

PERFORMANCE ANALYSIS OF MONEY MARKET MUTUAL FUNDS, FIXED INCOME MUTUAL FUNDS, MIXED MUTUAL FUNDS, AND STOCK MUTUAL FUNDS IN INDONESIA DURING THE 2015-2020 PERIOD

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Abstract: *Mutual funds as one of the investment instruments in Indonesia continue to grow and try to provide product choices with the maximum possible return. Investors need good mutual fund knowledge in order to be able to take the right steps according to the type of each investor in investing. This research aims to analyze the performance of money market mutual funds, fixed income mutual funds, mixed mutual funds, and stock mutual funds in Indonesia in the period 2015-2020. This performance measurement is done using Sharpe's Measure, Treynor's Measure, Jensen's Measure, and Appraisal Ratio. The results showed that it is not easy to maintain the best fixed mutual fund performance. While the worst performance for each year has similarities in certain mutual fund products.*

Keywords: *Performance, Money Market Mutual Funds, Fixed Income Mutual Funds, Mixed Mutual Funds, Stock Mutual Funds, Sharpe, Treynor, Jensen, Appraisal Ratio.*

1. Introduction

Mutual funds are a type of investment instrument designed to attract capital from people who wish to invest but lack the necessary expertise and time. In addition to overcoming the limitations of knowledge and time, mutual funds are also an alternative to overcome the limitations of funds in forming an optimal portfolio, complex administration and limited information in conducting various analysis, research and investment transactions to obtain an optimal level of profit or return.

Since the enactment of Law No. 8 of 1995 on the Capital Market, mutual funds have been more widely recognized in Indonesia. Since then, mutual funds are known by the public and become one of their investment choices. Mutual fund products are collective investment instruments in the capital market. This implies that the funds used to invest are the proceeds from the collection of money by the financier, which will be used to invest in a portfolio of securities on the Indonesian capital market once they have been further invested in. It can be said that investors in mutual fund products do not manage their own funds, but leave the responsibility for managing funds to investment managers. In addition, mutual funds also provide other benefits in the form of a minimum investment limit that is not too large. This is possible because of the nature of mutual funds which are collective investments. With this collective nature, mutual funds can raise funds from a large number of investors so that they can diversify investments in various capital market instruments. If you invest individually, you need a lot of funds to buy

shares or company bonds. With mutual funds, investors can invest in several stocks and bonds at once indirectly.

Mutual fund performance is the main consideration for investors in determining their investment decisions. Mutual fund performance is influenced by many factors that determine whether a mutual fund performs well or poorly. (Eko P Pratomo, 2008) There are several types of mutual funds that investors can take advantage of. Each is generally distinguished according to the allocation of the type of investment made:

1. Money market mutual funds, invest 100% into money market securities. Money market securities are debt securities with maturities of less than one year (SBI, time deposits, bonds, with remaining maturities of less than one year).
2. Fixed income mutual funds invest a minimum of 80% in debt securities, generally bonds.
3. Mixed mutual funds invest in a combination of debt securities and stock securities with allocations that cannot be categorized into the three types of mutual funds above.
4. Stock mutual funds, invest a minimum of 80% in stock securities.

These mutual fund products when viewed from the nature of investors, there are money market mutual funds that are suitable for investors who are the most conservative in terms of potential risk and return. Then there are fixed income mutual funds that are suitable for investors who are still conservative in risk and return but have a more diverse prospectus. Third, there are mixed mutual funds for investors with moderate risk returns, and the last one is equity funds for aggressive investors.

The existence of mutual funds also provides benefits not only for individual investors, but also for institutional investors. These investors can be insurance companies, pension fund companies, and institutions that require investment activities in managing their funds. By allocating their investment funds in mutual fund products, these investors can have diversified investments.

By looking at the development of mutual funds, the number of mutual fund products from year to year continues to grow. With the continuous emergence of new mutual fund products, it gives investors many choices in placing their funds. Investors should be more careful in choosing fixed mutual fund products. Although there is no certainty that the performance of mutual funds that performed well in the past can perform the same in the future, mutual funds that performed well in the past have the opportunity to have good performance in the future. Each type of mutual fund has a different performance. It is depending on how the performance of the investment manager company manages.

Performance measurement is something that is done to measure the rate of return and risk. The measurement of the performance of a mutual fund portfolio is not done individually, but by comparing the performance of other portfolios as a benchmark. For example according to Eko Priyo Pratomo (2001) for equity funds, the performance of the Composite Stock Price Index (JCI) or LQ45 or similar stock indexes can be used as a benchmark.

There have been numerous comparable studies in Indonesia previously analyzing the performance of mutual fund products, (Indah, 2010) assess the performance of stock mutual funds and fixed income mutual funds in Indonesia that were active between 2004 and 2008 in order to identify equities and fixed income mutual funds that outperformed the market. Sharpe's Measure, Treynor's Measure, Jensen's Measure, Appraisal Ratio, M2 Measure, and T2 Measure are the six ways used to measure performance. The JCI and the Government Bond Index are used as benchmarks in this study to measure stock mutual funds and fixed income mutual funds.

The findings revealed that numerous stock mutual fund products and fixed income mutual funds outperformed the market.

Performance measurement using 4 (four) methods, namely Sharp's Measure, Treynor's Measure, Jensen's Measure, and Appraisal Ratio using the JCI as a benchmark for measuring mutual funds (Indiastuti, 2008) shows the results that there are several equity mutual fund products that outperformed the market.

According to Lubis & Fatma (2005) which evaluate the performance of stock mutual funds in Indonesia that were active in the period 2002-2004 using the Sharpe's Measure method, using the JCI as a benchmark for measuring equity funds. This study also analyzes the relationship between mutual fund age and mutual fund performance. The results showed that there was no significant correlation with a 95% confidence level between the age of the mutual fund and the performance of the mutual fund.

Every year new mutual fund products will continue to appear, so it will be more difficult for investors to choose the right mutual fund product. In choosing a mutual fund product, investors usually only look at the return without paying attention to the risk factors possessed by the mutual fund product. This makes investors will continue to look for the best mutual fund products every year. Whereas as a securities portfolio, of course, mutual fund products will not be separated from the element of risk. This can happen to investors who do not really understand mutual fund products. They still need education to understand that mutual fund products for each year will change for the best or the worst. Therefore, investors need to be given an understanding that risk factors are an important element to consider in the analysis of mutual fund selection. Investors also need to know which mutual fund products in Indonesia have good or bad performance if they participate in considering the risk factors by looking at the performance each year. This is necessary so that investors can make the right decisions.

As a result, it is important to assess mutual fund performance in Indonesia in order to assist investors in selecting the appropriate mutual fund product. The purpose of this study is to examine the performance of mutual funds in Indonesia. In analyzing the performance pattern of a mutual fund, it is necessary to look at the resulting *return* factor and also consider the risk factors possessed by the mutual fund. With this, investors need to pay attention to the performance pattern of mutual funds based on *returns* and also consider the risks that will be experienced. This research will focus on the performance of money market mutual funds, fixed income mutual funds, mixed mutual funds, and stock mutual funds in Indonesia from 2015 to 2020. The goal of this research is to compare the performance of the best and worst mutual fund products in Indonesia, as well as to learn about the best and worst mutual fund performance patterns.

Definition of Investment

An investment is a commitment of a current amount of funds over a certain period to generate a future rate of return as compensation for the investor for: 1) the time it takes for the fund to commit, 2) the inflation rate, and 3) the uncertainty of the future return of funds (Reilly & Brown, 2011). Investors in this case can be individuals, companies, pension institutions, or companies. In addition, this definition includes all forms of investment, including real investments such as commodities or real estate and in the form of financial assets such as stocks or bonds. Investment is also defined as an amount of money or resources used with the hope of getting a profit in the future (Bodie et al., 2008). Not only that, investing entails the sacrifice of a

certain number of individuals today in exchange for the prospect of gaining additional value in the future (Bodie et al., 2008).

Judging from the definition of investment above, there are two important components of investment, namely the rate of return and the level of uncertainty (risk). There is a unidirectional relationship between the rate of return with the level of risk, which is known as the risk return trade off (Bodie et al., 2008). This first principle explains that an investor will not be willing to bear a greater risk if there is no additional return to be obtained in the future. Therefore, it is very important for an investor to understand better about the rate of return and risk.

Portfolio Management Theory

Portfolio theory is an investing strategy pioneered by Harry Markowitz. Portfolio theory is concerned with investors' estimates of risk and return expectations, which are statistically assessed in order to construct their investment portfolios. Markowitz explains how to mix assets to create an efficient, diverse portfolio. Risk may be decreased in this portfolio by increasing the number of asset types in the portfolio, but the amount of projected return can be increased if the investment has various price movements of the combined assets. In practice, investors in securities frequently diversify their assets by mixing several securities, forming a portfolio (Ismiyanti, 2004).

Portfolio is a collection of assets owned by investors (Bodie et al., 2008). It was explained that portfolio management is the process of combining various kinds of stocks into a portfolio according to the wishes and needs of investors, they monitor the portfolio and evaluate its performance. In fact, it will be impossible to create a portfolio that includes all investment opportunities because a proxy consisting of a large number of equities or market indexes is typically employed. On the Jakarta Stock Exchange, for example, the Composite Stock Price Index is used (JCI).

Modern portfolio theory emphasizes the formation of an efficient portfolio, it is said to be efficient if there are no more assets or portfolios that offer higher expected returns with the same level of risk (lower) or low risks with higher expected the same returns. So, it can be said that the portfolio formed is well diversified.

Mutual Fund

Mutual funds (*Reksa dana*) are institutions that collect money from unit holders and then invest it in various securities, such as stocks, bonds, and money market instruments (Reilly & Brown, 2011). Mutual funds are also defined as a form of company investment in various types of assets, especially financial assets, such as stocks and bonds (Rose, 2003). Based on the Law of the Republic of Indonesia No. 8 of 1995 concerning the Capital Market, "Mutual Funds are a forum used to collect funds from the investor community to be subsequently invested in Securities Portfolios by Investment Managers" (Chapter I, article I, paragraph 27). Meanwhile, an Investment Manager which is defined in the Capital Market Law, "An Investment Manager is a Party whose business activities are managing a Securities Portfolio for customers or managing a collective investment portfolio for a group of customers, except for insurance companies, pension funds, and banks that conduct their own business activities based on applicable laws and regulations" (Chapter I, Article I, paragraph 11). If viewed from the mutual fund that is spelled out, there are three important elements, namely:

- a) The existence of a collection of public funds, both individuals and institutions.

- b) Joint investment in the form of a diversified securities portfolio.
- c) The Investment Manager is trusted as a fund manager belonging to the investor community.

Types of Mutual Funds

Mutual funds have several alternative placements in investment instruments. Based on the type of investment instrument, mutual funds are classified into 4 types, namely as follows (Eko Priyo Pratomo & Nugraha, 2009):

a. Money Market Mutual Funds

This mutual fund makes placements for its investment in money market investment instruments with maturities of less than a year. The forms of investment instruments include time deposits, certificates of deposit, Bank Indonesia Certificates (SBI), and Money Market Securities (SBPU). The attraction of this type of mutual fund is that it is highly liquid and has the lowest risk when compared to other types of mutual funds, but has a low potential return. The purpose of this mutual fund investment is generally to protect the value of invested capital and for high liquidity needs in the short term with minimal risk of decline in investment value.

b. Fixed Income Mutual Funds

This mutual fund has an investment portfolio in fixed income securities, in the form of debt securities such as bonds issued by the government and companies, both state-owned and private. The composition of mutual investment placements and in fixed income instruments is at least 80% of the total assets. This type of mutual fund relies on its income from coupons obtained from bonds. Generally, fixed income instruments that are in great demand by Investment Managers are Government Bonds, bonds issued by the government (Government Bonds), as well as corporate bonds that have good ratings. This mutual fund is suitable for medium-term investment purposes with a higher return and risk profile compared to money market mutual funds.

c. Mixed Mutual Fund

Mixed mutual funds are mutual funds that invest in debt securities and equity securities whose allocations are not included in fixed income mutual funds or equity funds. These mutual funds can be oriented to stocks, bonds or the money market. Investment in mixed mutual funds is suitable for investors who do not dare to take too much risk but want a higher return than fixed income mutual funds.

d. Stock mutual funds

Stock mutual funds are mutual funds whose investment portfolio is in equity instruments with an amount of at least 80 of the total investment assets. Investors who buy this mutual fund will get profits in the form of dividends and capital gains. The risk of investing in this mutual fund is very high due to fluctuations in the price of the shares that make up the portfolio. Therefore, this mutual fund is suitable for long-term investment purposes by providing higher returns and risks compared to other types of mutual funds.

Net Asset Value (NAV)

Net Asset Value per Unit Participation (NAV/Unit) is an important variable in mutual funds. NAV (Net Asset Value) is one of the benchmarks in monitoring the results of a Mutual Fund. Net Asset Value (NAV) of a mutual fund is the total value of all securities in the mutual fund based on the closing market price of each securities, then subtracting it from the mutual

fund's liabilities, such as investment manager fees, custodian bank fees, transaction fees, auditor fees, tax fees, and other costs related to investment management. Participation Unit (UP) is the unit of investor ownership of mutual funds. Therefore, NAV/Unit is the NAV value divided by the number of outstanding UP. NAV/Unit is the value used as the purchase price per Mutual Fund Participation Unit, as well as the selling price per Participation Unit when investors want to resell the Participation Units of their mutual funds. The NAV/Unit value is published every day and can be an indicator of the investment performance of a mutual fund. This gives investors a choice in making a decision to buy or sell. The thing that needs to be considered is not the high or low value of NAV/Unit, but the prospect of an increase in the value of NAV/Unit seen from the percentage increase.

2. Research Method

The purpose of this study is to compare the performance of mutual funds each year with the overall performance during the study period to determine the characteristics of each mutual fund with good or bad performance. The following is the research flow of thought used:

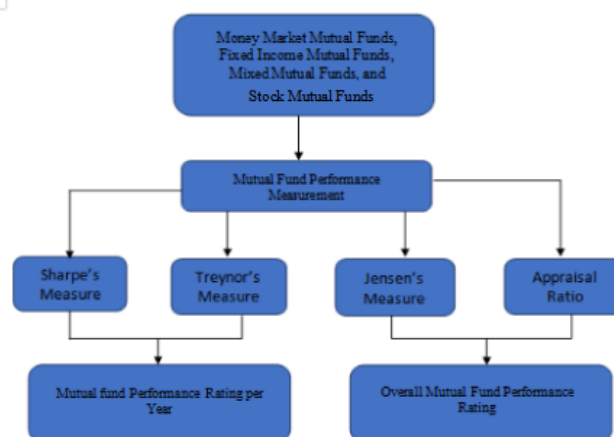


Figure 1. The Flow of Thought

In this study, the data and periods used have an observation period of 2015 to 2020. With this, the observed mutual fund products are equity, fixed income, and mixed mutual fund products that are actively traded since before or during the 2015-2020 period. There were 43 mutual fund products that were actively operating during the study period. The data used in this study is quantitative data which includes data on daily net asset value per unit participation (NAV/unit) for all mutual fund products from stocks, fixed income, and mixes studied during the research period. The data was obtained from Harian Bisnis Indonesia. Daily Composite Stock Price Index (JCI) data is assumed to be a benchmark whose value is taken from the closing price on the last business day obtained from the Yahoo Finance (<http://finance.yahoo.com/>) website. SBI interest rate data as a benchmark for risk-free interest rates during the research period obtained from the Bank Indonesia website (<http://bi.go.id/>).

Before doing data processing in measuring the performance of mutual funds using the Sharpe, Treynor, and Jensen methods. The first thing that is needed is to determine the variables that can support the measurement of mutual fund performance. These variables, namely:

- a. *Return of mutual fund products that are used as portfolio returns are measured using the Sharpe, Treynor, and Jensen methods.*
- b. *Return of JCI is used as the market return that is used as a benchmark.*
- c. *Return of risk-free instrument*
- d. *The standard deviation of the mutual fund product used as the standard deviation Portfolio in the measurement by the Sharpe method.*
- e. *The beta of the mutual fund used in the measurement using the Treynor method.*

Mutual Fund performance measurement

To see the performance of a portfolio, it is not enough just to look at the level of return generated by the portfolio, but it is also necessary to pay attention to other factors such as the level of risk of the portfolio. The performance measurement of each mutual fund uses the risk-adjusted return model, namely: *Sharpe's Measure, Treynor's Measure, and Jensen's Measure*(Bodie et al., 2008).

Sharpe's Measure

Sharpe's Measure is a measurement of the mutual fund's excess return per unit of risk taken. This is based on the fact that the measured risk of mutual funds carries risk, while risk-free assets such as SBIs have no risk. Therefore, each unit of risk that exists in mutual funds is expected to contribute to providing higher returns. It can be said that the higher the result of the Sharpe ratio, the better the performance of the mutual fund measured.

Mutual fund performance measurement using the Sharpe method is based on excess return on risk known as the reward-to-variability ratio. Excess return is the difference between the average return on portfolio investment and the risk-free average return on investment. If the performance measurement is written using the Sharpe method, it is formulated as follows. (Bodie et al., 2008: 826):

$$\text{Sharpe's measure} = \frac{R_p - R_f}{\sigma_p}$$

Where: R_p = average return of mutual fund p in a certain period

R_f = average return of risk free asset for a certain period

σ_p = mutual fund standard deviation p in a certain period

Treynor's Measure

Excess returns are also used to assess mutual fund performance using the Treynor technique, as is the case with Sharpe. The Treynor approach, on the other hand, employs a beta divisor (β), which is a systematic risk. A risk that fluctuates with market risk is known as systematic risk. The equation for measuring the performance of the Treynor method is to divide the average excess return of mutual funds in a certain period by the beta of mutual funds in a certain period. The difference between the average return on a portfolio investment and the risk-free average return on investment is known as excess return. Performance measurement using the Treynor method is formulated as a ratio of excess return to mutual fund beta. If the performance measurement is written using the Treynor method, it is formulated as follows (Bodie et al., 2008: 826):

$$\text{Treynor's measure} = \frac{R_p - R_f}{\beta_p}$$

Where: R_p = average return of mutual fund p in a certain period

R_f = average return of risk-free assets for a certain period

β_p = mutual fund standard deviation p in a certain period

If viewed from the Treynor's Measure equation, each systematic risk unit in mutual funds is expected to contribute to providing more returns. Therefore, the higher the Treynor ratio, the better the performance of the mutual fund being measured.

Jensen's Measure

The Jensen technique for calculating mutual fund performance is based on the Capital Asset Pricing Model (CAPM). The Treynor technique's performance is determined by the difference between the average return on mutual funds and the value of the projected return on mutual funds calculated using the CAPM method. If the performance measurement is written using the Jensen method, it is formulated as follows (Bodie et al., 2008: 826):

$$\alpha_p = R_p - [R_f + \beta_p(R_m - R_f)]$$

Where: α_p = mutual fund alpha p

R_p = mutual fund return p

R_f = risk-free asset return R_m = market return

β_p = Beta (systematic risk) p mutual fund

Based on equation above, it can be said that Jensen's Measure measures the performance of the investment manager based on how much the investment manager is able to provide performance above the market performance according to the risk it has. Therefore, the higher the yield of p, the better the performance of the mutual fund being measured.

Appraisal Ratio

Appraisal Ratio is a measurement of mutual fund performance against risk-adjusted returns on financial security in the form of assets and portfolios. Appraisal Ratio is based on the ability of the investment manager's performance. Mutual fund performance measurement using the Appraisal Ratio is a measurement that divides the mutual fund's alpha value with the mutual fund's nonsystematic risk. This nonsystematic risk is also known as *tracking error*. If the performance measurement is written using the Jensen method, it is formulated as follows (Bodie et al., 2008: 826):

$$\text{Appraisal Ratio} = \frac{\alpha_p}{\sigma(\epsilon_p)}$$

Where: α_p = mutual fund alpha

$\sigma(\epsilon_p)$ = nonsystematic risk (*tracking error*)

Based on the above equation, the Appraisal Ratio measures the return of a mutual fund above the market return per unit of non-systematic risk which in principle can be eliminated by investing in a market index." This means that the Appraisal Ratio measures the superior ability of investment managers for each non-systematic risk they have. It is possible to assert that the

greater the value of the Appraisal Ratio, the better the performance of the mutual fund against which it is being evaluated.

3. Results and Discussion

1) Mutual Fund Performance During the 2015-2020 period

Mutual fund performance measurement during the 2015-2020 period is carried out using Sharpe's Measure, Treynor's Measure, Jensen's Measure, and Appraisal Ratio. The results of the measurements obtained will be compared with market performance (JCI), so that it can determine which mutual fund products are *outperforming* or *underperforming* from market performance. This mutual fund performance measurement will provide an overview of the overall performance of the mutual fund during the 2015-2020 period.

Sharpe's Measure

There are several things that can be noted from the results of Sharpe's performance measurement. The first thing is that Sharpe's Measure measures how much excess return is generated by a mutual fund product for each unit of total risk. Another important thing is that the larger Sharpe's Measure will show better mutual fund performance. If the average rate of return of an outperformed mutual fund product is compared to the average rate of return from the market (JCI), then the return value of the mutual fund product exceeds the return value of the market. This is not the same when viewed from the standard deviation. With the standard deviation of mutual fund products that have outperformed performance compared to market deviation standards, not all of the mutual fund products that have outperformed performance have standard deviation values that exceed the standard deviation value of the market.

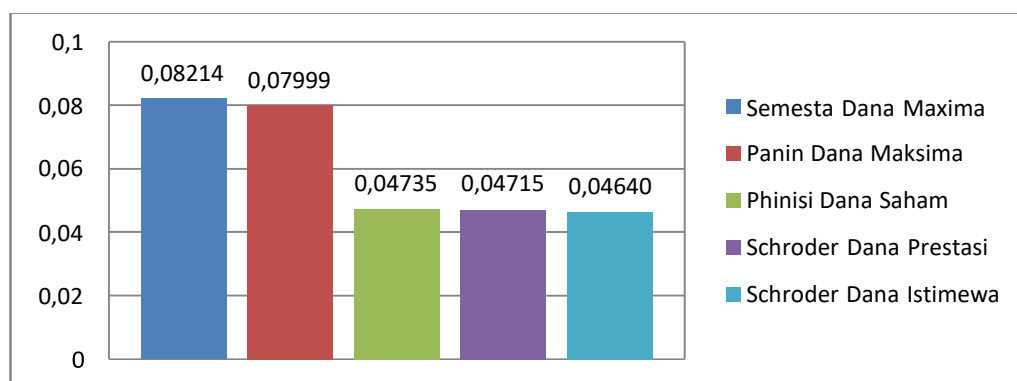


Figure 2. Sharpe's 5 Highest Performances for the 2015-2020 Period

From the results of the measurement of mutual funds using the Sharpe method, the ranking of each mutual fund product under study. If sorted, the mutual fund products that won the top five positions are Semesta Dana Maxima, Panin Dana Maksima, Phinisi Dana Saham, Schroder Dana Prestasi, and Schroder Dana Istimewa as shown in Figure 2. This shows that the five mutual funds have excellent performance, based on the additional investment obtained (excess return) which is high for each unit of total risk that arises when compared to other mutual fund products in the research sample.

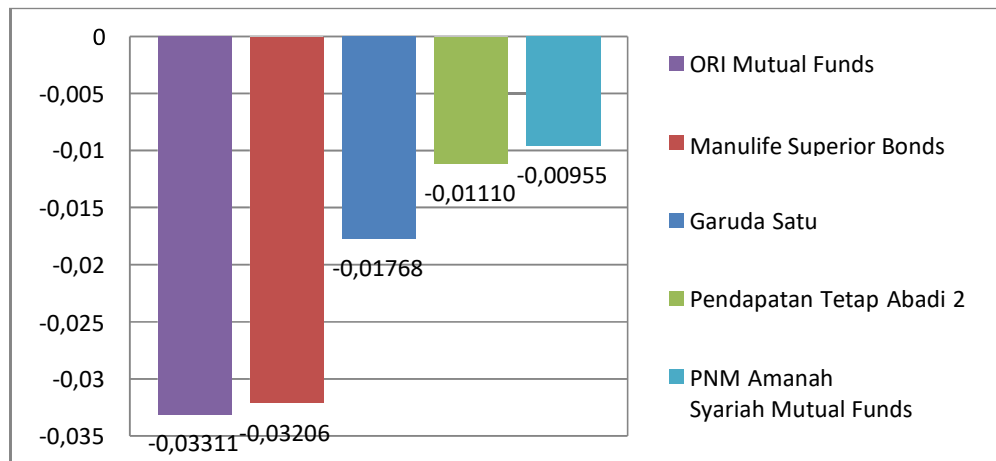


Figure 3 Lowest Sharpe Performance for the 2015-2020 Period

Mutual fund performance measurement using the Sharpe method, ranking of each mutual fund product under study. If sorted from the mutual funds studied, the mutual fund products that achieved the lowest five positions were *ORI Mutual Funds*, *Manulife Superior Bonds*, *Garuda Satu*, *Pendapatan Tetap Abadi 2*, and *PNM Amanah Syariah Mutual Funds* as shown in Figure 3. This shows that the five mutual funds the fund has the lowest performance based on additional investment (excess return) for each unit of total risk that arises when compared to other mutual fund products in the research sample.

Treynor's Measure

The Treynor method is a method that measures the performance of a mutual fund by comparing the excess return from a mutual fund for a certain period of time with systematic risk which is calculated using the beta of the mutual fund. A positive excess return will attract investors, because the rate of return offered is higher than risk-free assets. If the beta of an outperformed mutual fund product is compared to the market beta (JCI), then not all mutual fund products that have outperformed have a positive beta the same as the market beta. This shows that the movement of the performance of the mutual fund product is not the same as the movement of the market performance.

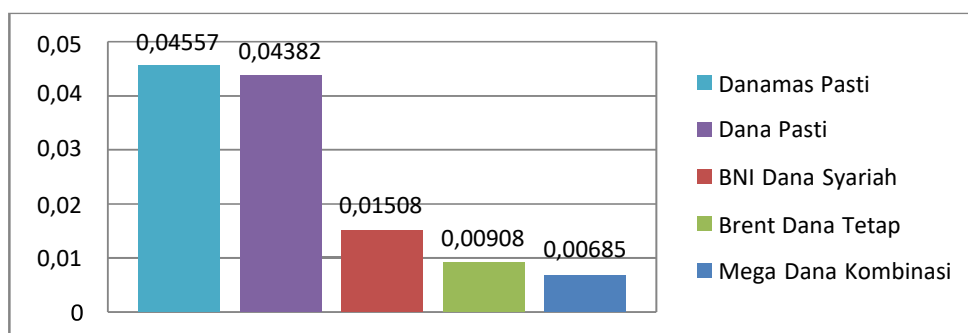


Figure 4. Top 5 Treynor Performance for the 2015-2020 Period

Calculation using the Treynor method, ranking of each mutual fund product. If sorted from this rating, the mutual fund products that achieved the highest five positions

were Danamas Pasti, Fixed Funds, Brent Fixed Funds, Brent Fixed Funds, and Mega Combination Funds as shown in Figure 4. This shows that the five mutual funds have excellent performance. which is based on the additional investment obtained (excess return) which is high for each unit of total systematic risk that arises when compared to other mutual fund products in the research sample.

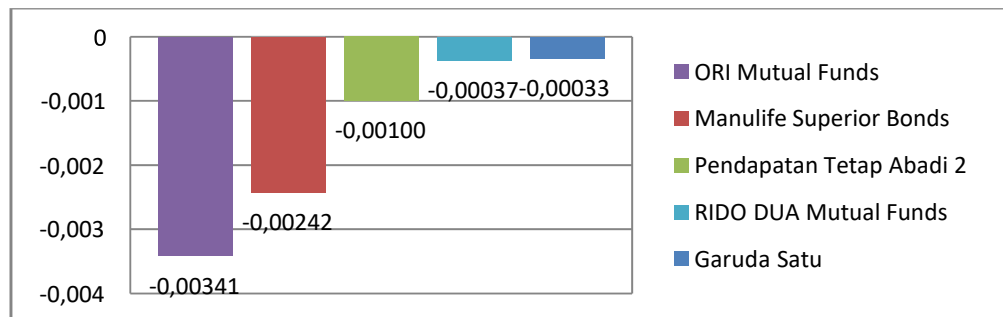


Figure 5. 5 Lowest Treynor Performance for the 2015-2020 Period

Source: author's processing results

By doing the same steps in calculating the highest performance, measuring the lowest performance using the Treynor method, the ranking of each mutual fund product. From the measurement results, if sorted, the mutual fund products that achieved the lowest five positions were ORI Mutual Funds, Manulife Superior Bonds, Pendapatan Tetap Abadi 2, RIDO DUA Mutual Funds, and Garuda Satu as shown in Figure 5. This shows that the five mutual funds have performance based on the lowest additional investment (excess return) for each unit of total systematic risk that arises when compared to other mutual fund products in the research sample.

Jensen's Measure

The measurement of mutual fund performance using the Jensen method is based on the Capital Asset Pricing Model (CAPM) theory, which compares excess return with required return predicted from CAPM. The performance of mutual funds using the Jensen method will show whether the investment manager has superior or inferior performance to market returns. Investment managers who have superior performance will have a positive Jensen value due to excess returns that occur in the market. Meanwhile, investment managers who have inferior performance will have a negative Jensen value due to the actual return from mutual funds which is below the expected return from the CAPM. This inferior performance is caused by several things, such as the inability of investment managers to choose undervalued securities assets,

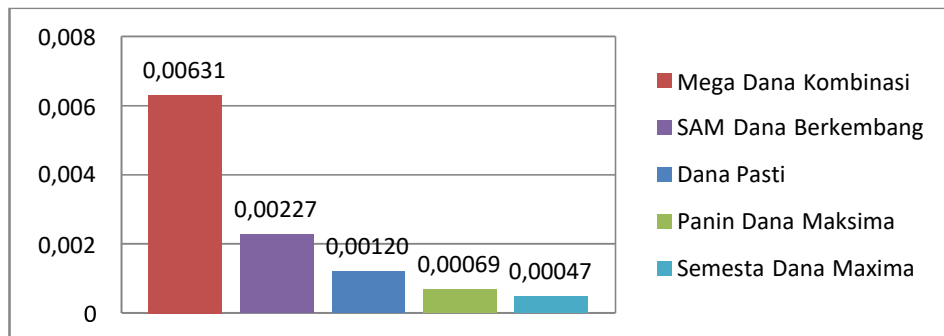


Figure 6. The 5 Highest Performances of Jensen for the 2015-2020 Period

Mutual fund measurement results using the Jensen method, ranking of each mutual fund product. If the results are sorted, then the mutual fund products that reach the top five positions are Mega Dana Kombinasi, SAM Dana Berkembang, Dana Pasti, Panin Dana Maksima, and Semesta Dana Maxima as shown in Figure 6. This shows that the five mutual funds have good performance. the highest superior when compared to other mutual fund products in the research sample. It can be said that the investment managers of the five mutual funds have the ability to choose undervalued securities, the ability to predict market movements, and respond quickly to changes in the market.

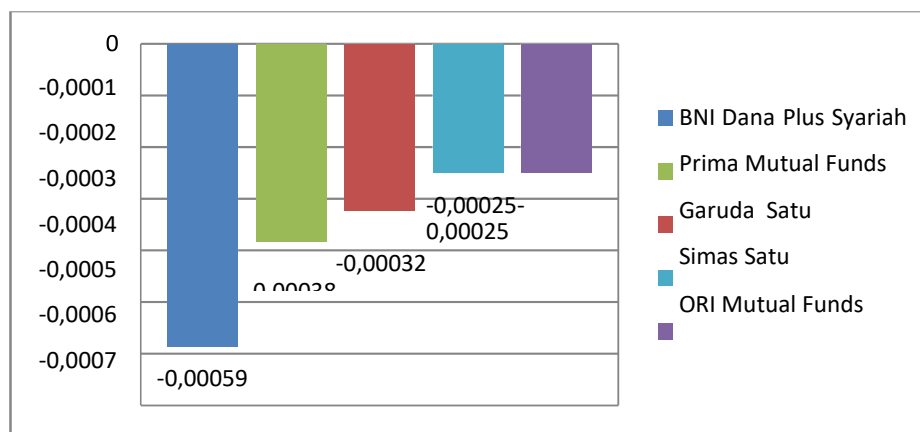


Figure 7. The 5 Lowest Jensen Performance for the 2015-2020 Period

From the same measurement carried out on the highest performance, the lowest performance calculation using the Jensen method, will be ranked for each mutual fund product. If Jensen's performance of mutual fund products is sorted, then the mutual fund products that achieve the lowest five positions are BNI Dana Plus Syariah, Prima Mutual Funds, Garuda Satu, Simas Satu, and ORI Mutual Funds as shown in Figure 7. This shows that the five mutual funds These mutual funds have inferior performance when compared to other mutual fund products in the research sample. It can be said that the investment managers of the five mutual funds lack the ability to choose undervalued securities, the ability to predict market movements, and are slow to respond to changes in the market.

Appraisal Ratio

Mutual fund performance measurement using the Appraisal Ratio method is a comparison of Jensen's value for each non-systematic risk it has. This means that the Appraisal Ratio is designed to measure the superior ability of the investment manager for each non-systematic risk it has. Mutual fund performance measurement using the Appraisal Ratio method has similarities to the mutual fund performance measurement using the Sharpe method. With the Sharpe's Measure method, the excess return on the asset without the return on the risk-free asset is divided by the standard deviation of the return. While the Appraisal Ratio method, the active return on the relevant benchmark index is divided by the standard deviation from the active return or also known as *tracking error*.

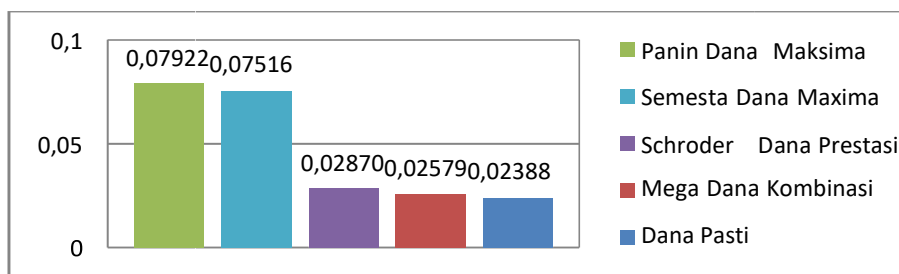


Figure 8. The 5 Highest Performances of Appraisal Ratio for the 2015-2020 Period

From the measurement results of mutual funds using the Appraisal Ratio method, the ranking of each mutual fund product. If sorted, the mutual fund products that won the highest five positions are Panin Dana Maksima, Semesta Dana Maxima, Schroder Dana Prestasi, Mega Dana Kombinasi, and Dana Pasti as shown in Figure 8. This shows that the five mutual fundsit has the highest superior performance when compared to other mutual fund products in the research sample. It can be said that the investment managers of the five mutual funds have superior investment manager abilities for each non-systematic risk they have.

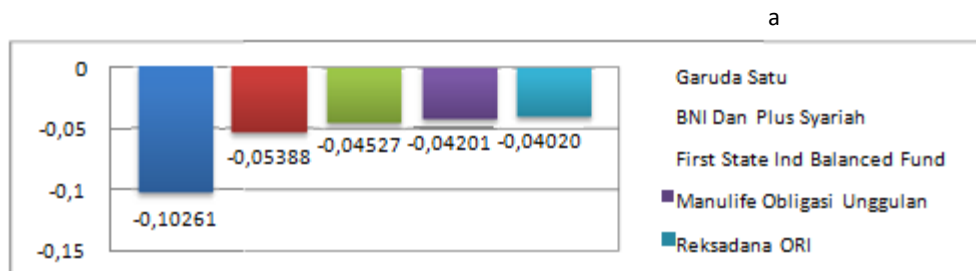


Figure 9. 5 Lowest Performance Appraisal Ratio for the 2015-2020 Period

Calculation using the Appraisal Ratio method, then each mutual fund product is ranked. If the rankings are sorted, then the mutual fund products that achieve the lowest five positions are Garuda Satu, BNI Dana Plus Syariah, First State Ind. Balanced Fund,

Manulife Obligasi Unggulan, and ORI Mutual Funds are shown in Figure 9. This shows that the five mutual funds have inferior performance when compared to other mutual fund products in the research sample. It can be said that the investment managers of the five mutual funds have superior investment manager abilities for each non-systematic risk they have.

2) Overall Performance comparison with Annual Period 2015-2020

Mutual fund performance measurement using Sharpe's Measure, Treynor's Measure, and Jensen's Measure which was carried out during the 2015-2020 period and also annually. By comparing the results of measuring the performance of mutual funds annually with the overall during the 2015-2020 period, it will provide an overview of the performance of mutual funds that occur each year and also the results of the performance of the mutual fund as a whole. From this comparison, it will be seen how the performance of the mutual funds studied has a good performance every year.

Sharpe Performance Comparison

Performance measurement using the Sharpe method is a measurement of how much excess return is generated by mutual fund products against each unit of total risk. From the results of measuring the performance of mutual funds using the Sharpe method, resulting in performance from 2015 to 2020 and also as a whole, it shows that none of the mutual fund products studied remained in the five highest levels from 2015-2020. This shows that it is not easy for mutual fund products to have the highest Sharpe performance for each year compared to other mutual funds in the sample studied.

Table 1. Comparison of Sharpe's Performance of the Five Highest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	Semesta Dana Maxima	39	32	24	27	1	3
2	Panin Dana Maksima	4	10	29	14	2	1
3	Phinisi Dana Saham	6	20	14	24	4	14
4	Schroder Dana Prestasi	9	26	17	17	8	10
5	Schroder Dana Istimewa	5	25	15	20	9	24

Table 1. shows the highest mutual fund performance of the mutual fund products studied in the 2015-2020 period, not having a long-lasting performance in the top five positions. Mutual fund products such as Semesta Dana Maxima and Panin Dana Maksima only managed to stay in the fifth highest position for two years, in the previous year both had poor performance. There are even mutual fund products that have never performed in the top five positions but whose overall performance is in the top five positions, such as Schroder Dana Prestasi. If you look at the performance of Schroder Dana Prestasi from 8 years of research, only one year its performance is below the top 20

position. It can be said that the mutual fund performance of Schroder Dana Prestasi is quite stable. This is due to the fairly aggressive policy of allocating funds that are mostly equity.

Table 2. Comparison of Sharpe's Performance of the Five Lowest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	ORI Mutual Funds	36	40	43	29	17	21
2	Manulife Obligasi Unggulan	40	8	42	11	26	40
3	Garuda Satu	22	39	33	38	40	41
4	Pendapatan Tetap Abadi 2	37	36	39	6	19	4
5	PNM Amanah Mutual Funds Sharia	32	6	4	5	14	2

Based on Table 2, it shows that mutual fund products that have poor performance against mutual funds are studied. Not all mutual fund products that perform in the bottom five for the 2015-2020 period from the data studied as a whole also have poor performance each year, such as the PNM Amanah Mutual Fund. The mutual fund product has the highest annual performance but the lowest overall performance. Mutual fund products, such as ORI and Garuda Satu Mutual Funds, have poor performance compared to other mutual funds. Both have less aggressive policies in the allocation of funds, so that has Sharpe's performance which *underperformed*.

Treynor Performance Comparison

Performance measurement using the Treynor method can also be referred to as the reward to *volatility ratio*, which is a measurement of mutual fund performance by comparing the excess return from mutual funds for a certain period of time with systematic risk which is calculated using the beta of the mutual fund. From the results of measuring the performance of mutual funds using the Treynor method, resulting in performance from 2015 to 2020 and also overall, it shows that there are mutual fund products studied that have remained at the highest five from 2015-2020 as shown in Table 3. These mutual fund products can survive for 4 consecutive years by being in the top five positions of the mutual fund products studied. This can be seen in Danamas Pasti and BNI Dana Syariah, both have Treynor's performance which is above the highest 10 position compared to other mutual funds. There are also mutual fund products that have Treynor's performance worse in the year of the mutual fund products studied, but have Treynor's overall performance in the top five positions, such as Defined Funds. This is due to the fact that the funds allocated by the Defined Fund are mostly in the form of bonds, both corporate and government. Thus, the systematic risk of the mutual fund product is reduced.

Table 3 Comparison of Treynor's Performance of the Five Highest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	Danamas Definitely	5	1	6	1	24	40
2	Fixed Fund	42	2	42	43	12	41
3	BNI Syariah Fund	38	41	4	2	2	2
4	Fixed Fund Brent	37	10	2	40	42	3
5	Mega Fund Combination	32	34	28	30	17	4

The calculations obtained from each year and also overall are shown in Table 4. Table 4 shows the mutual fund products that have poor performance against the mutual funds studied. RIDO DUA mutual fund has Treynor underperforming both yearly and overall. If viewed from its annual performance, RIDO DUA Mutual Funds are in the fifth lowest position for 3 consecutive years. This is due to the very low systematic risk of Rido DUA mutual funds. It can be said that the RIDO DUA mutual fund has more unsystematic risk.

Table 4 Comparison of Treynor's Performance of the Five Lowest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	ORI Mutual Funds	3	7	40	39	1	42
2	Manulife Obligasi Unggulan	2	6	39	33	6	17
3	Pendapatan Tetap Abadi 2	7	11	36	7	5	39
4	Reksadana RIDO DUA	1	38	41	42	43	7
5	Garuda Satu	27	37	34	29	41	37

Jensen's Performance Comparison

Performance measurement using the Jensen method is a measurement comparing excess return with required return predicted from market CAPM. From the results of measuring the performance of mutual funds using the Jensen method, resulting in performance from 2015 to 2020 and also overall, it shows that there are several mutual fund products studied that have remained in the five highest levels from 2015-2020 as shown in Table 4. The mutual fund product can survive for 4 consecutive years by being in the top five positions of the mutual fund products studied and only one year has Jensen performance that is below the top 10 compared to other mutual funds, such as Dana Pasti.

Table 5 Comparison of Jensen's Performance of the Five Highest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	Mega Dana Kombinasi	38	38	31	40	27	1
2	SAM Dana Berkembang	27	33	23	28	33	2
3	Dana Pasti	6	23	1	1	3	3
4	Panin Dana Maksima	5	5	40	11	2	4
5	Semesta Dana Maxima	34	39	30	24	1	5

The results of Jensen's performance measurement are the lowest from each year and the whole is summarized in Table 5. Table 5 shows the mutual fund products that have poor performance against the mutual funds studied. Almost all of the mutual fund products that performed in the bottom five positions for the 2015-2020 period from the data studied as a whole, also had poor performance each year, such as BNI Dana Syariah, Prima Mutual Fund, and Garuda Satu. The three mutual funds from the 6 years studied, have 4 consecutive years in the five lowest each year. This also illustrates its overall performance which is also in the lowest five.

Table 6 Comparison of Jensen's Performance of the Five Lowest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	BNI Dana Plus Syariah	24	42	42	42	39	20
2	Reksa Dana Prima	2	31	43	41	42	39
3	Garuda Satu	19	41	41	35	43	40
4	Simas Satu	13	43	12	38	35	28
5	ORI Mutual Funds	37	21	33	39	4	15

Appraisal Ratio Performance Comparison

Mutual fund performance measurement using the Appraisal Ratio method is a comparison of *Jensen's* value for each *non-systematic* risk it has. This means that the Appraisal Ratio is designed to measure the superior ability of the investment manager for each non-systematic risk it has. From the results of measuring the performance of mutual funds using the Appraisal Ratio method, resulting in performance from 2015 to 2020 and also overall, it shows that there are mutual fund products studied that have maintained the five highest levels from 2015-2020 as shown in Table 7. The mutual fund product can only last at most 2 consecutive years by being in the top five positions of the mutual fund products studied, such as Panin Dana Maksima and Semesta Dana Maxima. Mutual products, such as Mega Dana Kombinasi, never had the highest annual Appraisal Ratio

performance, but having performance for the whole was one of the top five of the mutual fund products studied.

Table 7 Comparison of the Appraisal Ratio Performance of the Five Highest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	Panin Dana Maksima	3	16	37	14	4	1
2	Semesta Dana Maxima	39	35	30	24	1	5
3	Schroder Dana Prestasi	9	43	23	1	18	36
4	Mega Dana Kombinasi	36	30	31	33	27	8
5	Dana Pasti	4	9	25	13	26	14

Based on Table 8, it shows that mutual fund products that have poor performance against mutual funds are studied. Not all of the mutual fund products that perform in the bottom five positions for the 2015-2020 period from the data studied as a whole, also have poor performance each year, such as Manulife Obligasi Unggulan. The mutual fund product had one of the highest annual performances but the lowest overall performance.

Mutual fund products, such as First State Ind Balanced Fund, BNI Dana Plus Syariah, and Garuda Satu, have the lowest performance rating of 20 compared to other mutual funds. All three have policies that are less aggressive in the allocation of funds, so they have an *underperformed* Appraisal Ratio.

Table 8 Comparison of the Appraisal Ratio Performance of the Five Lowest Mutual Funds in the 2015-2020 Period with Annual Performance

Rating.	2015-2020	2015	2016	2017	2018	2019	2020
1	Garuda Satu	30	39	42	35	43	40
2	BNI Dana Plus Syariah	25	37	35	39	35	20
3	First State Ind Balanced Fund	38	23	41	25	32	43
4	Manulife Obligasi Unggulan	40	8	40	29	6	21
5	ORI Mutual Funds	32	20	32	37	3	10

4. Conclusion

Based on the results of the calculation of mutual fund performance, the following conclusions can be drawn:

- 1) Measurements of mutual fund performance using sharpe methods, resulting in performance from 2015 to 2020 as well as overall, showed that none of the mutual fund products studied held at five highs from 2015-2020. It can be said that it is not easy to maintain Sharpe's

performance remains high. While mutual fund products that have the lowest performance of the five Sharpe from 2015-2020, also have a less good performance every year.

- 2) Measurement of mutual fund performance using the Treynor method, resulting in performance from 2015 to 2020 as well as overall, shows that there are mutual fund products studied that remained in the top five from 2015-2020, such as Danamas Pasti and BNI Dana Syariah. These mutual fund products can last for 4 consecutive years by being in the top five positions of the researched mutual fund products. Meanwhile, mutual fund products that have the lowest five Treynor performance from 2015-2020, also have poor performance each year, such as Garuda Satu.
- 3) The measurement of mutual fund performance using the Jensen method, resulting in performance from 2015 to 2020 and overall, shows that there are mutual fund products studied that have remained in the top five from 2015-2020, such as the Defined Fund. These mutual fund products can last for 4 consecutive years by being in the top five positions of the researched mutual fund products. Meanwhile, mutual fund products that have the lowest five Jensen performance from 2015-2020, also have poor performance every year.
- 4) The measurement of the performance of mutual funds using the Appraisal Ratio method, resulting in performance from 2015 to 2020 and overall, shows that there are mutual fund products studied that last at the highest five from 2015-2020, but only last the longest 2 years in a row, by being in the top five positions of the mutual fund products studied. It can be said that it is not easy to keep the Appraisal Ratio performance high. Meanwhile, mutual fund products that have the lowest performance in the five Appraisal Ratios from 2015-2020, also have poor performance every year.

Suggestion

Based on the conclusions obtained from the study, there are several suggestions that can be given, namely in choosing mutual fund products, investors are faster to make decisions on mutual fund products that have *underperformed* performance, such as Garuda Satu. This is done to minimize losses. The six methods of measuring the performance of mutual funds are used to provide options for investors in making the right decisions by considering various factors that affect the performance of the mutual fund. If investors need quick decisions, it is recommended to using the Sharpe method. Because in the Sharpe method there are return and risk factors, although they do not consider other factors that also affect the performance of mutual funds. Therefore, the use of six methods will provide the right decision for investors.

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