CURRENT ADVANCED RESEARCH ON SHARIA FINANCE AND ECONOMIC WORLDWIDE (CASHFLOW)

ANALYSIS OF STOCK PORTFOLIO PERFORMANCE USING THE SHARPE, TREYNOR AND JENSEN METHODS

(Study on stocks included in the Jakarta Islamic Index 70 on the Indonesia Stock Exchange for the period 2019-2022)

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Abstract

This study aims to find out whether using the single index method will produce an optimal portfolio of Jakarta Islamic Index 70 (JII70) stocks listed on the IDX for the 2019-2022 period and continue to assess its performance using the Sharpe Ratio, Treynor and Jensen methods to find out the best method in assessing the performance of stock portfolios formed in a period. The selection of this research sample was used based on purposive random sampling technique. This study used the One Way of Variance by Rank Kruskal-Wallis different test. In this study, the Sharpe, Treynor, and Jensen values were standardized through the Z-score transformation (standardized) followed by the Mean Rank difference test between treatments. The test results using the Kruskal-Wallis test were obtained with a probability of 0.000. It is known that the probability of testing ≤ 0.05. These results indicate that there are significant differences between the tests with the Sharpe, Treynor, and Jensen methods. Thus, the null hypothesis H0 in this study was rejected. The test results between the three treatment differences in mean rank, showed no significant difference between each treatment because Jensen had the lowest difference in mean rank to Sharpe and Treynor. Jensen's method has a mean difference the lowest rank against Sharpe and Treynor, meaning that Jensen is the most consistent with indifference. Based on the results of the issuer's Jensen method analysis.

Keywords: *Optimal Portfolio, Jakarta Islamic Index 70, Single Index Model, Sharpe Index, Treynor Index*

1. INTRODUCTION

The economy and technology have developed so far, one of the important aspects in the progress of the Indonesian economy is the capital market. The capital market provides an opportunity for investors to be able to choose freely the securities traded on the capital market according to risk preferences, availability of funds, and investment period.

In investing with various levels of risk, investors cannot rely solely on the returns they will receive without considering the possible risks (Oktaviani, 2022). At the beginning of 2020, on March 11, 2020, the World Health Organization (WHO) or the world health organization has declared Covid-19 a pandemic because it has resulted in a global crisis. Throughout 2020, JII70 decreased by 14.13%, ISSI by 14.60%, and JII 15.83%, while the JCI fell by 12.77%. Thus, year to date (ytd) the sharia index shows lower performance than the JCI (Kompas.com, 2020).

During the pandemic, the Composite Stock Price Index (IHSG) tended to decline which made investors nervous because of uncertainty about market conditions and chose

to withdraw their funds (www.idx.co.id). The JCI closing price for the last 4 years has shown an increasing growth.

According to data quoted from the Indonesian Central Securities Depository (KSEI), there is an increase in the number of stock investors in the capital market every year. This is a factor that encourages increased public awareness so that people will find it easier to obtain and distribute funds in the capital market.

Based on data from the Indonesian Central Securities Depository(KSEI, 2022). In 2019 the number of investors was 2,484,354, then in 2020 the number of investors in the Indonesia Stock Exchange (IDX) increased 56.21% to 3,880,753, then in 2021 the number of investors increased to 7,489,337. Finally, in 2022 the number of investors will continue to increase by 10,311,152 or an increase of 37.68%. This shows that the number of capital market investors continues to increase from year to year.

In this regard, the progress of the Islamic capital market in Indonesia has also received a lot of attention from various communities, especially the business community. This is because the increase in the Islamic capital market has become an interesting study for Muslim investors in Indonesia who wish to invest according to Islamic law.

The growth number of issuers in the Indonesian capital market continues to increase, including companies that are included in the sharia stock group. The development of the list of sharia securities, the number of sharia shares listed in the list of sharia securities has consistently strengthened over the last six years. From 2017 to 2022, the total number of sharia shares has jumped 44.53% from 375 sharia securities to 542 sharia securities by the end of 2022.

The Jakarta Islamic Index 70 (JII70) released by the Indonesia Stock Exchange contains 70 of the most liquid company shares and includes investment criteria based on Islamic law so that investors who are interested in investing in Islamic stocks can form more optimal combinations of stocks and consider the level return and risk.

The JII70 share price in April 2020 reached the level of 155.20. This figure is the lowest level since the presence of JII70 on the Indonesia Stock Exchange. This data is in line with JII70's market capitalization which has fluctuated and experienced a downward trend which has become a reference for investors in measuring the quality of the company. The decrease in market capitalization value indicates the decreasing level of investor interest in investing in JII70.

The market capitalization of the Jakarta Islamic Index 70 (JII70) has decreased since 2020 and has increased in February 2021. However, from March to July 2021, JII70 has experienced a continuous decline. In August and September 2021, JII70's market capitalization has increased again.

In general, with the declining trend of JII70's market capitalization, investors make investments by buying relatively cheaper shares without having to sell their shares because they are worried about the condition of companies affected by Covid-19.

According to Overweight (2020)Investors need to compare price averages over time to assess the market's relative strengths and weaknesses. Investors must also be careful in compiling a holistic and diverse portfolio, because stock markets around the world are on average declining. Thus, it is necessary to calculate asset characteristics such as the expected rate of return, portfolio risk and industry classification of an asset, so that investors will be more selective through the most optimal diversification(Tandelilin, 2017).

Portfolio theory provides an explanation that a portfolio will be less risky than each of the stocks that make up the portfolio. A portfolio is said to be efficient if it has certain

risks capable of providing a high rate of return or is able to generate a certain level of profit but with lower risk.

The characteristics of the JII 70 stock can represent the performance of a stock portfolio, where the assessment of portfolio performance is seen from 2 sides, namely results and risks. Therefore, good portfolio management by both investment managers and individual investors will be very important in evaluating the performance of portfolios that have been prepared beforehand to determine the level of return achieved.

The performance appraisal is intended to be able to assess which portfolio has been formed which can improve the achievement of investment objectives. There are three methods used in assessing portfolio performance. The three methods are the Sharpe, Treynor and Jensen index methods. The Sharpe index method uses the concept of the capital market line by dividing the portfolio risk premium by its standard deviation. Furthermore, the Treynor index method uses the concept of the securities market line by dividing the portfolio risk premium by the portfolio beta. The last is the Jensen index method, which also uses the security market line as the basis for creating equations (Susilowati et al., 2020)

In this study, we look at the comparison of portfolio performance using the Sharpe, Treynor and Jensen measures based on the portfolio performance rankings formed, whether it can show differences between the Sharpe, Treynor and Jensen portfolio performance measurement methods, or show the same results between the three portfolio performance measurement tools. The results obtained later from the performance of this portfolio can be seen which portfolios are worth investing in.

The Sharpe, Treynor and Jensen methods can be used in investment selection by looking at ongoing market conditions. The three models base their analysis on past returns to predict future returns and risks. The Sharpe method emphasizes total risk (standard deviation), Treynor considers market fluctuations to play a major role in influencing returns (beta), while Jensen himself emphasizes alpha. So, the three methods have their own characteristics.

2. LITERATURE REVIEW

The capital market, as elucidated by Tandelilin (2017:25), represents a convergence point for entities possessing surplus funds and those seeking financial resources for the trading of securities. This concept lays the groundwork for comprehending the dynamics of investment and portfolio management.

Investment, a fundamental pillar of financial activity, involves the strategic deferment of current consumption in favor of channeling resources into productive assets. Hartono (2022) defines investment as a deliberate allocation with the anticipation of yielding future benefits, which underscores its critical role in financial decision-making.

Shares, as discussed by Adnyana (2020), symbolize ownership interests in companies, rendering shareholders a stake in the entity's prosperity and growth. This aspect is pivotal in comprehending the nuances of portfolio construction and the associated return and risk considerations.

Return on investment, a cornerstone metric, is delved into by Sri Herianingrum (2020), who highlights that it encapsulates the gains derived from investment endeavors. This return encompasses both yield and capital gain components, offering insights into the rewards of prudent financial allocations. Concurrently, risk, as outlined by Adnyana (2020:123), serves as a reminder of the inherent uncertainties in financial pursuits.

The concept of diversification, as defined by Adnyana (2020:47), emerges as a key strategy in portfolio management. It involves the deliberate arrangement of assets to curtail risk exposure while striving to optimize returns, a concept that becomes increasingly relevant as we explore portfolio construction.

In constructing portfolios, the amalgamation of company shares, as articulated by Hidayat (2019:163), allows investors to navigate the delicate balance between maximizing returns and minimizing risk. This intricate interplay forms the crux of effective portfolio management practices.

The single index model, proposed by Hartono (2022:617), serves as a valuable tool to simplify risk assessment in the context of the elaborate Markowitz model. This streamlined approach aids in grasping the underlying risk dynamics that influence portfolio decisions.

Crucially, the evaluation of portfolio performance involves a spectrum of metrics, each with its focus on risk factors. Among these are the Sharpe index, Treynor index, and Jensen index, expounded upon by Hartono (2022:899-917). These measurements hold significance as they offer insights into the efficacy of portfolio strategies in achieving desired outcomes.

3. RESEARCH METHOD

This research is descriptive research with a quantitative approach using the One Way of Variance by Rank Kruskal-Wallis test. In this study, the Sharpe, Treynor, and Jensen values were standardized through the Z-score transformation (standardized) followed by the Mean Rank difference test between treatments. Data collection in this study used documentation techniques by collecting monthly closing price data for companies listed on JII70, monthly closing price data on the JCI, and risk-free assets (BI Rate) during the period January 2019 – December 2022.The population in this study are all company shares that are included in the JII 70 market index on the Indonesia Stock Exchange for the 2019-2022 period of 108 companies. With a sample of 44 companies using purposive sampling method.

4. RESULTS AND DISCUSSION

4.1. Research Results

4.1.1. Portfolio Performance Measurement

Portfolio performance measurement can be done by looking at the average portfolio return value (Rp) compared to the IHSG return value (Rm) and SBI return (Rf). Portfolio performance is considered to be outperformed when the Rp value is greater than the Rm value. Conversely, portfolio performance is considered underperforming when the Rp value is less than Rm and Rf. In this study, the portfolio performance of JII70 stocks was in an outperform condition, because the value of Rp > Rm. Based on the results of these calculations, it can be seen that the optimal portfolio that is formed is able to provide an expected portfolio return of 0.02054 or 2%. The expected return obtained is greater than the expected return on the market or JCI which is only 0.00307 or 0.31%.

4.1.2. Stock Portfolio Performance Measurement Using the Sharpe Method

The results of calculating the performance of the stock portfolio of the 22 Jakarta Islamic Index 70 (JII70) shares using the Sharpe method for each period can be seen in the table below:

Table 1. Stock Portfolio Performance with the Sharpe Period Method 2019- 2022

NO	NAMA PERUSAHAAN	SHARPE				
		KODE	2019	2020	2021	2022
1	INDUSTRI JAMU DAN FARMASI SIDO	SIDO	1,21699	1,12474	0,18281	-0,54693
2	ADARO ENERGY INDONESIA	ADRO	0,58723	-0,27150	0,96956	1,98768
3	MITRA KELUARGA KARYASEHAT	MIKA	1,51630	-10,93214	-15,70712	1,20886
4	VALE INDONESIA	INCO	0,12926	0,73004	-0,28564	1,00668
5	KALBE FARMA	KLBF	-14,45199	-3,17672	-14,79655	1,71743
6	MITRA ADIPERKASA	MAPI	-4,59836	-0,40272	-0,36725	3,52776
7	ANEKA TAMBANG	ANTM	0,08437	1,32506	0,29758	-0,32061
8	AKR CORPORINDO	AKRA	-0,32848	-0,46936	0,82180	1,57341
9	BANK BTPN SYARIAH	BTPS	4,77053	-0,23981	-0,16248	-0,98127
10	INDO TAMBANGRAYA MEGAH	ITMG	-1,06814	0,21568	1,06946	1,92027
11	CHANDRA ASRI PETROCHEMICAL	TPIA	1,33106	-0,18537	-0,33676	1,31643
12	INDOSAT OOREDOO HUTCHISON	ISAT	0,74558	0,48352	0,47887	-0,08103
13	BANK BRISYARIAH	BRIS	-1,66730	-0,22819	-0,49243	-0,99826
14	BARITO PACIFIC	BRPT	4,00519	-0,26711	-0,60200	-0,57525
15	GLOBAL MEDIACOM	BMTR	0,61511	-0,30153	-0,65041	0,06287
16	MATAHARI DEPARTMENT STORE	LPPF	-4,00983	-0,87463	-0,27738	-0,16805
17	MEDIA NUSANTARA CITRA	MNCN	2,14918	-0,63060	-0,76449	-0,67751
18	XL AXIATA	EXCL	2,40400	-0,34459	0,39460	-0,95488
19	ERAJAYA SWASEMBADA	ERAA	-0,25985	0,25882	0,83204	-1,91506
20	MAYORA INDAH	MYOR	-2,34800	1,20628	-1,52115	0,43050
21	PURADELTA LESTARI	DMAS	1,81843	-0,32730	-0,87299	-1,17200
22	UNITED TRACTORS	UNTR	-1,02734	0,46707	-0,51130	0,42240

Information:
Gray : Highest
Green : Lowest

Source: Data Processed by Researchers, 2023

The table above shows that there are 22 stocks from 2019 to 2022 showing the Sharpe index in the minimum range of -15.70 to the maximum range of 4.77. If the value of the Sharpe performance index (RVAR) is positive and the greater the portfolio performance, the better. This shows that in the JII70 portfolio formed, not all of Sharpe's performance is positive, as in the table above there are 2 stocks from 2019 to 2022 consistently showing a negative Sharpe performance index, including: Bank Bri syariah (BRIS) and Matahari Department Store (LPPF). The results from the calculation of the Sharpe index are the same

4.1.3. Stock Portfolio Performance Measurement Using the Treynor Method

The results of calculating the performance of the stock portfolio of the 22 JII 70 shares using the Treynor method are in the table below:

Table 2. Stock Portfolio Performance with the Treynor Method Period 2019-2022

NO	NAMA PERUSAHAAN	TREYNOR				
		KODE	2019	2020	2021	2022
1	INDUSTRI JAMU DAN FARMASI SIDO	SIDO	-0,87432	0,97116	0,03585	0,25649
2	ADARO ENERGY INDONESIA	ADRO	0,09792	-0,12883	0,63508	0,27844
3	MITRA KELUARGA KARYASEHAT	MIKA	-0,99346	-6,93448	-9,28555	-0,27420
4	VALE INDONESIA	INCO	0,01708	0,23260	-0,05574	0,14159
5	KALBE FARMA	KLBF	-2,87187	-1,92236	-9,65474	-2,00106
6	MITRA ADIPERKASA	MAPI	-0,81072	-0,13561	-0,06530	2,40001
7	ANEKA TAMBANG	ANTM	0,01150	0,46530	0,05029	-0,04396
8	AKR CORPORINDO	AKRA	-0,04202	-0,13754	0,11987	0,50330
9	BANK BTPN SYARIAH	BTPS	2,17824	-0,08656	-0,02221	-0,13665
10	INDO TAMBANGRAYA MEGAH	ITMG	-0,15264	0,09936	0,35755	0,41854
11	CHANDRA ASRI PETROCHEMICAL	TPIA	1,39540	-0,08900	0,17348	0,32624
12	INDOSAT OOREDOO HUTCHISON	ISAT	0,11158	0,24116	-1,42962	0,66692
13	BANK BRISYARIAH	BRIS	-0,22521	-0,09719	-0,08968	-0,37615
14	BARITO PACIFIC	BRPT	-3,60175	-0,16101	-0,08814	-0,27225
15	GLOBAL MEDIACOM	BMTR	0,10869	-0,10414	-0,14500	0,46268
16	MATAHARI DEPARTMENT STORE	LPPF	-0,83036	-0,32172	-0,39140	-0,03722
17	MEDIA NUSANTARA CITRA	MNCN	0,73458	-0,19083	-0,12327	-0,19753
18	XL AXIATA	EXCL	1,10409	-0,11636	0,16989	-0,36384
19	ERAJAYA SWASEMBADA	ERAA	-0,04754	0,08900	-0,45609	-0,59278
20	MAYORA INDAH	MYOR	-1,14339	0,80918	-1,92676	-0,13916
21	PURADELTA LESTARI	DMAS	0,59214	-0,10344	-0,14383	-0,22301
22	UNITED TRACTORS	UNTR	-0,39287	0,27146	-0,33542	0,04915

Information:
Gray : Highest
Green : Lowest

Source: Data Processed by Researchers, 2023

The table above shows that the Treynor index from 2019 to 2022 is in the minimum range of -9.65 to the maximum range of 2.40. If the Treynor value (RVOR) is positive and the greater the performance of the stock portfolio, the better. For the period from 2019 to 2022, the Treynor index from the results of calculations is almost evenly distributed every year with a negative value. This shows that in the formed Jakarta Islamic Index 70 (JII70) portfolio, Treynor's performance has not all been positive, as in the table above there are 4 stocks from 2019 to 2022 consistently showing a negative Treynor performance index, including: Mitra Keluarga Karyahealth (MIKA), Kalbe Farma (KLBF), Bank Brisyariah (BRIS), and Matahari Department Store (LPPF).

4.1.4. Stock Portfolio Performance Measurement Using the Jensen Method

The results of calculating the performance of the Jakarta Islamic Index 70 (JII70) shares using the Jensen method are in the table below:

Table 3. Stock Portfolio Performance with the Period Jensen Method 2019-2022

NO	NAMA PERUSAHAAN	JENSEN				
		KODE	2019	2020	2021	2022
1	INDUSTRI JAMU DAN FARMASI SIDO	SIDO	0,74959	0,28245	1,66234	0,28425
2	ADARO ENERGY INDONESIA	ADRO	5,39842	0,83546	1,17105	6,38186
3	MITRA KELUARGA KARYASEHAT	MIKA	1,06360	-3,14972	-3,31251	2,26257
4	VALE INDONESIA	INCO	12,47472	2,81392	4,11771	11,69347
5	KALBE FARMA	KLBF	-1,99592	-0,68343	-3,18340	0,27544
6	MITRA ADIPERKASA	MAPI	1,61385	4,50635	4,02126	1,15020
7	ANEKA TAMBANG	ANTM	13,19008	8,74437	6,30747	12,57508
8	AKR CORPORINDO	AKRA	10,20922	2,83052	4,64659	2,34545
9	BANK BTPN SYARIAH	BTPS	1,66371	3,35659	12,69926	3,30022
10	INDO TAMBANGRAYA MEGAH	ITMG	9,74399	2,98901	1,81309	5,13828
11	CHANDRA ASRI PETROCHEMICAL	TPIA	0,93376	3,46764	0,64652	1,56017
12	INDOSAT OOREDOO HUTCHISON	ISAT	36,70879	9,09424	0,22422	-0,03697
13	BANK BRISYARIAH	BRIS	3,14638	10,31793	6,88964	0,35298
14	BARITO PACIFIC	BRPT	2,45437	3,59890	8,01722	0,13928
15	GLOBAL MEDIACOM	BMTR	12,65893	3,92751	0,67945	0,03064
16	MATAHARI DEPARTMENT STORE	LPPF	5,11764	4,20207	-0,00988	6,08487
17	MEDIA NUSANTARA CITRA	MNCN	4,43717	2,98106	3,52733	0,95266
18	XL AXIATA	EXCL	0,76095	2,18433	0,60102	0,59999
19	ERAJAYA SWASEMBADA	ERAA	25,23789	4,52164	0,91951	0,01215
20	MAYORA INDAH	MYOR	-0,22052	0,41629	-0,27572	2,01672
21	PURADELTA LESTARI	DMAS	2,63229	4,07017	2,79731	0,62051
22	UNITED TRACTORS	UNTR	0,18878	0,73639	0,10115	7,81493

Information:
Gray : Highest
Green : Lowest

Source: Data Processed by Researchers, 2023

The table above observes that the Jensen index from 2019 to 2022 is in the minimum range of -3.312251 to a maximum range of 36.70879. If Jensen's value is the highest and significant, then the portfolio is the best of the existing portfolios. Alpha is positive, meaning that the financial manager produces better performance than the market index. Meanwhile, a negative value means that the financial manager has a lower performance than the market index. The period from 2019 to 2022, the Jensen index from the calculation results each year has a negative value. This shows that in the JII70 portfolio formed, Jensen's performance has not all been positive, as in the table above there are 4 stocks from 2019 to 2022 showing a negative Jensen performance index, including:

4.1.5. Z-Score transformation

The purpose of this research is to find out whether the three performance measurement methods are different or there is no difference for the same portfolio. So first look for the standard value of each relative number with the standardized method (Z-score transformation).

Table 4. Descriptive Statistics Result

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Means**	**std. Deviation**
ZSCORE	258	-522,327	163,725	-0.04058	0.910351
Valid N (listwise)	258				

Source: Analysis Results, 2023

Portfolio performance measurement using the Sharpe method has a minimum performance score with a Z-score of -4.60999 formed by issuers MNCN (Media Nusantara Citra) which will occur in 2021. Meanwhile, the maximum performance score with a Z-score of 1.61050 is formed by issuers ANTM (Aneka mining) that occurred in 2019. Then the portfolio with the highest Z-score value is ranked first, namely ANTM (Aneka Tambang) which occurred in 2019, and the lowest Z-score value, namely MNCN (Media Nusantara Citra) which occurred in 2019 will be last rank.

For the Treynor method, it has a minimum performance score with a Z-score – 5.22327 formed by the issuer BRPT (Barito Pacific) in 2021. And a maximum performance score with a Z-score of 1.57704 formed by LPPF (Matahari Department Store) which will occur in 2022 So the LPPF (Matahari Department Store) portfolio that occurs in 2022 will rank first and the BRPT (Barito Pacific) portfolio in 2021 will rank last.

Portfolio performance measurement using the Jensen method has a minimum performance score with a Z-score of -1.25915 formed by MIKA issuers (Mitra Keluarga Karyasehat) which occurred in 2019. So, the MIKA (Mitra Keluarga Karyasehat) portfolio which occurred in 2019 will rank first and the MNCN (Media Nusantara Citra) portfolio which occurs in 2021 will rank last.

A parametric test is required that the data must be normally distributed. Normality test in this study through *Kolmogorov-Smirnov*.

Table 5. Normality Test Results using Kolmogorov-Smirnov

Tests of Normality							
		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	CODE_ZSCORE	Statistics	df	Sig.	Statistics	df	Sig.
ZSCORE	ZSHARPE	0.298	86	0	0.614	86	0
	ZTRENOR	0.317	86	0	0.562	86	0
	ZJENSEN	0.125	86	0.002	0896	86	0
a. Lilliefors Significance Correction							

Source: Results of Data Processing with IBM SPSS 24

It can be seen from the table above in the Kolmogorov-Smirnov and Shapiro-Wilk columns on the df index, it can be seen that each data has a total of 86. And it can be seen that each of the variables above has a significance value below 0.05 ($p < \alpha : 0.000 < 0.05$). Because the resulting normality test is that the data is not significant ($p < \alpha$), it can be stated that the data used in this study is not normally distributed. This is also supported by the Shapiro-Wilk significance value which is also smaller than the value of α (0.05), so this study will use a non-parametric statistical test, namely the Kruskall-Wallis One Way ANOVA.

4.1.6. Kruskal Wallis Test

The Kruskal-Wallis test was used to test the null hypothesis of several samples drawn from the same or identical populations with one-way analysis of variance based on rank.

Table 6. Kruskal-Wallis test results (1)

Ranks			
	CODE_ZSCORE	N	MeanRanking
ZSCORE	ZSHARPE	86	142.74
	ZTRENOR	86	147.79
	ZJENSEN	86	97.97
	Total	258	

Test Statistics[a, b]	
	ZSCORE
Kruskal-Wallis H	23,234
Df	2
asymp. Sig.	0
a. Kruskal Wallis test	
b. Grouping Variable: CODE_ZSCORE	

Source: Analysis Results, 2023

From the results of the tests that have been carried out, it can be seen in the table above, that the performance of the Jakarta Islamic Index 70 (JII70) using the Sharpe and Treynor methods proved to be insignificant. This is because the significance value is greater than the α value (0.000 <0.05), so it can be said that these results indicate that there is a significant difference between the tests with the Sharpe, Treynor and Jensen methods. Thus, the null hypothesis (H0) in this study was rejected.

Next is partial testing, namely comparing the three methods respectively.

a. Hypothesis 1a

Table 7. Kruskal-Wallis (2) test results

Ranks			
	CODE_ZSCORE	N	MeanRanking
ZSCORE	ZSHARPE	86	84.24
	ZTREYNOR	86	88.76
	Total	172	

Test Statistics[a, b]	
	ZSCORE
Kruskal-Wallis H	0.353
Df	1
asymp. Sig.	0.552
a. Kruskal Wallis test	
b. Grouping Variable: CODE_ZSCORE	

Source: Results of Data Processing with IBM SPSS 24

From the results of the tests that have been carried out, it can be seen in the table above, that the performance of the Jakarta Islamic Index 70 (JII70) using the Sharpe and Treynor methods proved to be insignificant. This is because the significance value is greater than the value α (0.552 > 0.05), so it can be said that hypothesis 1a) is rejected, namely between the performance of the Jakarta Islamic Index 70 (JII70) using the Sharpe and Treynor methods there is no difference (same), with the Treynor method is performance with a larger mean.

b. Hypothesis 1b

Table 8. Kruskal-Wallis test results (3)

Ranks			
	CODE_ZSCORE	N	MeanRanking
ZSCORE	ZSHARPE	86	102
	ZJENSEN	86	71
	Total	172	

Test Statistics[a, b]	
	ZSCORE
Kruskal-Wallis H	16,665
Df	1
asymp. Sig.	0
a. Kruskal Wallis test	
b. Grouping Variable: CODE_ZSCORE	

Source: Results of Data Processing with IBM SPSS 24

From the results of the tests that have been carried out, it can be seen in the table above, that the performance of JII70 using the Sharpe and Jensen methods has proven to be significant. This is because the significance value is greater than the value α (0.000 > 0.05), so it can be said that hypothesis 1b) is accepted, that is, the performance of the Jakarta Islamic Index 70 (JII70) using the Sharpe and Jensen methods is different (not the same), with the Sharpe method is performance with a larger mean.

c. Hypothesis 1c

Table 9. Kruskal-Wallis (4) test results

Ranks			
	CODE_ZSCORE	N	Mean Ranking
ZSCORE	ZTREYNOR	86	102.53
	ZJENSEN	86	70.47
	Total	172	

Test Statistics[a, b]	
	ZSCORE
Kruskal-Wallis H	17,835
Df	1
asymp. Sig.	0
a. Kruskal Wallis test	
b. Grouping Variable: CODE_ZSCORE	

Source: Results of Data Processing with IBM SPSS 24

From the results of the tests that have been carried out, it can be seen in the table above, that the performance of JII70 using the Treynor and Jensen methods has proven to be significant. This is because the significance value is greater than the value α (0.000 > 0.05), so it can be said that hypothesis 1c) is accepted, that is, the performance of the Jakarta Islamic Index 70 (JII70) using the Sharpe and Jensen methods is different (not the same), with the Treynor method is performance with a larger mean.

4.2. Discussion

Based on the results of data analysis that has been carried out using the single index method on company shares at the Jakarta Islamic Index 70 (JII70) of the 44 company shares that are the research sample, there are 22 stocks that form an optimal portfolio because the Excess Return to Beta (ERB) value of the individual shares are greater than the value of the Cut-off Point(C*). The companies that are the optimal portfolio are the Sido Herbal and Pharmaceutical Industry (SIDO), Adaro Energy Indonesia (ADRO), Mitra Keluarga Karyahealth (MIKA), Vale Indonesia (INCO), Kalbe Farma (KLBF), Mitra Adiperkasa (MAPI), Aneka Tambang (ANTM), Akr Corporindo (AKRA), Bank Btpn Syariah (BTPS), Indo Tambangraya Megah (ITMG), Chandra Asri Petrochemical (TPIA), Indosat Ooredoo Hutchison (ISAT), Bank Brisyariah (BRIS), Barito Pacific (BRPT), Global Mediacom (BMTR),

The proportion of funds from each share that is formed in the optimal portfolio is 10.52% for the Sido Herbal and Pharmaceutical Industry (SIDO), 10.37% for Adaro Energy Indonesia (ADRO), 10.13% for Mitra Keluarga Karyahealth (MIKA), 8.68% for Vale Indonesia (INCO), 8.45% for Kalbe Farma (KLBF), 6.72% for Mitra Adiperkasa (MAPI), 6.65% for Aneka Tambang (ANTM), 6, 63% for Akr Corporindo (AKRA), 5.045 for Bank Btpn Syariah (BTPS), 4.86% for Indo Tambangraya Megah (ITMG), 4.205 for Chandra Asri Petrochemical (TPIA), 3.88% for Indosat Ooredoo Hutchison (ISAT) , 3.49% for Bank Brisyariah (BRIS), 2.67% for Barito Pacific (BRPT), 1.865 for Global Mediacom (BMTR), 1.37% for Matahari Department Store (LPPF), 1.36% for Media Nusantara Citra (MNCN), 1.22% for Xl Axiata (EXCL), 0.89% for Erajaya Swasembada (ERAA), 0,63% for Mayora Indah (MYOR), 0.26% for Puradelta Lestari (DMAS), and 0.12% for United Tractors (UNTR).

4.2.1. First Hypothesis

Based on the Kruskal-Wallis test, it can be seen that the performance of the Jakarta Islamic Index 70 (JII70) using the Sharpe, Treynor and Jensen methods is proven to have differences. This is based on the measurement of the results obtained which are significant with a value of 0.000 (0.000 <0.05).

For the partial test on the first hypothesis, it can be seen that for hypothesis 1a) the result is that the hypothesis is rejected, because it is significant at the 0.552 level > 0.05 so that the Sharpe method with the Treynor method proves to have no difference. For hypothesis 1b) the results show that the hypothesis is rejected, because the results are not significant at the 0.000 level <0.05 so that the Sharpe method and the Jensen method are proven to have differences. For hypothesis 1c) the results show that the hypothesis is rejected, because it is significant at the 0.000 level so that the Treynor method and the Jensen method are proven to have differences.

5. CONCLUSION

This research was conducted to analyze the comparison of the performance evaluation of the Jakarta Islamic Index 70 (JII70) stock portfolio using the Sharpe, Treynor and Jensen methods during the 2019-2022 period. Single Index Method, there are 22 stocks that are most effective from the 2019-2022 period to form an optimal portfolio

Portfolio performance measurement using the Sharpe, Treynor, and Jensen methods will have index number characteristics that are different from each other so that they cannot be compared logically with one another, so standardization of performance measures is needed that can be used to compare portfolio performance measurements using the Sharpe, Treynor, method. and Jensen, namely by transforming the Z-score (Standardized). The results of the Z-score transformation show that the Sharpe index places the BTPS portfolio (Bank BTPN Syariah Tbk) which occurred in 2019 in first place. And the Treynor index puts the MAPI portfolio (Mitra Adiperkasa) which will occur in 2022 as the first rank,

The results of testing differences in portfolio performance measurement using the Sharpe, Treynor and Jensen method with the Kruskal-Wallis test there are significant differences in measuring performance using the Sharpe, Treynor and Jensen method as seen from the statistical mean values between the three are very different. While the inter-treatment test of the three methods showed that there was no difference in the performance of Sharpe and Treynor, there was a difference in the performance of Sharpe and Jensen and there was a difference in the performance of Treynor and Jensen. So overall it can be concluded that between the three methods there is a significant difference.

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