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# Comparative Analysis of Indonesia and Malaysia Sharia Stock Index Performance Using Sharpe, Treynor, and Jensen Methods

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## Abstract

*The research aims to measure the performance of stock indices and analyze the comparative performance of sharia stock indices in Indonesia (JII-70) and Malaysia (FBMS) during and after the COVID-19 pandemic. The performance assessment used was the Sharpe, Treynor, and Jensen method. Sharpe concept will be used to measure the risk premium for each unit of risk in the portfolio, Treynor will be used to measure portfolio performance assuming that the Reward to Volatility Ratio (RVR) of a well-diversified portfolio, and Jensen will measure that estimates a constant rate of return over the investment period. The performance of JII-70 and FBMS will be comparatively analyzed using the independent sample t-test with Eviews-12 software. According to Treynor, the test results show that the performance of the JII-70 stock index is positive. In contrast, according to the Sharpe and Jensen indices, it is negative, while the performance of FBMS based on these three indices shows negative results. The performance of the JII-70 stock index is higher than the FBMS index, although the difference is not significant. Meanwhile, according to the Jensen index, FBMS performance is better than JII-70 performance. It can be concluded that the Jakarta Islamic Index-70 (JII-70) performance is better than the FTSE Bursa Malaysia EMAS Sharia (FBMS). The findings of this study help regulators and practitioners design essential strategies in light of varying stock market dynamics during the pandemic.*

***Keywords:***

*FBMS Index; Jensen Index; JII-70 Index; Sharpe Index; Treynor Index*
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## 1. Introduction

Indonesia and Malaysia are two countries in Southeast Asia that are always in the top ten countries in the world in terms of health and development in the field of Islamic Finance. According to the State of the Global Islamic Economy (SGIE) Report, Malaysia's Islamic finance section in the last three years has consistently been ranked 3rd while Indonesia has always been ranked seventh. It is thought to be because Indonesia is a country in Southeast Asia with a majority Muslim population, and Malaysia is a Muslim country.

When Islamic finance in Indonesia and Malaysia could be declared to be developing, the World Health Organization (WHO) officially declared the COVID-19 virus as a pandemic. The adverse impact of the increase in COVID-19 cases on stock market returns was mainly triggered by investors' pessimistic sentiment regarding future returns and concerns about uncertainty. The existence of shock selling activities or massive sales of shares owned by investors shows negative sentiment. In this situation, prices on the stock market decline and weaken rapidly, creating negative abnormal returns. The fluctuations of sharia stock indices in Indonesia and Malaysia also experienced a significant decline.

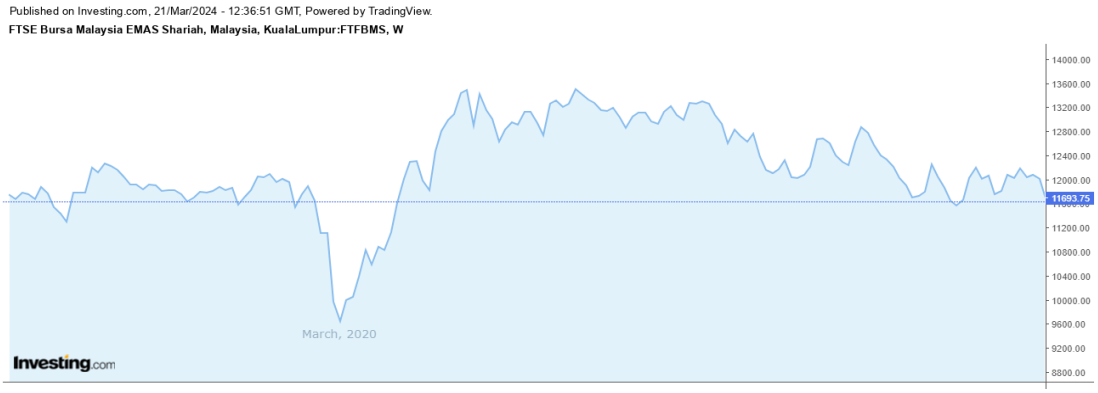


**Figure 1. Chart of the Jakarta Islamic Index-70 during the pandemic**
Source: Investing.com, 2023

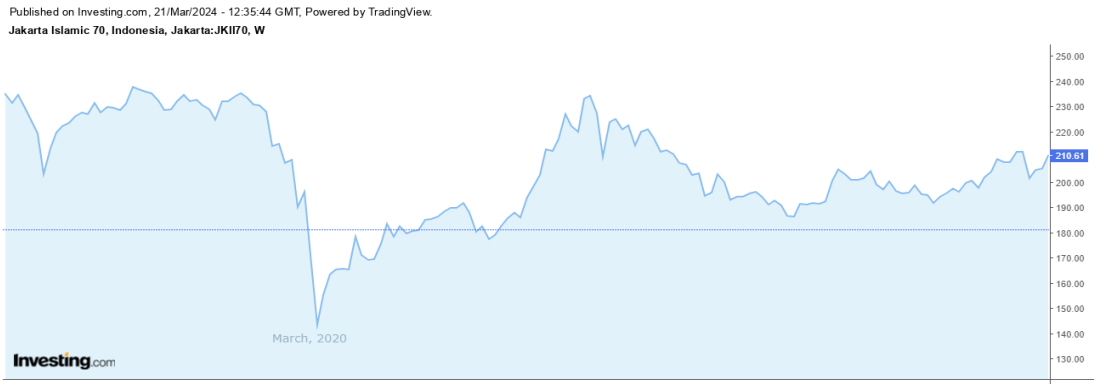


**Figure 2. Chart of the FTSE Bursa Malaysia EMAS Syariah during the pandemic**
Source: Investing.com, 2023

Figures 1 and 2 show a significant decline in March 2020 in the JII-70 and FBMS Index. We can also see that the rate of decline and increase again forms a different graph for each country. This increase could be because sharia stocks also have good resilience when the economy is experiencing a crisis. The adverse impact of the increase in COVID-19 cases on stock market returns was mainly triggered by investors' pessimistic sentiment regarding

future returns and concerns about uncertainty. The existence of shock selling activities or massive sales of shares owned by investors shows negative sentiment. In this situation, prices on the stock market decline and weaken rapidly, creating negative abnormal returns

Stock exchanges in all countries create stock indexes with various criteria so investors can more easily choose stock indexes as a portfolio. Evaluation of index performance is carried out to determine whether the index can provide the expected results. Portfolio performance evaluation can be done with several models such as the Sharpe, Treynor, Jansen, Different Return, Appraisal Ratio (information index), M-Square (M2), Sortino and Treynor-Square (T2) index models.

Empirically, according to previous research by Liu, Manzoor, Wang, Zhang, and Manzoor (2020), all countries and regions affected by the COVID-19 pandemic experienced significant and negative stock market returns. Then, the confirmed cases of COVID-19 had a significant and detrimental impact on the performance of major Southeast Asian stocks on abnormal returns. Research results also showed negative and significant abnormal returns and cumulative abnormal returns when the first cases of COVID-19 appeared in each country, especially after the WHO's announcement. Research conducted by Aslam, Mohmand, Ferreira, Memon, and Khan (2020) shows that COVID-19 significantly impacts network finance. In the case of developing country stock markets, contagion effects are also identified in network structure with modes of behaving synchronously. Additionally, COVID-19 changed the sign and intensity of the structure correlation between global stock markets. The profits are lower for less mature markets, such as countries developing and leading.

Several studies aim to compare the performance of Sharia stock indices, including research related to the comparison of capital market performance in 5 ASEAN countries during the COVID-19 pandemic, which was conducted by Romadhon and Ardiansyah (2022) by comparing the indices of the five countries. The results show that stock indices in Indonesia, Malaysia, Singapore, Thailand and the Philippines significantly influence each other.

Research related to stock portfolio performance during the COVID-19 pandemic was conducted by Nurwahidah and Hasan (2022) by comparing the LQ45 index with the SRI-KEHATI index. The results show that the portfolio of shares on the LQ45 index performs better than those on the SRI-KEHATI index in the 2020-2021 period. Based on several previous studies related to comparisons of the performance of Sharia stock indices that have been carried out show differences in the performance of Sharia stock indices, which differences in the models may cause used, research periods and research objects. It explains that it is necessary to carry out further research that aims to analyze the comparative performance of the Islamic stock index during and after the COVID-19 pandemic. This research is needed to compare the performance indices for Indonesia and Malaysia to help investors make investment decisions.

## 2. Method

The research is included in the quantitative research type, descriptive analysis. A method is called quantitative because the research data is in the form of numbers and uses statistics as an analytical tool. The statistical tool used in this research is the difference test with the independent sample t-test. This test was carried out to compare the performance of stock indices as a portfolio of sharia shares from Indonesia and Malaysia. This comparison test is carried out by comparing the performance of stock portfolios as measured by three indicators: the Sharpe index, Treynor index and Jansen index. These three measures are

composite (risk-adjusted) measures of portfolio performance because they combine return and risk in a calculation. Sharpe, Treynor, and Jensen ratio gives an easy mechanism for constructing an optimal portfolio of stocks (as the number of inputs required in these three ratios is less than in Markowitz's model when arriving at risk and returns). To show the performance of an index, we cannot just look at its historical basis, such as the price when it was launched and the current price; we also have to be able to look further into the heating of the index in question. This display can be expressed as a standard deviation or deviation from the average. This standard deviation is used as a measurement tool for risk units in the Sharpe index calculation. Then, it is supported by the Treynor index, which also measures sensitivity to changes in the market as a whole, so my opinion is exactly what I used in the period I chose.

Moreover, closed with the Jensen index to calculate the excess returns obtained. Sharpe, Treynor, and Jensen ratio is used in practice to measure portfolio performance. Its principal advantage is that it is directly computable from any observed series of returns without additional information surrounding the source of profitability and observes both systematic and idiosyncratic risk.

The sample in the research is representative of the population studied. Samples that are representative of the population are deliberately chosen to be observed. The criteria used to determine the sample in this research are as follows: 1) The Sharia stock index is listed on the Indonesia Stock Exchange and Malaysia Stock Exchange. 2) Index that reflects the most liquid sharia shares in Indonesia and Malaysia from 2020 to 2023. Based on the criteria mentioned, the Sharia stock indexes used as data in this research are the Jakarta Islamic Index 70 and the FTSE Bursa Malaysia EMAS Syariah.

## 3. Result and Discussion

There are 2 (two) data analysis steps carried out in this research. First, calculate the performance of the Sharia stock index from the Jakarta Islamic Index-70 and Bursa Malaysia EMAS Syariah using the Sharpe, Treynor and Jensen indices. Second, the hypothesis will be tested to determine the difference between the performance of the Sharia stock index from the Jakarta Islamic Index-70 and the Bursa Malaysia EMAS Syariah using the independent sample t-test.

### Calculation of Performance Index

In the research, 3 (three) calculation indices were used to measure the performance of the Sharia stock index. These indices are the Sharpe, Treynor and Jansen index. To perform using the Sharpe, Treynor, and Jensen indices, you have to return the portfolio's standard deviation and beta using the following data and results.

**Table 1. Average return, standard deviation and beta from SIBOR (Free Risk), FTASEANAS (Market Index), JII-70 and FBMS**

| | Free Risk (SIBOR) | Market (FTASEANAS) | JII-70 | FBMS |
|---|---|---|---|---|
| **AVERAGE** | 1.66% | 0.22% | 0.03% | 0.06% |
| **STD. DEV.** | 1.66% | 5.59% | 4.83% | 4.24% |
| **BETA** | | -0.27 | -0.45 | 0.01 |

Source: data processed, 2024

The Singapore Interbank Offered Rate (SIBOR) is used as a risk-free variable which will later be needed in calculating the Sharpe, Treynor and Jensen indices. For market variables

or market data used is data from the Financial Times Stock Exchange ASEAN with an index of sharia shares called FTASEANAS.

**Index Performance with Sharpe Index**

Calculation of stock performance using the Sharpe Jakarta Islamic Index-70 index method and Bursa Malaysia EMAS Syariah is measured by dividing the index risk premium by its standard deviation. The calculation of the performance of the sharia stock index using the Sharpe index is as follows.

**Table 2. Performance Index for JII-70 and FBMS with Sharpe Index**

| Index Name | Sharpe |
|---|---|
| JII-70 – Indonesia | (0.337906148) |
| FBMS – Malaysia | (0.378090937) |
| **FTASEANAS – Market** | **(0.258429317)** |

Source: data processed, 2024

Table 2 shows that the performance calculations using the Sharpe index on the JII70 and FBMS stock indexes all have negative values. The JII70 index has a higher Sharpe value compared to the FBMS Index. The Sharpe index value for the JII70 is -0.337906148, and the FBMS's is -0.378090937.

The market performance that was calculated using the Sharpe index was -0.258429317. The JII-70 and the FBMS indices have lower performance than market performance. However, the performance of the JII-70 can be stated to be 4.02% better than the performance of the FBMS. However, the performance of the two indexes still needs to be better because it is below market performance, and the average return is risk-free.

**Index Performance with Treynor Index**

The calculation of the performance of the sharia stock index from the JII-70 and the FBMS using the Treynor index is as follows.

**Table 3. Performance Index for JII-70 and FBMS with Treynor Index**

| Index Name | Treynor |
|---|---|
| JII-70 – Indonesia | 0.036463324 |
| FBMS – Malaysia | (1.095325314) |
| **FTASEANAS – Market** | **0.054141737** |

Source: data processed, 2024

In Table 3, it can be seen that the JII70 has a positive value, and the FBMS has a negative value. The index with the highest performance value is the JII70, with a Treynor index value of 0.036463324 or 3.646%. JII70 has a better performance value because, based on Table 1, JII70 has a lower beta value than other indexes. FBMS has a lower performance value with a Treynor index value of -1.095325314.

The market performance value calculated using the Treynor index was 0.054141737 or 5.414%. The JII-70 and the FBMS indices have lower performance than market performance. However, the performance of the JII-70 is much better than that of the FBMS. However, the performance of the two indices still needs to be better because it is below market performance, and the average return is risk-free.

**Index Performance with Jensen Index**

The calculation of the performance of the sharia stock index from the JII-70 and the FBMS using the Jensen index is as follows.

**Table 4. Performance Index for JII-70 and FBMS with Treynor Index**

| Index Name | Jensen |
|---|---|
| JII-70 – Indonesia | (0.022783904) |
| FBMS – Malaysia | (0.015810469) |
| **FTASEANAS – Market** | **(0.018296588)** |

Source: data processed, 2024

Table 4 states that the highest performance value is in the FBMS index with a Jensen index of -0.015810469. Meanwhile, the lowest is the JII70, with an index value of -0.022783904. The higher the index performance value, the better the index performance. When calculated using the Jansen index, the best index performance is the FBMS because the value is the highest, and the worst performance is the JII70 because the performance value is the smallest. The market performance that was calculated using the Jensen index was -0.018296588. The JII70 index has lower performance than market performance, while the FBMS performs better than market performance.

**Hypothesis Test**

This hypothesis test was carried out using the Independent sample t-test to determine the difference in the performance of the Jakarta Islamic Index 70 (JII70) index and the FTSE Bursa Malaysia EMAS Shariah (FBMS).

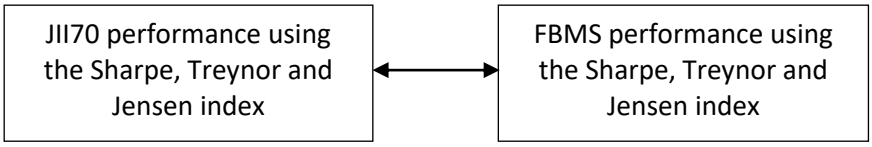


**Figure 3. Performance Comparison of the JII70 with the FBMS**

Figure 3 shows that this research will analyze the comparison between the performance of JII70 and FBMS. The following are the results of the average difference test for the Jakarta Islamic Index 70 (JII70) and FTSE Bursa Malaysia EMAS Shariah (FBMS).

Differences in performance of the JII-70, which have been measured using 3 (three) methods, namely Sharpe, Treynor, and Jensen, are known to have an average performance value of -0.108076. In comparison, FBMS, which also has been measured using the same 3 (three) methods, is known to have an average performance value of -0.496409. It shows that the performance value of JII-70 is better than FBMS.

The following are the results of the Independent sample t-test average difference test on JII70 and FBMS.

**Table 5. Independent Sample T-Test for JII70 and FBMS**

| Method | df | Value | Probability |
|---|---|---|---|
| t-test | 4 | 1.149587 | 0.3144 |
| Satterthwaite-Welch t-test* | 2.527147 | 1.149587 | 0.3474 |
| Anova F-test | (1, 4) | 1.321550 | 0.3144 |
| Welch F-test* | (1, 2.52715) | 1.321550 | 0.3474 |

Source: data processed, 2024

It can be seen that if the calculated t value is positive, it means that the performance of JII70 is higher than the performance of FBMS. Table 6 show that the calculated t value in the statistical calculation results is positive with a value of 1.149587. Meanwhile, the

probability value is 0.3144, if the probability value is higher than 0.05 then it means there is no significant difference between the two index performances.

**JII70 and FBMS Performance Calculation Using Sharpe, Treynor and Jansen Index**

The following are the performance calculation results of JII70 and FBMS sharia stock index using the Sharpe, Treynor and Jansen index.

**Table 6. Performance of JII70 and FBMS with Sharpe, Treynor and Jansen index**

| No. | Index Method | JII-70 | FBMS |
|---|---|---|---|
| 1 | Sharpe | -0,337906148 | -0,378090937 |
| 2 | Treynor | 0,036463324 | -1,095325314 |
| 3 | Jensen | -0,022783904 | -0,015810469 |

Source: data processed, 2024

The results of calculating the performance of JII70 were obtained using the Sharpe, Treynor and Jansen index. According to the Treynor index, the performance of JII70 is positive and has the highest value, 0.03646. In contrast, according to the Sharpe and Jensen indexes, it has a negative value, with the lowest index being the Sharpe index with a value of -0.33791. FBMS performance calculation results in it can be seen that according to the Sharpe, Treynor and Jensen indices, the performance of FBMS is negative, with the highest performance being the Jensen index with -0.01581 and the lowest performance being the Treynor index with a value of -1.09532.

**Comparison of the Performance of Jakarta Islamic Index-70 Index and FTSE Bursa Malaysia EMAS Syariah**

The calculated t value in the statistical calculation results above is positive, which means that the performance of JII70 is better than that of FBMS. This answers the first hypothesis: "The performance of the Jakarta Islamic Index 70 (JII70) index is better than the performance of the FTSE Bursa Malaysia EMAS Shariah (FBMS) index during the pandemic and after the Covid-19 pandemic based on the Sharpe, Treynor and Jensen indices" is acceptable. The comparison of the performance of JII70 and FBMS can be seen through the results of the independent sample t-test because it has a probability value greater than 0.05, so by using the t-test, it can be concluded that the two variants do not have a significant difference between the performance of JII70 and FBMS.

It can be concluded from the t value and the results of the different probability value tests that, based on the Sharpe, Treynor and Jensen indexes, JII70 performs better than FBMS, but the difference is not significant. These results support previous research conducted by Nurwahidah and Hasan (2022), which stated that the performance of the Indonesian stock index was better than the performance of the Malaysian stock index when the Covid-19 pandemic occurred, even though they used different stock index samples from the two countries. The results of this research also support research conducted by Shofiyullah (2014), which stated that there was no significant difference between the performance of FBMS and JII in the Sharpe, Treynor or Jensen ratios.

If investors emphasize portfolio beta as the primary consideration, using the Treynor method may produce a better performance measure. However, if investors emphasize the risk of portfolio returns, using Sharpe performance, which uses the portfolio standard deviation, might produce a better measurement. Likewise, if investors consider the difference between the portfolio and market risk premium, the performance measure using the Jensen method will be the most appropriate. To find more accurate results, investors can use daily data and other tests, such as the Z-score, to see the results of standardized values and add treatment comparison tests to determine the consistency of the measurement

method.

Several factors that cause the performance of the Jakarta Islamic Index 70 (JII70) to be better than the performance of the FTSE Bursa Malaysia EMAS Shariah (FBMS) are due to the fearful sentiment of investors in Malaysia. It has proven to be a mediator and one of the causes of the decline in investment in the Malaysian financial market due to the Covid-19 pandemic. In addition, with this pandemic, instability in currency exchange rate movements and financial market sentiment are considered unstable in responding to rapid changes in information regarding the symptoms of this virus, so investors are taking more preventative action in investing their funds in the capital market in Malaysia.

Another factor that causes the performance of JII70 to be better than that of FBMS is the behaviour of investors in Indonesia, who see the COVID-19 pandemic as an opportunity for new investors to invest when there is a decline in the price index. It is the basis for policymakers to inform investors in Indonesia that there is no need to panic if a significant situation such as the COVID-19 pandemic occurs. The state must be able to regulate the dissemination of information appropriately and not exaggerate. The policy that can be taken is to carry out a trading halt or temporary suspension of the Index by the Stock Exchange Company; this is done in order to maintain orderly and efficient securities trading.

## 4. Conclusion

Based on the results and discussion previously explained, the conclusion is that the Calculation of the performance of the Jakarta Islamic Index-70 index using the Sharpe and Jansen index gives negative results, with the lowest calculation value being the Sharpe index and the calculation results using the Treynor index, giving the highest result which is positive. Meanwhile, calculating the performance of the FTSE Bursa Malaysia EMAS Shariah index using the Sharpe, Treynor, and Jansen indices has a negative value, with the lowest performance being the Treynor index and the highest performance being the Jensen index. The performance of the Jakarta Islamic Index-70 and FTSE Bursa Malaysia EMAS Syariah is also almost all below the market index apart from the Jensen index for FBMS.

Comparison of JII70 and FBMS performance based on the Sharpe and Treynor indexes. The performance of JII70 is better than that of FBMS, but the difference is insignificant. Based on the Jensen index, the performance of the JII70 is not better than that of the FBMS, but the difference is not significant. It can be concluded that the performance of the Jakarta Islamic Index-70 (JII-70) is better than that of the FTSE Bursa Malaysia EMAS Shariah (FBMS), even though the difference is not significant.

Suggestions for investors: The results of this research show that the Sharia stock index in Indonesia has performed better than the Sharia stock index in Malaysia when faced with the COVID-19 pandemic. This can be a consideration for investors when making investment decisions if faced with a situation similar to Covid-19. Suggestions for capital market companies to create regulations such as halt selling or temporary suspension to control index movements to prevent drastic declines. For future researchers, it would be better to expand the use of samples using other stock indices or adding indices from other countries using different methods. It is better to use daily data to analyze stock returns so that the results are more current and detailed. The portfolio performance calculations in this research can also be used to calculate fixed-income mutual funds, money market mutual funds and mixed mutual funds. However, appropriate comparisons (benchmarks) must be taken into account.

## 5. Limitation of the Research

Although the research offers fascinating insights regarding the performance of the Jakarta Islamic Index-70 (JII-70) and the FTSE Bursa Malaysia EMAS Shariah (FBMS) during the COVID-19 pandemic, it is important to recognize certain limitations. The analysis is limited to the period of the COVID-19 epidemic, which may not accurately reflect the long-term performance trends of the indices. The exceptional economic circumstances during this period may not accurately reflect typical market dynamics. Moreover, the study utilizes data that may have a lower frequency, thus disregarding short-term fluctuations and within-period dynamics that could impact the performance of the indexes. DailyUtilizing data can offer a more detailed and precise depiction of stock returns and risk.

The research utilizes the Sharpe, Treynor, and Jensen indices to assess performance, which, although widely recognized, have inherent constraints. These indexes rely on the assumption of a Gaussian distribution of returns, which may not always hold in real-world situations. Examining supplementary performance measures or models may offer a more thorough evaluation. The study specifically examines two Islamic indicators, and increasing the sample size to incorporate more indices from various nations or areas could improve the applicability of the results. Additionally, non-Islamic indices could offer a more comprehensive framework for evaluating performance.

Country-specific external factors, such as economic policies, regulatory changes, and market sentiment, may impact the performance of the indices. This study did not examine these characteristics separately and may have influenced the outcomes. While the study examines the comparison between JII-70 and FBMS, a more rigorous statistical analysis is needed to determine if the observed differences in their performance are statistically significant or simply the result of random changes.

The recommendations offered to investors and capital market firms are derived from the unique discoveries of this study. However, their suitability and efficacy may vary in market conditions and periods. Additional study is required to authenticate these recommendations in various contexts. The findings pertain exclusively to the Islamic stock indices of Indonesia and Malaysia. It is essential to take caution when applying these conclusions to other indices or markets, as local market dynamics and investor behavior can differ dramatically.

Furthermore, the regulatory regimes that regulate the JII-70 and FBMS may vary substantially, which impacts their performance. The study fails to adequately consider these regulatory disparities, which may be crucial to performance assessment. By recognizing these constraints, future studies can tackle these deficiencies and offer a more thorough comprehension of the performance of Islamic stock indices in various situations and approaches.

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