrelation assumption obtained a Durbin-Watson or DW value of 1.012. Moreover, based on the basis of decision making in autocorrelation testing with the Durbin-Watson test, it can be concluded that there is no autocorrelation between data.

The result of the coefficient of determination (R2) obtained is 0.336, so it can be said that the excess market return has an influence of 33.6% on the excess return of the portfolio. Meanwhile the rest is 66.4% (100% - 33.6%) so that it can be concluded that the portfolio of PT Sinarmas Sekuritas Indonesia has been well diversified. Moreover, the results of the regression analysis show that there is an influence between excess return market (X) and excess return portfolio (Y).

The results of the regression analysis show a regression constant value of -0.017 with the meaning that if the excess return market (X) is worth 0 or nothing, the value of the excess return portfolio (Y) is -0.017. In addition, the regression constant has a significance value of 0.043 which is smaller than the significance/alpha (α) level of 0.05 which means that the value is significant. Thus, it can be concluded that the performance of PT Sinarmas Sekuritas Indonesia's stock portfolio for the period of January-December 2021 is inferior.

CONCLUSION

Based on the results obtained from the stock portfolio performance evaluation research at PT Sinarmas Sekuritas Indonesia for the January-December 2021 period using the Sharpe, Treynor, and Jensen Indices, several conclusions can be drawn as the following;

1. The results of testing with the Sharpe index show that the average value of the Sharpe index is -0.4284, which means that the performance of the portfolio is considered poor. The company which has the worst performance with a Sharpe index of -0.8506 is Indofood CBP.
2. The results of testing with the Treynor index show that the average value of the Sharpe index is 0.0602, which means that the performance of the portfolio is considered good. The company which has the best performance with a Treynor index of 2.2568 is PT Indofood.
3. The results of testing with the Jensen index show that the average value of the Jensen index is -0.0029, which means that the portfolio performance is considered poor. The company which has the worst performance with a Jensen index of - 0.0587 is PT Erajaya Swasembada.
4. Portfolio performance at PT Sinarmas Sekuritas Indonesia in January– December 2021 period using the Sharpe, Treynor, and Jensen Indices is inferior since the regression constant indicates a negative value with a significance value which is smaller than the significance/alpha level which shows that the performance of the portfolio with the index has the worst performance.

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