Optimization Active and Passive Portfolio using Single Index Model and Capital Asset Pricing Model in Indonesia

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Abstract

The purpose of this study is to evaluate the performance and return of portfolios with active and passive strategies using the Capital Asset Pricing Model (CAPM) and a single index model in order to create the best possible portfolio for companies that do not consistently appear in the LQ 45 index between 2018 and 2023. Secondary data on the closing stock prices of the stocks in the LQ 45 index, which is reviewed on a daily basis, is used in the research. Using the LQ 45 index, the study tracks the performance and return of these erratic equities across the research period. The results showed that portfolios with a single index model provided higher returns than the Capital asset pricing model and portfolios with active strategies were able to provide greater returns than portfolios with passive strategies but the statistical test results did not show significant differences between them. The findings offer fresh perspectives on how to construct the ideal portfolio utilizing the Single Index Model and CAPM for the LQ 45 index stocks, which saw volatility between 2018 and 2023. The results can serve as a reference for future research and insight for investors in choosing investment strategies in the capital market.

Keywords: *Active Strategies, CAPM, Passive Strategies, Portfolio, Stock, Single Index Model*

INTRODUCTION

Investing in stocks is a very attractive option for investors everywhere, including in Indonesia. Retail and institutional investors are drawn to Indonesia's stock market because it is a growing country with significant economic potential. A common option for reaching long-term financial objectives is stock instruments (Liu et al., 2021). Investments in the stock market have a high potential return, but there are dangers and uncertainties involved. Furthermore, a number of elements, such as trends, firm performance, psychological aspects, and macroeconomic conditions, affect investor decision-making (Tran et al., 2019).

Rational decisions based on statistical or mathematical calculations can drive investor behavior in terms of purchasing, selling, and holding. Active or passive portfolio selection strategies might result in variations in returns and risks (Hendrawan & Salim, 2017). According to behavioral finance theory, psychological factors have a considerable impact on decision-making processes, leading investors to act irrationally. This conduct, known as herding behavior, includes investors following the activities of other market players while dismissing accurate information. This trend has been observed in the LQ45 index over the last two years (January 2021-December 2022) across a variety of market circumstances, including bull, bear, and neutral markets by Adnan (2023) and Marbun et al., (2020), prior to COVID-19 (2016-2018), herding behavior was only observed during bull markets.

The LQ45 index supplemented the IHSG by providing trustworthy and objective information to multiple stakeholders (Rachmawati, 2018). This index represents strong liquidity, influenced by factors such as past prices and calendar impacts, and stocks within the index may have anomalous returns. The 45 firms in this index meet criteria for large market capitalization, transaction value, and growth potential, hence adequately representing the market (Tjandrakirana et al., 2023). Despite market unpredictability and volatility, the LQ45 criteria are constantly changing and dynamic, allowing for stock rotation as well as index entry and exit (Malini, 2019). The Indonesia Stock Exchange periodically monitors the listed firms in the LQ45 index. Stocks are

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evaluated every three months, and those that do not match the criteria are replaced every six months and every stock consisted and not all stock are always in the LQ 45 index (Hansun & Young, 2021).

INVESTMENT DECISION AND PORTFOLIO OPTIMIZATION

Investment decision-making involves analysing goals and achieving returns through security selection and portfolio management. Uncertain decision-making is necessary to achieve optimal returns or an efficient portfolio, considering both high and low risk levels. Portfolio management can deliver optimal results with minimal risk. In implementation, investors face various stock combinations and must calculate acceptable risk based on the deviation between expected and actual returns. This allows for adjustments to returns and risks to suit individual investor preferences (Lagubayom & Victor, 2019).

Decisions about investments should take return, risk, and fund availability into account. There is a linear relationship between return and risk, meaning that safer investments yield lower returns while riskier ones yield higher returns. The discrepancy between the predicted and actual return is known as risk. Systematic and unsystematic risk are two types of risk. Unsystematic risk is defined by internal factors, whereas systemic risk is undiversified and originates from outside sources, such as market risk (Andreas & Basana, 2021).

MODERN PORTFOLIO THEORY (MPT) AND CAPITAL ASSET PRICING MODEL

Theoretically, returns and risks are correlated; the higher the expected return, the higher the investment risk. Various portfolio calculation models have been introduced since Markowitz (1952) introduced the concept of Modern Portfolio Theory (MPT), which enables the selection of the highest return and lowest risk through a mathematical approach (DeLlano-Paz et al., 2023). In this model, investors can choose the desired response on the efficient frontier based on risk and return perspectives. This model uses historical data as the basis for calculations (Rasoulzadeh et al., 2022). The Markowitz model's benefit is that it allows investors to select a portfolio based on their preferences, such as a predetermined return with minimal risk or a small risk with a certain return. This methodology is simple to use and evaluates the portfolio at its lowest point, which is the optimal position (Maf'ula et al., 2018). The Markowitz model is predicated on the following premises: investors are typically risk averse, markets operate efficiently, investors are dissatisfied, and certain returns are connected (Sun, 2022).

Sharpe (1963) continued to simplify the calculations of the previous Markowitz model by introducing the single-index model with the same assumptions. The single-index model is based on the condition that the price of a stock moves in the same direction as the market price index. Specifically, it suggests that the prices of most stocks tend to rise when the market price index rises and vice versa (Alkindi et al., 2023).

The single-index model, a popular alternative to the Markowitz model, simplifies variance calculations for large and complicated data. It requires data on alpha, beta, estimated non-systematic risk, expected market return, and market variance. The model assumes investors have similar expectations and investment periods, and that stock price movements are not related to each other. The relationship between securities is based on their individual effects on business activities and economic conditions. Indexes correlated with each security can be related, but stocks are not correlated with portfolio market returns (Sun, 2022).

Sharpe (1964) further refined the model through the Capital Asset Pricing Model (CAPM) and evaluated portfolio performance. The Capital Asset Pricing Model (CAPM) is a financial model that explains the market price equilibrium by simulating the actions of investors who achieve the equilibrium position. It assumes risk-free rates for both borrowers and lenders, investor preferences, an investment environment based on portfolio selection using mean variance, and homogeneity of investor expectations regarding an asset's expected value, variance, and correlation. The CAPM formula uses beta (β) to calculate returns, derived from Fama's description of market risk, to characterize an asset's return to the market (Fernandez et al., 2023).

INVESTMENT STRATEGY

Investment strategy is a crucial aspect of portfolio management that affect portfolio return, with active strategies generally performing better than passive ones. Research by Fahling et al. (2019) and Anadu et al. (2020) shows

that active strategies can slightly outperform passive ones, with passive strategies showing slightly better returns. However, this shift can affect volatility, liquidity, and investment concentration.

Active strategies can be categorized into stock selection, stock rotation, and price momentum. Stock selection involves actively finding information about stocks in a portfolio through various sources. Rotation involves changing the proportion of shares based on economic conditions. Price momentum focuses on changes in price momentum to buy and sell shares for profit (Tandelilin, 2017:332). Passive investors buy and hold over time, using complex calculations and focusing on asset fundamentals or market indices performance (Gârleanu et al., 2022).

PORTFOLIO INVESTMENT PERFORMANCE

Portfolio performance is critical for investors to properly analyze their investing strategy. To acquire a complete knowledge of the portfolio's performance, both return and portfolio risk must be taken into account. The Sharpe index calculates the portfolio's excess return per unit of risk, resulting in a risk-adjusted return statistic. A high Sharpe index suggests better risk-adjusted performance. The Treynor index compares the portfolio's excess return to its systematic risk, beta. A higher Treynor index indicates greater performance in relation to systematic risk exposure. The Jensen index measures the portfolio's alpha, which is the excess return generated by the portfolio manager over the predicted return. A positive alpha indicates that the portfolio manager exceeded the benchmark, whereas a negative alpha implies underperformance (Andreas & Basana, 2021).

RESEARCH GAPS

Phenomenon where investors imitate others' actions, ignoring specific information. This behavior has been observed in the Indonesian capital market. LQ 45 index over the past two years, both positive and negative market conditions. The 45 companies in the index have high market capitalisation, high transaction value and high growth potential and are considered to be representative of the market. The stock rotation that occurs in the valuation of stocks included in the index demonstrates that inconsistent stocks have an equal chance of being in the LQ 45 index. The comparison of two important theories in modern portfolio theory, single index model and CAPM can provide fresh insights into maximizing portfolio return and risk; however, there are still few research that explicitly observe inconsistent companies in the LQ 45 index.

Research Objectives

The study has been planned to achieve the following objectives:

Comprehending the Single Index model's and CAPM's performance and return on shares of businesses that are not consistently appear in the LQ 45 index from 2018 to 2023

Comprehending the performance and return of portfolios utilizing the Single Index model and CAPM, employing both active and passive strategies, on shares of businesses that are not consistently appear in the LQ 45 index from 2018 to 2023.

Research Hypothesis

H1 : portfolios formed with the Single Index Model on stocks of inconsistent companies in the LQ 45 index provide better returns and performance than the CAPM model.

H2 : portfolios formed with active strategies on stocks of inconsistent companies in the LQ 45 index provide better returns and performance than passive strategies.

METHODOLOGY

The research method used in this research is quantitative method where quantitative method and Based on its purpose, this research is descriptive research to determine the value of each variable, namely knowing the difference in returns between the optimal portfolio with a single index model and CAPM with active and passive strategies between companies that are not consistently in the LQ 45 index during the 2018-2023 period. In this study, data population consists of data from companies listed on the Indonesia Stock Exchange (IDX) that

were included in the LQ 45 index from August 2018-January 2019 to August 2023-January 2024. This study included a population of 71 firms. Sample used is historical stock price data for companies that have been included in the LQ 45 index during the period August 2018-January 2019 to August 2023-January 2024 from *www.finance.yahoo.com* and risk free for CAPM method using The BI 7 day repo rate can be viewed through Bank Indonesia's official website *www.bi.go.id.* Based on the criteria total 46 stocks inconsistently included in the LQ 45 index during research period that meet the criteria.

Establishment of Optimal Portfolio based on Single Index Model and CAPM.

Data analysis performed by calculating single index model and CAPM value using Microsoft Excel and IBM SPSS Statistic for hypothesis testing. Data processing steps are as follows:

1. Calculating the realized return, expected return, and standard deviation of each stock as well as the IHSG
   a. Realized Return (Salim & Rizal, 2021)
   $$R = \frac{(V1 - V0)}{V0}$$
   b. Expected Return (Salim & Rizal, 2021)
   $$E(R) = \Sigma \frac{Ri}{n}$$
   c. Standard Deviation (Salim & Rizal, 2021)
   $$\sigma_i = \sqrt{\sum_{t-1}^{n} \frac{[Rit - E(Ri)]^2}{n}}$$

2. Calculating beta, alpha, and individual stock unique risk
   a. Beta (Sun, 2022)
   $$\beta i = \frac{\sigma\ im}{\sigma\ m^2}$$
   b. Alpha (Sun, 2022)
   $$\alpha_i = E(R_i) - \beta_i \cdot E(R_m)$$
   c. Unique Risk (Andreas & Basana, 2021)
   $$\sigma_{ei}^2 = \sigma_i^2 - \beta_i^2 \cdot \sigma_m^2$$

3. Calculating risk-free interest rate based on accumulated BI rate over a six-month period as determined by the LQ 45 index evaluation cycle. The accumulated BI rate is adjusted to the data used, namely daily data, such that the value used is after being divided by 360, which represents the number of days in a year.

4. The Single Index Model is calculated for each stock using the mathematical procedure stated below (Sun, 2022).
   $$R_i = \alpha_i + \beta_i \cdot (R_{m} - Rf) + e_i$$

5. Each stock's CAPM is calculated using the following mathematical formula (Fernandez et al., 2023).
   $$E\ (R_i) = R_f + [E(R_m - R_f)]\beta_i$$

6. Each stock in the portfolio is weighted with a proportion based on the value of the Single Index Model and CAPM with the following formula
   $$W_i = \frac{Z_i}{\Sigma Z_j}$$

7. Calculating portfolio expected return and risk (Salim et al, 2022)
   a. Portfolio expected return
   $$E(Rp) = \alpha p + \beta p \times E\ (Rm)$$
   b. Portfolio Risk
   $$\sigma p^2 = \beta p^2 \cdot \sigma m^2 + \left(\sum_{i=1}^{n} w_i \cdot \sigma ei\right)^2.$$

8. Testing each period portfolio performance using Sharpe, Treynor and Jensen Index
   a. Sharpe Index (Riandini & Risman, 2022)

$$Sp = \frac{(Rp - Rf)}{\sigma p}$$

b. Treynor Index (Riandini & Risman, 2022)

$$Tp = \frac{(Rp - Rf)}{\beta p}$$

c. Jensen Index (Riandini & Risman, 2022)
    $Ap = [R_f + (R_m - R_f)\ \beta_p]$

RESULT

The research focuses on inconsistencies in the LQ 45 index. Portfolio candidates include 46 inconsistent stocks from 2018 to 2023. This study examines two portfolio models, the Single Index Model and the CAPM, and then simulates both with active and passive methods before comparing the two strategies.

Table 1. Portfolio Return and Risk.

Period	Single Index Model		CAPM		Market	
	Portfolio Return	Portfolio Risk	Portfolio Return	Portfolio Risk	Market Return	Market Risk
(2018) Aug-Jan	32,86%	12,79%	-8,04%	0,00%	-4,47%	20,95%
(2019) Feb-Jul	29,88%	0,01%	-94,33%	0,08%	-6,22%	24,22%
(2019) Aug-Jan	217,15%	0,01%	265,36%	3,01%	-6,98%	0,72%
(2020) Feb-Jul	106,10%	1,02%	-13,13%	0,01%	-0,10%	2,09%
(2020) Aug-Jan	86,04%	3,36%	45,02%	3,33%	0,12%	1,26%
(2021) Feb-Jul	61,28%	2,58%	6,30%	2,12%	0,03%	0,84%
(2021) Aug-Jan	43,28%	1,59%	6,89%	1,22%	0,07%	0,75%
(2022) Feb-Jul	37,18%	1,18%	5,74%	1,55%	0,05%	0,97%
(2022) Aug-Jan	45,38%	1,06%	0,56%	0,02%	-0,01%	0,68%
(2023) Feb-Jul	28,75%	0,72%	-0,20%	0,35%	0,01%	0,57%
(2023) Aug-Jan	56,69%	0,34%	-2,12%	1,04%	0,06%	0,62%
Active Strategy Accumulation	744,59%	12,79%	212,03%	12,73%	-1,02%	10,20%
Passive Strategy	284,03%	0,25%	-9,53%	0,07%		

Source: Process data

Returns with a single index model for stocks that were not consistent with the LQ 45 index during the observation period, as shown in Table 1, suggest that the portfolio built can deliver higher returns than the market returns and risks. The portfolio with the highest return is the August 2019-January 2020 period (217.15%), followed by the February 2020-July 2020 period (106.10%). The smallest return is from February 2023 to July 2023. The risk produced by the single index model portfolio during the observation period demonstrates that portfolio creation sometimes can reduce risk to levels lower than market risk in each period using both active and passive strategies. The market risk is largest between February 2019 and July 2019, while the portfolio constructed has the lowest risk throughout the same period. Different strategies reveal that the accumulated return of active strategies is higher than that of passive strategies, and they perform better in terms of market return and risk. Active techniques generate an aggregate return of 744.59%, and passive strategies generate 284.03%. Active strategies continue to have a higher cumulative risk than passive strategies, with an active strategy of 12.79% and a passive strategy of 0.25%, both of which are lower than market risk.

CAPM-based return calculations yield different outcomes from the Single Index Model. The portfolio built does not always deliver a larger return than the market while also posing a reduced risk. The periods August 2018-January 2019, February-July 2019, February-July 2020, and February-July 2023 show lower portfolio returns than the market, as do portfolios using passive techniques. Portfolios in this approach tend to move in the same direction as the market; for example, if the market return is negative, the portfolio produced will be negative, as well. The portfolio formed exhibits negative returns from August 2018 to January 2019, February 2019 to July 2019, February 2020 to July 2020, February 2023 to July 2023, and August 2023 to January 2024, as well as portfolios formed with passive strategies. The risk produced by the portfolio construction of the CAPM model is not always less than the market risk. When comparing portfolio risk to market risk, the months

of August 2019–January 2020 and August 2020–July 2022 exhibit higher risk. The least risky time is from August 2018 to January 2019, and the most risky period is from August 2020 to January 2021.

Portfolios constructed with CAPM during the observation period have one period with higher portfolio performance than the market and one period with lower portfolio results. From August 2022 to January 2023, the portfolio's return is larger than the market's return, while its risk is lower. The timeframe August 2023–January 2024 offers a lower return and risk than the market. When compared to active strategies, accumulating them yields higher returns. The active strategy yielded a return of 212,03%, whereas the passive strategy yielded -9,53%, which is higher than the overall market return. The risk resulting from the implementation of an active strategy is also greater than the risk of a passive strategy, with an active strategy of 12.73% and a passive strategy of 0.07%, which is greater than the overall risk of the market.

Table 2. Portfolio Performance

Period	Single Index Model			CAPM		
	Sharpe	Treynor	Jensen	Sharpe	Treynor	Jensen
(2018) Aug-Jan	0,08104	0,52504	0,00253	0,08104	0,52504	0,00253
(2019) Feb-Jul	0,08944	0,77658	0,00232	0,08944	0,77658	0,00232
(2019) Aug-Jan	0,24892	-0,01691	0,01614	0,24892	-0,01691	0,01614
(2020) Feb-Jul	0,14469	0,01093	0,00950	0,14469	0,01093	0,00950
(2020) Aug-Jan	0,17357	0,00606	0,00588	0,17357	0,00606	0,00588
(2021) Feb-Jul	0,13700	0,00363	0,00466	0,13700	0,00363	0,00466
(2021) Aug-Jan	0,10242	0,00258	0,00251	0,10242	0,00258	0,00251
(2022) Feb-Jul	0,09625	0,00315	0,00276	0,09625	0,00315	0,00276
(2022) Aug-Jan	0,11428	0,00303	0,00362	0,11428	0,00303	0,00362
(2023) Feb-Jul	0,09314	0,00244	0,00241	0,09314	0,00244	0,00241
(2023) Aug-Jan	-0,01539	-0,00021	-0,00090	-0,01539	-0,00021	-0,00090
Active Strategy Accumulation	1,265347	1,316321	0,051421	1,265347	1,316321	0,051421
Passive Strategy	0,05153	0,19040	0,00002	0,05153	0,19040	0,00002

Source: Process data

Table 2 shows how the portfolio's performance was evaluated using multiple models. The Single Index Model suggests that the portfolio with the highest Sharpe index was observed from August 2019 to January 2020, while the portfolio with the lowest Sharpe index was observed from August 2023 to January 2024. The Treynor index shows that the portfolio with the best performance was observed from February 2019 to July 2019, while the portfolio with the worst performance was observed from August 2019 to January 2020. According to the Jensen index, the highest performing portfolio occurred between August 2019 and January 2020, while the lowest performing portfolio occurred between August 2023 and January 2024.

According to the CAPM framework, the portfolio with the highest Sharpe index was seen from August 2019 to January 2020, while the portfolio with the lowest Sharpe index was observed between February 2019 and July 2019. The Treynor index shows that the portfolio with the highest Treynor index was seen between February 2019 and July 2019, whereas the portfolio with the lowest Treynor index was observed between August 2018 and January 2019. The Jensen index indicates that the portfolio with the highest Jensen index was observed from August 2019 to January 2020, whereas the portfolio with the lowest Jensen index was observed from February 2019 to July 2019.

Table 3. Statistical Testing

Statistical Testing Note	T-Test	T- Table
Return Mit Capm	-23,937	1.661
Return Active Passive	-20,815	1.663

Source: Process data

Finally, a one-sample t-test was used to detect any significant differences between the Single Index Model and the CAPM. The t-test findings (t-statistic: -23.937, t-table: 1.661) revealed that the calculated t-value is less than the crucial t-value, indicating that there is no statistically significant difference between the two models. As a result, the null hypothesis (H1) is rejected, implying that there is insufficient data to infer that the Single Index Model and CAPM differ significantly in terms of performance measurement. The t-test results showed a value

of -20.815, which is less than the critical t-value of 1.663. This implies no statistically significant difference between the active and passive strategies, leading to the rejection of the alternative hypothesis (H2).

DISCUSSION

Portfolios employing both models produce different anticipated returns because they use different approaches to determining expected returns. The single index model generates a higher return than the CAPM. Overall, the single index model outperforms the CAPM, but the statistical test, as shown in Figure 1, reveals no significant difference between the two, as indicated by the same data label due to the small standard deviation difference. This study's findings confirm prior research by Agustina & Sari (2019), Putra & Dana (2022), Chen et al., (2022), and Kurana & Singh (2022) that the single index approach can optimize returns.
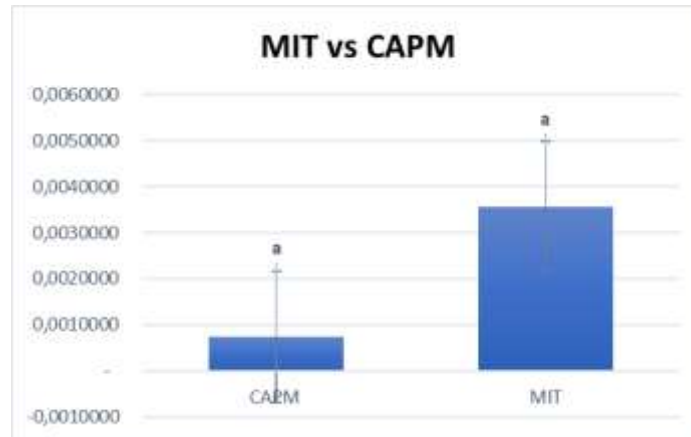

Figure 1. Return Between Single Index Model and CAPM

Source: Process data

Portfolios with single index models have different assumptions from CAPM. The single index model optimises returns but the market stability condition is only assumed and the return generated by the single index model is superior to the CAPM because the single index model takes into account the alpha value while the CAPM does not (Chattopadhyay et al., 2022). the calculation of the alpha value describes the return highlighted in the single index model while the beta in CAPM only describes the return on the correlation of a stock to its sensitivity to the market described in CAPM (Salim & Rizal 2021). Alpha value correlates with outperforming stock returns. If a stock's beta is 1, its risk level matches that of the market, and vice versa. If the market declines, the stock will fall proportionally. An increase in stock beta can lead to higher returns. Stocks move in rhythm with the market, and larger beta values indicate greater risk linked with market risk (Waspada et al., 2021).

In measuring risk, the single index model only uses the assumption of market conditions while CAPM considers two types of risk in portfolio management, namely systematic and unsystematic risk. CAPM measures returns based on its relationship to the market as measured by beta so that portfolio calculations with CAPM are assumptions at the time of equilibrium prices or fair prices, this difference in assumptions can be seen from the risk of portfolios with CAPM in accumulation lower than the Single Index Model in line with research by Rashid & Sabir (2023) which shows the return of the CAPM model can describe its return to market risk. The return on CAPM is also affected based on the risk-free interest rate where in this study it is also seen that the CAPM return moves in the same direction as the risk-free interest rate, in line with the research of Rehan et al. (2021) and Salam & Kurniasih (2021).

The composition of a portfolio, namely the weights assigned to each constituent stock, has a major impact on its overall return. In this study, stock weights were calculated using the Single Index Model and CAPM values for each stock. Stocks having negative Single Index Model or CAPM values were removed from the portfolio. Overall, the Single Index Model consistently outperformed the CAPM throughout all periods, as shown in Figure 4.2. This difference can be due to the inherent constraints of CAPM in recording individual stock

returns. While the CAPM points out the correlation between a stock's beta and its market return, beta may not fully reflect the stock's particular performance (Farias & Sander, 2024).

The period from August 2019 to January 2020 saw the strongest portfolio returns, owing mostly to the rise in ARTO's stock price. During this time span, both the Single Index Model and the CAPM gave ARTO the most weight. Interestingly, the CAPM portfolio outperformed the Single Index Model, despite having a lower weight for ARTO. This phenomenon can be explained by the relationship between stock weights and individual stock returns. Putri (2018) shown that the number of stocks and their weights within a portfolio can have a considerable impact on overall results.

two different strategies for each model portfolio. Different strategies are used to find out which strategy is better in providing optimal returns on stocks that are not consistent in the LQ 45 index. The strategies used are active strategies and passive strategies. The active strategy recomposes the portfolio components at each period, there are a total of 11 periods for active strategies that are recomposed every six months starting from the August 2018-January 2019 period to the August 2023-January 2024 period. The passive strategy did not recompose during the study period for buy and hold simulation.
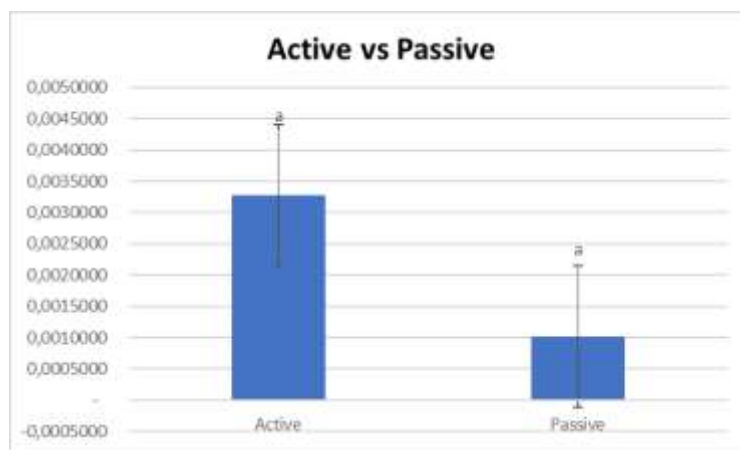

Figure 2. Return Between Active Strategy and Passive Strategy

Source: process data

Active methods produce better results in terms of value, but statistical tests demonstrate no significant difference between active and passive tactics since the standard deviation between the two data groups is not considerably different. The findings of this study support previous research by Fahling et al. (2019), Kristanti et al. (2022), and Gopane et al. (2023), which show that active strategies outperform passive strategies, but they differ from Anadu et al. (2020), who found that active strategies outperformed passive strategies and disagreed with Alford et al. (2017), who found that passive strategies outperformed active strategies. Active strategies provide better returns than passive strategies because recomposition every period in active strategies provides an advantage in providing short-term gains and anticipating losses in the short term so that active portfolios become adaptive to changing market conditions (Salim et al., 2020).

A comparison of the two methods with two alternative portfolio forms using the Single Index Model and the CAPM consistently demonstrates that active strategies outperform passive strategies. In this study, the stocks recomposed in the portfolio provides an advantage in leveraging momentum and market conditions to achieve more optimal returns, as evidenced by the results of evaluating portfolio performance with the Sharpe, Treynor, and Jensen indices.
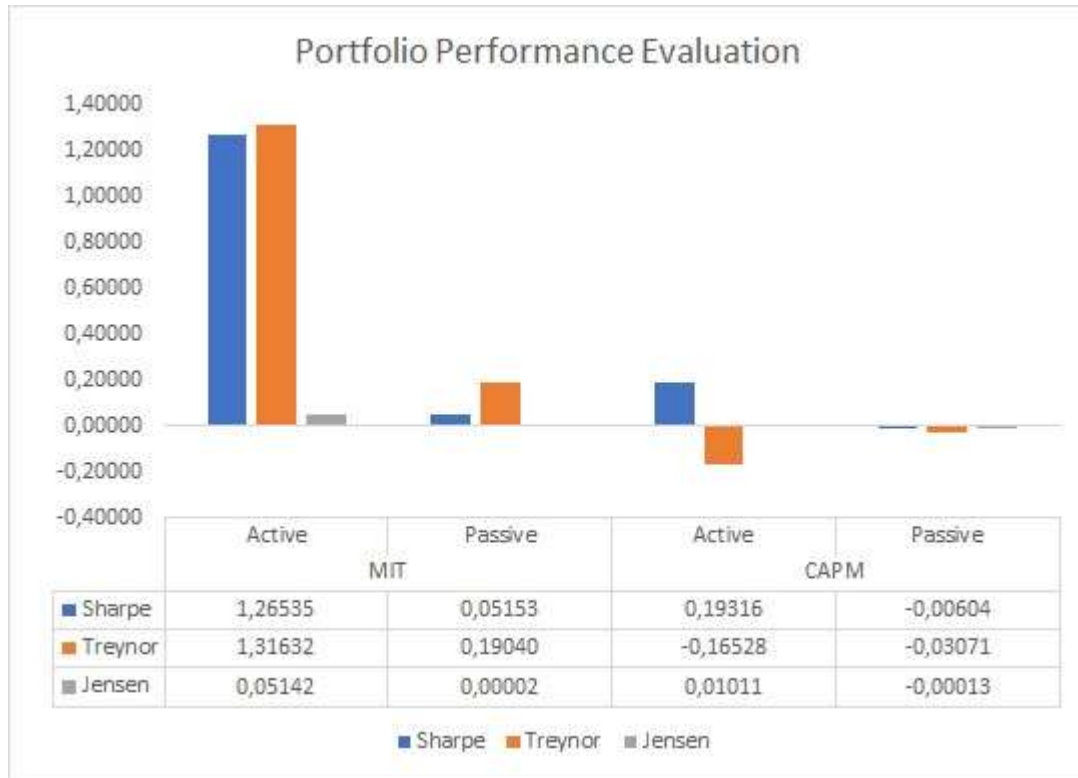
Figure 3 Portfolio Performance Evaluation

The Sharpe, Treynor, and Jensen indices demonstrate that the active approach using the Single Index Model consistently produced favourable performance indicators. These positive indices suggest that the portfolio was well-diversified and delivered higher returns than the market benchmark. In contrast, the passive strategy inside the CAPM framework performed the worst of all portfolios. The Sharpe, Treynor, and Jensen indices all returned negative values, indicating that the portfolio lacked enough diversification, making it unable to mitigate for risk-return trade-offs, market sensitivity, and optimal results.

CONCLUSION

Based on the research that has been conducted, it can be concluded that portfolios with the Single Index model show better performance and returns than the CAPM model, but there is no significant difference between the two portfolio models in the portfolio of shares of inconsistent companies in the LQ 45 index for the period 2018-2024 due to differences in assumptions and points of view between the two models, where the single index model takes the alpha value into account in the calculation of returns while the CAPM is based on market sensitivity.

Portfolios carried out with active strategies can show better performance and returns than passive strategies with both the single index model and the CAPM model, but there is no significant difference in the portfolio shares of companies that are inconsistent in the LQ 45 index for the period 2018-2024 due to recomposition in active strategies that are able to take advantage of momentum and conditions in each period compared to passive strategies that do not change in composition.

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