



# Comparison of an Optimal Portfolio Performance on the Jakarta Islamic Index 70 and IDX Basic Materials

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**Abstract.** This study aims to measure portfolio performance reviewed from three approaches based on the Sharpe method, Treynor method, and Jensen method. This study examines whether the Single Index Model can produce an optimal portfolio on the Jakarta Islamic Index 70 (JII70) and IDX Basic Materials (IDX IC-B) to determine the better stock portfolio for the period 2019–2024. The selection of this research sample was used based on the purposive random sampling technique that meet the sample selection criteria. The data analysis technique used in this study is descriptive with a quantitative approach, and the analysis tool used is Microsoft Excel. The test results based on the performance measurement of the stock portfolio in the JII70 using the Sharpe method is 0,1793, the Treynor method is -0,1474, and the Jensen method is 0,2443. Meanwhile, for the IDX IC-B using the Sharpe is 0,0030, the Treynor is 0,1181, and the Jensen is 0,2151. Based on these results, it can be concluded that the performance of the JII70 portfolio is better than the IDX IC-B, as the values of the three indices calculated show that the JII70 has higher values compared to the IDX IC-B.

**Keywords:** Jakarta Islamic Index 70 (JII70), IDX Basic Materials (IDX IC-B), Optimal Portfolio, Single Index Model, Sharpe, Treynor, Jensen.

## 1 Introduction

The capital market in Indonesia is currently growing exponentially, driven by the activities of investors who invest their funds in various securities. According to Article 1, point 13 of Law No. 8 of 1995, the capital market refers to activities related to the public offering and trading of securities, as well as public companies associated with the securities they issue, and institutions and professions related to securities. In this context, the capital market serves as a platform for investors to invest their funds in the securities of their choice. The expansion of capital market activities is evident from the increase in the number of investors. This is evidenced by data on investors in the Indonesian capital market in 2024, which shows an increase in the number of investors to 14,871,639, higher than in 2023 at 12,168,061, with a growth rate of 22.22% [1].

The information indicates that the rise in the number of investors was not solely derived from the traditional capital market, but also included those who invested in the Islamic capital market. The capital market offers investors the chance to choose

securities that are traded in the capital market according to their willingness to take risks, available finances, and duration of investment.

Investors should consider the potential dangers associated with varying degrees of risk when making investments, rather than rely only on their predicted returns [2]. This is because investments include risk, hence investors must choose suitable investment instruments for their funds. The rising Composite Stock Price Index, reflected in the rise in trading volume, suggests that this study uses stocks listed on the Indonesia Stock Exchange. The data on Jakarta Stock Exchange Composite Index growth from 2019 to 2024 6.299 in 2019, 5.979 in 2020, 6.581 in 2021, 6.850 in 2022, then 7.272 in 2023, and finally 7.079 in 2024 demonstrates this [3]. According to this data, the IDX Composite saw a decline in 2020, but the average total value increased the next year.

Generally falling during the epidemic, the JKSE led to investor panic caused by the volatility of market circumstances, therefore driving their choice to pull out funds [4] Information from the Central Securities Depository and Institution shows a rise in stock investors in the capital market yearly, therefore indicating an increase in the ultimate value of the Indonesian stock exchange. This is a component that has heightened public awareness, thereby allowing individuals to directly finance their requirements within the capital market.

According to information provided by the Indonesian Central Securities Depository [1] In the year 2019, the total number of investors was 2,484,354. In 2020, the number of investors on the Indonesia Stock Exchange rose by 56. 21%, reaching 3,880,753. By 2021, the investor count rose further to 7,489,337, and in 2022, the number of investors continued to grow to 10,311,152, marking an increase of 37. 68%. In the year 2023, the overall count of investors grew to 12,168,061, and by 2024, the figure further increased to 14,871,639. This shows that the quantity of investors in the capital market has been consistently rising each year.

The market capitalization data for Jakarta Islamic Index 70 and IDX Basic Materials on the Indonesian Stock Exchange is as follows.

**Table 1.** Market Capitalization JII70 and IDX IC-B

Year	Jakarta Islamic Index 70	IDX Basic Materials
2021	2.539,12	1.234,38
2022	2.668,04	1.216,13
2023	3.323,38	1.332,14
2024	4.264,30	1.251,87

The market value of the Jakarta Islamic Index 70 has risen between 2021 and 2024. In contrast, the IDX Basic Materials saw a drop in 2022, followed by another decrease in 2024 after rising the year before. Overall, with the falling trend in the IDX IC-B market value, investors are purchasing stocks at lower prices without selling their current stocks due to the uncertainty surrounding companies impacted by economic instability. Nevertheless, the JII70, which has shown growth in market value, indicates the strong fundamentals of companies and a high degree of confidence among market competitors.

Investing in stocks will have returns from dividends and capital gains. However, investors should be aware that stocks have a high-risk, high-return characteristic, meaning that they offer the potential for high returns but also have the potential for high risk. Therefore, one strategy investors can use to manage uncertainty risk is to apply the principle of diversification by conducting portfolio analysis [5].

Investors must analyze average prices from several eras to evaluate the market's relative strengths and weaknesses [6]. Investors should exercise caution when constructing a comprehensive and diversified portfolio, given that global stock markets have undergone an ordinary downturn. Investors must calculate asset characteristics like expected return rates, portfolio risk, and asset industry classification. This allows them to have a more selective portfolio through optimal diversification [7].

An analysis of stock portfolios demonstrates that a portfolio is structured to exhibit lower risk than the individual stocks comprising it. A portfolio is efficient if it has a certain level of risk and can provide a high rate of return or generate a certain level of profit while also having lower risk [8]. To obtain an optimal portfolio, investors must conduct an analysis using the Single Index Model. This analysis will determine whether the return obtained is in line with the level of risk that the investor must bear. An analysis of performance evaluation is necessary to determine the effectiveness of the portfolio in meeting investment goals. There are three techniques utilized for evaluating portfolio performance. These techniques are the Sharpe Index, the Treynor Index, and the Jensen Index [9].

Research has been conducted on the comparison of optimal stock portfolio performance in conventional and Islamic capital markets. The research definitively shows that forming an optimal portfolio on the Jakarta Islamic Index results in seven stocks from 14 samples, while the LQ45 results in seven stocks from 10 samples [10]. The stock portfolio on JII outperformed the LQ45. In contrast, other research shows that the formation of optimal portfolio from LQ45 and JII produces four stocks [11].

Further research definitively shows that JII has more consistent performance over six periods compared to the IDX30, which only has five periods [12]. Another study also shows that the optimal portfolio formed from the JII70 consists of 19 stocks from 43 issuers in the sample, while the optimal portfolio formed from the IDX IC-B consists of 19 stocks from 27 issuers in the sample. The study definitively concluded that the performance of the JII70 stock portfolio outperforms that of the IDX80 Index [13].

It is clear from previous studies that the results of one study differ from those of another. These differences indicate inconsistent results. Previous studies have shown that stocks in the Islamic capital market are more optimal and perform better than those in the conventional market, and these results are reversible.

This study uses two different objects from previous studies using stock indices: the Jakarta Islamic Index 70 and the IDX Basic Materials Index. They have remained stable despite the impacts of the pandemic, and both indices are still listed on the Indonesia Stock Exchange. However, when considering their launch dates, it's clear that both indices are still relatively new. JII70 was launched on May 17, 2018, while the IDX IC-B Index was launched on January 25, 2021. Additionally, these two indices contain a larger number of stocks compared to previous stock indices, thereby increasing the sample size used in this research. Researchers can use research objects, namely stocks

listed on JII70 and the IDX IC-B Index. This is because both indices contain information on the optimal portfolio formed from the stocks of each index, as well as the performance of the optimal portfolio of stocks listed on JII70 and the IDX IC-B Index. This study aims to identify the optimal portfolio of stocks listed on JII70 and the IDX IC-B Index. It will use the Single Index Model method to achieve this. The study will also determine the differences in the performance of the stock portfolios listed on JII70 and the IDX IC-B Index. It will use the Risk Adjusted Performance method. The study will look at the period from January 2019 to December 2024.

## 2 Literature Review

The capital market serves as a nexus for entities possessing surplus capital and those requiring financial resources to engage in the trading of securities [7] research definitively proves this point. Meanwhile, Article 1, Point 13 of Law No. 8 of 1995 clearly states that the capital market pertains to actions linked to public offerings and the exchange of securities, public companies related to the securities they release, along with the institutions and professions connected to those securities. The capital market serves as a distinct venue for investors possessing surplus funds to allocate towards diverse securities traded on the stock exchange in Indonesia.

Investment is the deliberate choice to defer current consumption in exchange for the opportunity to accumulate wealth-generating assets over a defined period [5]. Investment means channeling existing funds with the expectation of future profits by placing the money in the Stock Exchange [14].

A stock is a certificate of ownership in a company, and its owner is also referred to as a shareholder (shareholder or stockholder) [14]. The market for capital serves as a distinct venue for investors possessing surplus funds to allocate towards diverse securities traded on the stock exchange in Indonesia. There are currently 45 stock indices in Indonesia, and this study uses two of them: the Jakarta Islamic Index 70 (JII70) and the IDX Sectors Basic Materials Index (IDX IC-B). JII70 is a Syariah stock index that measures the price performance of 70 Syariah stocks with good financial performance and high liquidity. IDX IC-B is an index that measures the price performance of 112 stocks with the second-highest performance [4].

Return is the result of an investment. Investment returns come from two main sources: yield and capital gain [14]. There are two types of returns from investments: anticipated but not yet realized returns (expected returns) and realized returns [15]. Research definitively proves this point. Risk is the possibility of unfavorable events occurring [16]. Portfolio risk is the loss to have incurred, and knowing the portfolio risk helps investors understand the extent of the loss [14]. In investment contests, risk is also understood as uncertainty or the difference between expected and realized return. In a statistical context, the magnitude of risk is measured by variance and standard deviation. A larger differential correlates with an increased risk.

Diversification is essential for mitigating risk while maintaining returns. Research definitively states that diversification in the context of investment refers to a portfolio creation strategy that aims to reduce risk without sacrificing potential returns [14]. This concept

involves spreading investments across various assets or financial instruments that have different risk and return characteristics.

An optimal portfolio combines holdings from two or more companies. This allows investors to achieve optimal returns while minimizing risk through diversification definitively states that an optimal portfolio is the best choice among various efficient portfolio options [17].

The single index model simplifies the complex Markowitz model risk calculation. [5] confirms this The Sharpe ratio, Treynor ratio, and Jensen ratio are three risk-adjusted performance measures that incorporate risk factors. They effectively measure the amount of risk investors bear [5]. We can determine the performance of the securities using these methods [14].

### 3 Methodology

This study focuses on stocks included in the Jakarta Islamic Index 70 (JII70), It includes 70 stocks registered on the the Jakarta Stock Exchange between January 2019 and December 2024. It also focuses on the IDX Basic Materials Sectors Index (IDX IC-B), which consists of 112 stocks listed on the Indonesia Stock Exchange from January 2019 to December 2024. The study used purposive sampling as the sampling technique. The following criteria are required:

- Share of companies listed and previously included in the JII70 and IDX IC-B indices from 2019-2024 (January 2019 to December 2024).
- The required data is accessible and fully available for the period January 2019-December 2024 [18].
- Stocks that have been consistently listed in the JII70 and IDX IC-B indices for the period 2019-2024 (January 2019-December 2024).

The analytical method employed in this research is descriptive and follows a quantitative approach. Data management uses Microsoft Excel software. The steps below are critical for establishing an effective stock portfolio utilizing the Single Index Model technique [5,14]:

1. Collect monthly closing prices for JII70, IDX IC-B, JKSE stocks and risk-free interest rates from 2019 to December 2024. Follow the specified criteria to ensure precise results.
2. The realized return, expected return, variance, standard deviation of stocks and Risk Free rate must be calculated.

- Realized Return Stocks

$$R_i = (P_t - P_{t-1}) / P_{t-1} \tag{1}$$

- Expected Return Stocks

$$E(R_i) = \sum_{t=1}^n R_i / n \tag{2}$$

- variance, and standard deviation of stocks

$$\sigma_i^2 = (\sum(n/i-1(Ri-E(Ri))^2)/n) \quad (3)$$

$$\sigma_m = \sqrt{\sigma_i^2} \quad (4)$$

- Risk Free Rate

$$Rf = \text{BI 7 Day Repo Rate}/n \quad (5)$$

3. The Realized Market,  $E(R_m)$ ,  $\sigma_m^2$ , and  $\sigma_m$  of the market must be calculated.

- Realized Market

$$R_m = (\text{JKSEt} - \text{JKSEt-1}) / \text{JKSEt-1} \quad (6)$$

- Expected Return Market

$$E(R_m) = \sum_{t=1}^n R_m / n \quad (7)$$

- Variance and Standard Deviation Market

$$\sigma_m^2 = (\sum(n/i - 1(R_m - E(R_m))^2) / n - 1) \quad (8)$$

$$\sigma_m = \sqrt{\sigma_m^2} \quad (9)$$

4. Calculate  $\beta$ ,  $\alpha$ , and the unsystematic risk of stocks (residual variance error)

- Beta

$$\beta = \sigma_{im} / \sigma_m^2 \quad (10)$$

- Alpha

$$\alpha = E(R_i) - \beta_i \cdot E(R_m) \quad (11)$$

- The Unsystematic Risk of Stocks

$$\sigma_{ei}^2 = \sigma_i^2 - (\beta_m^2 \times \sigma_m^2) \quad (12)$$

5. The calculation of excess return to beta (ERB), cut-off rate, and cut-off point ( $A_i$ ,  $B_i$ ,  $C_i$ ) is essential for determining the optimal stocks, given the condition  $ERB > C^*$ .

- ERB

$$ERB = E(R_i) - R_f / \beta \quad (13)$$

- $A_i$ ,  $B_i$ ,  $C_i$

$$A_i = ((E(R_i) - R_f) \beta) / \sigma_{ei}^2 \quad (14)$$

$$B_i = \beta_i^2 / \sigma_{ei}^2 \quad (15)$$

$$C_i = \sigma_m^2 \sum [(E(R_i) - R_f) \beta / \sigma_{ei}^2] / 1 + \sigma_m^2 \sum \beta_i^2 / \sigma_{ei}^2 \tag{16}$$

- Comparing ERB and  $C^*$

6. Determining the Optimal Portfolio and Fund Proportion Follow these steps to calculate the optimal portfolio and fund proportion:

$$W_i = Z_i / \sum_{i=1}^n Z_i \tag{17}$$

$$Z_i = (\beta_i^2 / \sigma_{ei}^2) (ERB - C^*) \tag{18}$$

7. Calculate  $\beta$ ,  $\alpha$ , risk, and expected return for the portfolio.

$$\alpha_p = \sum_{i=1}^n W_i \cdot \alpha_i \tag{19}$$

$$\beta_p = \sum_{i=1}^n W_i \cdot \beta_i \tag{20}$$

8. Use the risk-adjusted performance method to measure stock portfolio performance. There are three measurement methods [5].

- Sharpe Index

$$SP = (R_p - R_f) \sigma_p \tag{21}$$

- Treynor Index

$$TP = (R_p - R_f) \beta_p \tag{22}$$

- Jensen Index

$$JP = R_p - [R_f + \beta_p (R_m - R_f)] \tag{21}$$

9. The criteria for the best portfolio performance are clear:

- Our portfolio is better than other portfolios because it has a greater number of stocks.
- This portfolio is expected to generate a higher return than other portfolios.
- This portfolio is riskier than others.
- It is clear that the portfolio value is higher based on the measurements from the three indices above.

## 4 Results

### 4.1 Single Index Model

In this study, the stocks that form the optimal portfolio are those that have passed the selection process for the optimal portfolio candidates. There are several criteria that must be met to be included in the optimal portfolio candidates. These include a positive  $E(R_i)$  value, a positive value, a positive ERB value, and an ERB value  $> C^*$ . The stocks listed on the Jakarta Islamic Index 70 (JII70) and the IDX Sectors Basic Materials Index meet the above criteria. These stocks are included in the candidate selection for the

optimal portfolio. The stocks that form the optimal portfolio in JII70 for the 2019–2024 period (January 2019 to December 2024) are 12: ADRO, AKRA, ANTM, BRIS, CTRA, INCO, INTP, ISAT, ITMG, MAPI, SMRA, and TPIA. Meanwhile, the IDX IC-B for the 2019–2024 period (January 2019–December 2024) consists of 20 stocks: AKPI, FPNI, OKAS, APLI, BRPT, BTON, BRMS, GDST, IPOL, PSAB, BAJA, ISSP, SPMA, ESSA, TINS, TIRT, TKIM, INCF, AGII, and DKFT.

#### 4.2 Stock Portfolio Performance Analysis Using The Risk-Adjusted Performance Method

This study uses the Risk Adjusted Performance method to measure stock portfolio performance. The method uses three measurement models: the Sharpe Index, Treynor Index, and Jensen Index. The objective of measuring portfolio performance is to determine the performance of stocks listed on the Jakarta Islamic Index 70 (JII70) or the IDX Sectors Basic Materials Index. Investors can easily determine whether to invest their funds in JII70 or IDX IC-B by measuring portfolio performance. The results of the portfolio performance measurement of stocks in the JII 70 using the Sharpe Index yielded a value of 0.1793, the Treynor Index yielded a value of -0.1474, and the Jensen Index yielded a value of 0.2443. These values are higher than the values obtained from the IDX IC-B. This is proven by measuring the performance of the stock portfolio in the IDX IC-B Index using the Sharpe Index of 0.0030, the Treynor Index of 0.1181, and the Jensen Index of 0,2151. This study definitively shows that JII70 stock portfolio outperforms the IDX IC-B.

**Table 2.** Performance Portfolio

Index	Jakarta Islamic Index 70	IDX Basic Materials
Sharpe	0.1793	0.0030
Treynor	-0.1474	0.1181
Jensen	0.2443	0.2151

Table 2 shows that comparing the performance of the optimal stock portfolio using the three indices indicates that the optimal stock portfolio on the JII70 index has a higher positive return than its risk level. Therefore, it can be said that the optimal stock portfolio on the JII70 index performs better than the optimal stock portfolio on the IDX IC-B. These approaches cannot function independently or be utilized in isolation, as they play a role in shaping investment strategies, Collaborative assessment and these techniques enhance one another, leading to improved outcomes compared to relying on just one tool due to ample portfolio data [20].

## 5 Discussion

This is consistent with prior research [19,21,22,23,24,25], which found that the optimal portfolio of Sharia equities outperformed the optimal portfolio of non-Sharia stocks based on the Sharpe index, Treynor index, and Jensen index.

The researcher's findings are clear: companies must consider both stock return variables and market return variables when investing their funds. An increase in stock returns inevitably leads to an increase in market returns. Companies should apply the principle of diversification when investing their funds. This means they should not invest solely in a single stock. This is necessary to minimize potential losses in the future. Companies must consider whether the returns and risks are appropriate. In future research, the research period must be extended. In this study, the observation period was only 6 years (2019–2024). This study used mostly monthly data, but future researchers should use daily data to make more accurate calculations.

## 6 Conclusion

### 6.1 Conclusion and Implication for Practice

The results and discussion in this study clearly indicate that the stocks that form the optimal portfolio of the Jakarta Islamic Index 70 (JII70) for the 2019–2024 period (January 2019 to December 2024) consist of 12 stocks: ADRO, AKRA, ANTM, BRIS, CTRA, INCO, INTP, ISAT, ITMG, MAPI, SMRA, and TPIA. Meanwhile, in the IDX Sectors Basic Materials Index, the stocks that form the optimal portfolio for the period 2019–2024 (January 2019–December 2024) are 20 stocks: AKPI, FPNI, OKAS, APLI, BRPT, BTON, BRMS, GDST, IPOL, PSAB, BAJA, ISSP, SPMA, ESSA, TINS, TIRT, TKIM, INCF, AGII, and DKFT.

The results of comparing the performance of the optimal stock portfolio on JII70 and IDX IC-B, which is seen from the Sharpe index calculation, show that the value of JII70 is higher than IDX Sectors Basic Materials. Then, based on a comparison of performance using the Treynor index calculation, the JII70 score is higher than that of the IDX IC-B. Meanwhile, based on a comparison of performance using the Jensen index calculation, the JII70 score is higher than that of the IDX IC-B. This is because the beta and total risk borne by the JII70 portfolio are better than those of the IDX IC-B index stocks. Thus, the optimal stock portfolio in JII70 in this study is better than the optimal stock portfolio formed in IDX IC-B.

### 6.2 Limitations and Future Research

While this study offers important insights, it is crucial to recognize some limitations, particularly the dependence on monthly data, thus it is advised to utilize daily data for enhanced precision. Future studies might employ various indices for assessing stock portfolio performance, like M-Squared and T-Squared, to achieve a more thorough evaluation, particularly when contrasting with different benchmark or for both diversified and undiversified portfolios.

Additionally, widening the sample to encompass a more diverse range or various industries could enhance the generalizability of the results. Exploring other elements, like dividend distributions, might also prove advantageous. As the investment environment keeps changing, grasping these tools will be vital for enhancing and fostering the comprehension of potential investors. This indicates that upcoming studies could investigate how stock portfolio achieve optimal performance using a benchmark strategy as a reference.

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