

APPLICATION OF ANALYTICAL HIERARCHY PROCESS TO EVALUATE TEN YEARS OF MUTUAL FUND PERFORMANCE IN INDONESIA

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ABSTRACT

Background – One of the investing products whose appeal grows yearly is mutual funds. Throughout August 2020 all types of mutual funds showed positive performance and in comparison, to other forms of mutual funds, equity funds developed into the mutual funds with the best performance. Investors must be observant and careful in choosing which mutual funds are worth buying and have the best performance

so that the risk of loss can be minimized. The Analytical Hierarchy Process (AHP), a decision-making method, is required since the decision-making process is difficult.

Purpose – This study uses the Risk Adjusted Return (RAR) technique, Sharpe Ratio, Treynor Ratio, and Jensen Alpha to examine the performance of equity funds as a factor for investors in selecting the best mutual funds.

Design / Methodology / Approach – This research approach is quantitative. All equity funds that meet the criteria of being older than 10 years, having the highest Asset Under Management (AUM) as of December 2020, and one mutual fund product representing an investment manager make up the population of this study. Both primary data and secondary data are the data analyzed in this study. The Analytical Hierarchy Process (AHP) is a decision-making process used in this study's data analysis method for 10 different mutual funds.

Result and Discussion – Based on the results of the analysis, it shows that the RAR method is the criterion that shows the most consistency in assessing the performance of mutual funds. This result is also supported by the opinions of several competent investment managers regarding mutual fund investment as respondents in this study. The overall results of selecting the best mutual fund performance in terms of the 4 criteria used show that the FWD Asset Dividend Yield Equity Fund is the best alternative choice with an overall inconsistency shown of less than ten percent, which means that the data comparison in this study is valid and consistent.

Conclusion – Based on the AHP method, it shows that the FWD Asset Dividend Yield Equity Fund has superior performance compared to the other eight mutual funds with the largest final weight of 0.155.

Research Implication – Investors can use this research as a foundation for their mutual fund investing selections by using it to determine which mutual funds meet the four criteria for the best return.

Research Limitations – This study has limitations related to the criteria, namely Risk Adjusted Return (RAR), Sharpe Ratio, Treynor Ratio, and Jensen Alpha and the alternative used is only 10 equity mutual funds, so that it can be developed using other criteria or adding sub-sub-criteria, and can use other mutual fund alternatives.

Keyword : Analytical, Hierarchy, Process; Mutual, fund, Performance.

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ABSTRAK

Latar Belakang - Salah satu produk investasi yang daya tariknya terus meningkat setiap tahunnya adalah reksadana. Sepanjang Agustus 2020 seluruh jenis reksa dana menunjukkan kinerja yang positif dan dibandingkan reksa dana lainnya, reksa dana saham berkembang menjadi reksa dana dengan kinerja terbaik. Investor harus jeli dan cermat dalam memilih reksa dana mana yang layak dibeli dan memiliki kinerja terbaik agar risiko kerugian bisa diminimalisir. Analytical Hierarchy Process (AHP), sebuah metode pengambilan keputusan, diperlukan karena proses pengambilan keputusan itu sulit.

Tujuan - Penelitian ini menggunakan teknik Risk Adjusted Return (RAR), Sharpe Ratio, Treynor Ratio, dan Jensen Alpha untuk menguji kinerja reksa dana saham sebagai faktor investor dalam memilih reksa dana terbaik.

Desain / Metodologi / Pendekatan - Pendekatan penelitian ini bersifat kuantitatif. Seluruh reksa dana saham yang memenuhi kriteria berumur lebih dari 10 tahun, memiliki *Asset Under Management* (AUM) tertinggi per Desember 2020, dan satu produk reksa dana yang mewakili manajer investasi menjadi populasi penelitian ini. Baik data primer maupun data sekunder merupakan data yang dianalisis dalam penelitian ini. *Analytical Hierarchy Process* (AHP) adalah proses pengambilan keputusan yang digunakan dalam metode analisis data penelitian ini untuk 10 reksa dana yang berbeda.

Hasil dan Pembahasan - Berdasarkan hasil analisis, terlihat bahwa metode RAR merupakan kriteria yang paling menunjukkan konsistensi dalam menilai kinerja reksa dana. Hasil ini juga didukung oleh pendapat beberapa manajer investasi yang berkompeten mengenai investasi reksa dana sebagai responden dalam penelitian ini. Hasil keseluruhan pemilihan kinerja reksa dana terbaik dari 4 kriteria yang digunakan menunjukkan bahwa *FWD Asset Dividend Yield Equity Fund* merupakan alternatif pilihan terbaik dengan inkonsistensi keseluruhan kurang dari sepuluh persen, yang berarti bahwa perbandingan data dalam hal ini studi valid dan konsisten.

Kesimpulan - Berdasarkan metode AHP, terlihat bahwa *FWD Asset Dividend Yield Equity Fund* memiliki kinerja yang unggul dibandingkan delapan reksa dana lainnya dengan bobot akhir terbesar yaitu 0,155 atau 15,5%.

Implikasi Penelitian - Investor dapat menggunakan riset ini sebagai dasar untuk memilih investasi reksa dana dengan menggunakannya untuk menentukan reksa dana mana yang memenuhi empat kriteria untuk pengembalian terbaik.

Batasan Penelitian - Penelitian ini memiliki keterbatasan terkait kriteria yaitu Risk Adjusted Return (RAR), Sharpe Ratio, Treynor Ratio, dan Jensen Alpha dan alternatif yang digunakan hanya 10 reksa dana saham, sehingga dapat dikembangkan dengan menggunakan kriteria lain atau menambahkan sub-sub kriteria, dan dapat menggunakan alternatif reksa dana lainnya.

Kata Kunci : *Analytical, Hierarchy, Process*, Reksa, Dana, Kinerja.

INTRODUCTION

Investment in Indonesia is currently growing rapidly, many people are starting to be interested in investing their funds in various instruments. In the digital era, investment has become very easy to do and the types are increasingly diverse. Investment instruments found in the capital market

include stocks, bonds, options, rights issues, warrants, mutual funds and others. The Indonesia Central Securities Depository (KSEI) recorded an increase in the number of investors in the capital market and according to the the Single Investor Identification (SID), mutual funds are



investment products with the biggest growth in investors (Pusparisa, 2020).

Mutual Funds are an alternative for investors who lack the time or competence to assess the risk of their investments because the invested funds will be managed by the Investment Manager. The Investment Manager will invest these funds in various forms of financial assets known as Securities Portfolios. According to this explanation, mutual funds can be described as a vehicle utilized by investment managers to collect money from investors for use in securities portfolios (Chhapra, Rehan, & Rafay, 2018).

Mutual funds have several advantages that make them attractive to investors. Mutual funds have a high level of liquidity because investors can easily sell or buy at the prevailing general price and can be divided into smaller fractions so as to minimize risk through investment diversification (Abey, 2017). Another advantage is that transaction costs are relatively cheap, stable, and uniform and can provide certainty for future profits because risks are managed rationally (Acma, 2014). Mutual funds do have several advantages, but that doesn't mean they don't have risks. The general principle in investing is that the higher the promised rate of return, the higher the risk involved (high risk high return).

There are various kinds of mutual fund products, including Money Market Funds,

Fixed Income Mutual Funds, Equity Mutual Funds, and Mixed Mutual Funds. Equity Mutual Funds are often the choice of investors because of their high elasticity (Pangestuti, Wahyudi, & Robiyanto, 2017). Investors' keen interest in equities mutual funds has been fueled by the anticipation of a larger return on investment compared to other types of mutual fund portfolios (Gusni, Silviana, & Hamdani, 2018). In choosing a mutual fund as an investment alternative, it is necessary to have a proper analysis to find out which mutual funds provide high returns and minimize existing risks. Return is often the main consideration for investors when investing their funds, however risk-related information is also important as a consideration for comparing Mutual Fund performance. Investors have a right to all information regarding the progress of the business as the owners of the funds, because they have ownership rights over the company.

Consumer News and Business Channel Indonesia (CNBC.com, 2020) stated that throughout August 2020, all types of mutual funds showed positive performance. The performance of equity funds as reflected in the Infovesta 90 Equity Fund Index was recorded positive 1.39 percent, the fixed income mutual funds reflected in the Infovesta Fixed Income Index recorded the highest performance at 1.73 percent, and the performance of mixed mutual funds is



illustrated in the Infovesta Balanced Fund. The index also strengthened by recording a return of 0.85 percent, and the performance of money market funds as illustrated in the

Infovesta Money Market Fund Index tends to be stagnant with a return of 0.40 percent. The following is the growth in Net Asset Value (NAV) for 2015-2020.

Table 1.
Mutual Fund Performance 2015-2020

Period	Total Mutual Funds	Net Asset Value (in IDR)	Unit Mutual Funds
2015	1098	272.786.414.624.284	182.980.302.722,53
2016	1448	339.172.131.930.876	240.711.440.477,11
2017	1749	456.894.507.974.944	323.748.943.961,67
2018	1845	506.909.840.627.282	373.775.558.836,28
2019	2189	542.174.899.067.508	424.790.551.106,74
2020	2256	573.542.145.246.917	435.143.042.391,74

Source: Financial Services Authority (OJK), 2020

Based on table 1, it can be seen that there is an increase from year to year, which means that the performance of Indonesian mutual funds is getting better. Kontan.com stated that equity funds were the mutual funds that had the highest performance among other types of mutual funds during August 2020. This was in line with the increase in the Composite Stock Price Index (IHSG) which rose 1.73% in the same period. Mutual fund performance measurement can be done using two approaches, namely based on mutual fund returns and based on the level of risk adjusted return.

The computation of return that is adapted to the risk that must be accepted is known as risk-adjusted return. Return and Risk have a close relationship. Return is adjusted to risk using certain formulations, so that risk adjusted return makes one investment comparable to other investments at the same risk level. Previous studies that

used the Risk Adjusted Return approach as a measuring tool for mutual fund performance assessment include Jain, Singal, and Dwivedi (2014), Naz et al. (2015), Verma and Hirpara (2016), Tripathy (2017), Aprillia, Wijaya, and Indriati (2018), and Robiyanto, Santoso, and Ernayani (2019). The Risk Adjusted Return method includes: Treynor Ratio, Sharpe Ratio and Jensen Alpha (Jogiyanto, 2013).

The Sharpe method is used to show the extent to which a combination of diversification can generate profits with a certain total risk (standard deviation), the Treynor method is used to measure the extent to which the combination of diversification can generate profits with systematic risk (beta) relative to market risk, whereas Jensen itself emphasizes alpha. So, these three methods have their own characteristics. According to Mahdi (1997) states that in general, the Sharpe



performance measurement model can be applied to all mutual funds, while the Treynor and Jensen method, which requires systematic risk measurement (β), can only be applied to equity mutual funds.

The many types of mutual funds require investors to be careful and careful in choosing which mutual funds are worth buying and have the best performance so that the risk of loss can be minimized. The decision-making process is not easy because it requires a lot of consideration so it must be done carefully so as not to make the wrong choice. The Analytical Hierarchy Process (AHP), a mechanism for making decisions, is necessary for the procedure.

The application of AHP in assessing mutual fund performance is still limited. Wu, Chang, and Wu (2008) assessed the performance of mutual funds with AHP using the criteria of mutual fund style, fund manager personality, fund management company, market investment environment. Other researchers are Perez-Gladish and M'Zali (2010), Mimovic, Jakšić, and Leković (2017), but previous researchers did not focus on financial performance. So, this study aims to analyze the performance of equity mutual funds for investors' consideration in choosing the best mutual funds with 4 criteria, namely Risk Adjusted Return, Treynor Ratio, Sharpe Ratio and Jensen Alpha.

LITERATURE REVIEW

Capital Market

The capital market is an activity dealing with public offers and securities trading, public corporations related to securities issued, as well as institutions and professions associated to securities, according to Law No. 8 of 1995 governing the capital market. The capital market can also be thought of as a venue for trading securities, most of which have a longer shelf life than a year. There are instruments that can generally be traded in the capital market, such as stocks, bonds, mutual funds, and derivative instruments. Each of these instruments provides different returns and risks.

Mutual Funds

According to Capital Market Law Number 8 of 1995, mutual funds are a method for investors to contribute money for investment managers to use in their portfolios of securities. Mutual funds offer a variety of features for beginners who do not have the ability to manage investment instruments and only have limited capital. The benefits obtained from mutual fund investment include portfolio diversification, professional management, risk reduction, transaction cost efficiency, time efficiency, liquidity, and information transparency. Similar to other investment instruments, mutual funds also carry risks, including the risk of reducing Net Asset Value (NAV), liquidity risk, default



risk, risk of changes in political economy and regulations, and exchange rate risk. In Indonesia, there are several kinds of mutual funds, including equity funds, fixed income mutual funds, money market mutual funds, equity mutual funds, and mixed mutual funds (Jogiyanto, 2013).

Mutual Fund Management

Mutual fund management is carried out by an investment management company that has received a license from the Capital Market Supervisory Agency (BAPEPAM). The investment manager has the responsibility to analyze and select the right and profitable type of investment. Another party involved in mutual fund management is the Custodian Bank. The Custodian Bank has the authority and responsibility in terms of storing, safeguarding and administering assets, in terms of recording or selling back a mutual fund in accordance with a contract that has been determined with the Investment Manager. According to the Capital Market Law, it is stated that an investment manager may not directly hold the wealth of a mutual fund. Such assets must be deposited with a Custodian Bank that is not affiliated with the Investment Manager to avoid fraud or conflict of interest in the management of said assets.

Mutual Fund Performance Assessment

1. Risk Adjusted Return

Risk Adjusted Return (RAR) is the amount of return that has been adjusted to the risk of getting that return. The calculation method used to measure risk adjusted return is alpha, beta, r-squared, portfolio standard deviation, Sharpe ratio and so on which have been put together into a standard deviation (total risk). For RAR, the higher the RAR, the optimal performance of a mutual fund is. Because the higher the RAR describes the level of return compared to the risk, the more optimal it is.

$$RAR = \frac{\text{Return}}{\text{Risk}}$$

2. Sharpe Ratio

The Sharpe measurement method was invented by William Sharpe in 1990. By dividing the difference between mutual fund returns and risk-free returns with a standard deviation, the Sharpe Ratio determines the ratio of the return to risk over a specific period. The greater the Sharpe Ratio (SR), the better the mutual fund performance. If the stock market is bearish, the SR number will be minus. When all investment instruments provide a negative SR number, the smaller the negative number, the better the performance.

$$S = \frac{R_j - R_f}{\sigma_j}$$

S = Sharpe Ratio. R_j = Mutual Fund Return. R_f = Risk free asset. σ_j = Standard Deviation

3. Treynor Ratio

Jack Treynor created the Treynor Index as a portfolio performance indicator.



Measurement using the Treynor method can be said to be similar to the Sharpe method, except that in the Treynor method there is a beta divider (β) which is the risk of fluctuation relative to market risk. Treynor argues that the portfolio formed ignores unique risks and leaves systematic risk that can be measured by Beta. The higher the Treynor Ratio, the more optimal the mutual fund performance will be.

$$T = \frac{R_j - R_f}{\beta_p}$$

T = Treynor Ratio. R_j = Mutual Fund Return.
 R_f = Risk free asset. β_p = Beta Portfolio

4. Jensen Alpha

The Jensen method also involves the beta factor (β) in its calculation which is based on the development of the Capital Asset Pricing Model (CAPM). This model assesses the performance of investment managers in producing positive alpha (alpha) values. In Jensen Alpha, a positive number indicates a mutual fund is able to provide a return above the systematic risk it bears, while a negative number indicates that the mutual fund's performance is below the level of systematic risk it bears. The bigger and more positive, the better the mutual fund performance.

$$\alpha_p = E_{(rp)} - \{rfr + \{E_{rm} - rfr\}\beta_p\}$$

α_p = Alpha Jensen. $E_{(rp)}$ = Portfolio Expected return. $E_{(rm)}$ = Market Expected Return. Rfr = Risk free rate. β_p = Portfolio Beta

RESEARCH METHODS

This research uses a quantitative research methodology. The population in this study is all equity mutual funds, which is then carried out by sampling with the criteria of having an age of more than 10 years which has the largest Asset Under Management (AUM) as of December 2020 and mutual funds will take one mutual fund product that represents one Asset Management (MI). In this study, both primary and secondary data were utilised. Primary data was collected by questionnaire to several investment managers who are competent in mutual fund investment. Secondary data obtained from Bareksa.com in 2011-2020.

The data analysis method in this research is using Analytical Hierarchy Process (AHP). This method was developed by Thomas L. Saaty, which is used to solve various decision-making problems using alternatives. The AHP method is used in this study because it can provide a single model that is easy to understand for a variety of unstructured problems and traces the logical consistency of the considerations used in determining priorities. The AHP method has been widely used by previous researchers to solve complex problems in finance, including Van Anh, Nhung, and Thanh Tu (2020), Marcarelli, Rossi, Ferrarro, and Lucadamo (2020), Jihadi, Vilantika, Sholichah, and Arifin (2021).



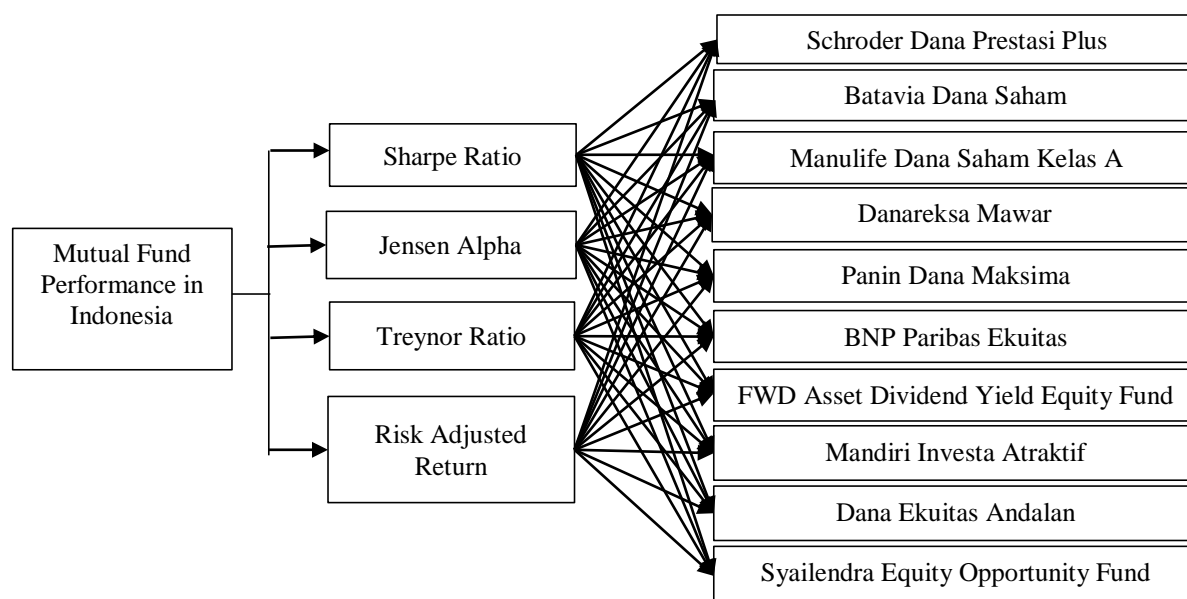


Figure 1. Research Framework

The AHP method is different from other methods, because the measurement is done by calculating the Consistency Index (CI) and Consistency Ratio (CR). The steps for using the AHP method include:

- a. Formulate a hierarchical structure
 At this stage, namely determining the objectives which are the objectives of the overall system at the top level. The next level consists of criteria for assessing and the last one is determining alternatives.
- b. Develop a pairwise comparison matrix, which describes the relative contribution or influence of each element to the goal or criteria using the relative scale measurement from Saaty (1980), which is commonly called the Saaty scale.
- c. Calculating the eigenvalues (priority weights)

- d. Calculating the Consistency Ratio (CR)
 The purpose of this is to assess the consistency of the responses, which will impact the reliability of the findings. The first step is to find the Consistency Index (CI) with the formula:

$$CI (\text{Consistency Index}) = \lambda_{max} - n / n - 1$$

To find out whether the CI with a certain amount is good enough or not, it is necessary to know the ratio that is considered well, namely $CR \leq 0.1$. If the CR value is more than 10%, it is necessary to revise the assessment because the level of inconsistency that is too large can lead to an error. Consistency Ratio (CR) can be calculated by the formula:

$$CR = \frac{CI (\text{Consistency Index})}{RI (\text{Random Index})}$$

ANALYSIS AND RESULT

Mutual Fund Performance Comparative Analysis

Mutual fund performance measurement with RAR, Sharpe, Treynor, and Jensen will have different characteristics of index numbers, so they cannot be compared directly. Standardization of performance measures needs to be applied to compare mutual fund performance measurements, namely the Z-score transformation (standardized). In order to determine whether the mutual fund performance for each period would have the same ranking if measured using three distinct ways, the Z-score values will display the range of each performance measure derived by various approaches.

Testing using non-parametric statistics will be more appropriate to utilize because

the data used in the following analysis is presented as rankings. The same sample is compared in this test under various circumstances. The Kruskal-Wallis test is employed in a one-way analysis of variance by rank for a design like this since every sample is tested in all circumstances. The dependent variable in this study is a ranking in the form of a ratio of 1-4 and the independent variable is a method with 4 categories, namely RAR, Sharpe, Treynor, and Jensen.

The Kruskal Wallish formula used in this study (Ghozali, 2002):

$$Kw = \left[\frac{12}{N(N+1)} \sum_{t=1}^n n_j R_j^2 \right] - 3(N+1)$$

Kw = kruskal wallish test value. N = total data. N_j = amount of treatment data j. R_j = mean rank of treatment j.

Table 2
N.Par Tests

	N	Mean	Std. Deviation	Min.	Max.
Z-score	400	.0000003	.9962334	-2.4454	3.5185
Criteria	400	2.50	1.119	1	4

Source: Output SPSS, 2021

Table 3.
Kruskal Wallis Test Results

	Z-score
Chi-square	2.709
df	3
Asymp. Sig.	.439

Source: Output SPSS, 2021

Based on table 4.1 shows that the total number of samples in this study is 400 with a mean value of - .0000003 and a standard

deviation of 0.9962334. The resulting minimum value of -2.4454 which is generated from the measurement of the



Treynor index and the maximum value is 3.5185 obtained from the Jensen index measurement. The test results using Kruskal Wallis can be seen in table 3.

The test results with the Kruskal Wallis test on the three methods obtained $\chi^2 = 2.906$, with a probability of 0.439. Then it can be seen that the probability of testing > 0.05 and χ^2 count < 2 table (5.99). These results indicate that there is no significant difference between testing with the RAR, Sharpe, Treynor and Jensen methods. The next test is to compare the mean between treatment portfolio performance calculations to find out the difference between the three mean ranks. The comparison between treatments for each method can be seen in table 4. Based on table 4, it can be seen that the difference in mean rank in the four methods means that the RAR method is the one that shows the most consistency against the differences between the four measurements, because RAR has the lowest mean rank difference against Sharpe, Treynor and Jensen. The difference between the mean ranks is shown that none exceeds the critical value, namely 30,124. This shows that the 4 measurements used in measuring mutual fund performance are relatively consistent for measuring mutual fund performance.

Mutual Fund Performance Analysis with AHP

1. Pairwise Comparison Matrix with Saaty Scale. Based on the results of the Kruskal Wallis test, weighting of mutual fund performance assessments can be carried out as in table 5.
2. Criteria Eigenvalues. The results of the Criteria Eigenvalues can be seen in table 6 below. The matrix in table 4.4 will be multiplied by the matrix at the eigenvalues once the eigenvalues have been determined.

$$\begin{bmatrix} 1 & 5,00 & 3,00 & 7,00 \\ 0,20 & 1 & 0,33 & 3,00 \\ 0,33 & 3,00 & 1 & 5,00 \\ 0,14 & 0,33 & 0,20 & 1 \end{bmatrix} \begin{bmatrix} 0,559 \\ 0,122 \\ 0,264 \\ 0,056 \end{bmatrix} = \begin{bmatrix} 2,353 \\ 0,489 \\ 1,094 \\ 0,227 \end{bmatrix}$$

3. Calculating the consistency of the criteria matrix.

The first step is to use the following formula to determine the consistency of vector weights:

$$t = \frac{1}{n} \sum_{i=1}^n \left(\frac{\text{elemen ke} - i \text{ pada } (A)(w^T)}{\text{elemen ke} - i \text{ pada } (w^T)} \right)$$

$$t = \frac{1}{4} \left(\frac{2,353}{0,559} + \frac{0,489}{0,122} + \frac{1,094}{0,264} + \frac{0,227}{0,056} \right) = 4,104$$

Result the calculation of the consistency ratio shows the number 0.0384 < 0.10 , thus proving that the comparison results are acceptable or consistent.

4. Repeating steps 1,2, and 3 for all hierarchical levels
5. After getting the value of each weighting of the criteria and each alternative based on these criteria, a matrix is obtained as shown in table 8.



Table 4
 Comparison between treatments

	Criteria	N	Mean Rank
Z-score	RAR	100	195.42
	Sharpe	100	210.93
	Treynor	100	208.15
	Jensen	100	187.50
	Total	400	

Source: SPSS output, 2021

Table 5
 Evaluation Matrix

	RAR	Sharpe	Treynor	Jensen
RAR	1,00	5,00	3,00	7,00
Sharpe	0,20	1,00	0,33	3,00
Treynor	0,33	3,00	1,00	5,00
Jensen	0,14	0,33	0,20	1,00
Total	1,67	9,33	4,53	16,00

Source: Analysis results, 2021

Table 6
 Normalization Matrix

Criteria	RAR	Sharpe	Treynor	Jensen	Eigen Value
RAR	0,599	0,536	0,662	0,438	0,559
Sharpe	0,119	0,107	0,073	0,187	0,122
Treynor	0,198	0,322	0,221	0,313	0,264
Jensen	0,084	0,035	0,044	0,062	0,056
Total	1	1	1	1	1

Source: Analysis results, 2021

Table 7
 Calculating of the consistency ratio

CI	RI	CR
0,036	0,9	0,0384

Table 8
 Final Results

Mutual Fund in Indonesia	RAR (0,565)	Sharpe Ratio (0,118)	Treynor Ratio (0,262)	Jensen's Alpha (0,055)
FWD Asset Dividend Yield Equity Fund	0,157	0,151	0,152	0,153
Syailendra Equity Opportunity Fund	0,119	0,117	0,116	0,115
Panin Dana Maksima	0,102	0,122	0,132	0,121
Batavia Dana Saham	0,108	0,113	0,112	0,109
Schroder Dana Prestasi Plus	0,118	0,107	0,093	0,095
Dana Ekuitas Andalan	0,095	0,097	0,089	0,090
BNP Paribas Ekuitas	0,085	0,087	0,099	0,101
Danareksa Mawar	0,090	0,086	0,087	0,091
Manulife Dana Saham Kelas A	0,078	0,072	0,073	0,077
Mandiri Investa Atraktif	0,048	0,047	0,047	0,050

Source: Analysis results, 2021

Table 9
 Final Assessment Results

Mutual Fund in Indonesia	Final Weight	Ranking
FWD Asset Dividend Yield Equity Funds	0,155	1
Syailendra Equity Opportunity Fund	0,118	2
Panin Dana Maksima	0,113	3
Batavia Dana Saham	0,110	4
Schroder Dana Prestasi Plus	0,109	5
Dana Ekuitas Andalan	0,094	6
BNP Paribas Ekuitas	0,090	7
Danareksa Mawar	0,089	8
Manulife Dana Saham Kelas A	0,076	9
Mandiri Investa Atraktif	0,048	10

Source: Analysis results, 2021

Calculating the final weight of each alternative. The final weight results can be seen in table 9. Based on the results in table 9, it can be seen that the FWD Asset Dividend Yield Equity Fund has been selected as the mutual fund that has the best performance during the 2011-2020 period assessed by 4 methods, namely RAR, Sharpe, Treynor, and Jensen.

Mutual funds are an attractive investment instrument for investors because of the benefits they provide. On the other hand, mutual funds also have a certain level

of risk, so investors must choose the right mutual funds. Risk can be minimized if investors have sufficient knowledge and information regarding the performance of mutual funds.

The Analytical Hierarchy Process (AHP) is a decision-making method that can be used by investors to select the best performing mutual funds. The criteria used as a measure for selecting the best mutual fund performance must be compared. The criteria used in this study are RAR, Sharpe, Treynor, and Jensen.

Based on the results of the analysis, it was found that the RAR method is the criterion that shows the most stability in assessing the performance of mutual funds. This result is also supported by the opinions of several competent investment managers regarding mutual fund investment as respondents in this study. Kuhle and Lin (2018) stated that an analysis of risk-adjusted returns would better measure the fund's overall performance.

Furthermore, the calculation of the consistency ratio is carried out which shows that the comparison of criteria is consistent and can be continued at the alternative comparison stage. The overall results of selecting the best mutual fund performance in terms of the 4 criteria used show that FWD Asset Dividend Yield Equity Fund is the best alternative choice. In this result, the overall inconsistency is shown to be less than ten percent, which means that the comparison of the data in this study is valid and consistent.

CONCLUSION

Decision making using the AHP method begins with compiling a hierarchical structure with three levels, namely the selection of the best mutual funds in Indonesia with four performance measurement criteria, and 10 alternative mutual fund options. Mutual fund performance measurement criteria use four

measures, namely RAR, Sharpe Ratio, Treynor Ratio, and Jensen Alpha. The alternative mutual funds used are mutual funds with an age of more than 10 years that have the largest Asset under Management (AUM) as of December 2020. Based on the Kruskal Wallis test results, it shows that there is no significant difference between testing with the four methods. Furthermore, the ranking is carried out and the results show that RAR method is the most consistent and is the most important criterion for assessing mutual fund performance with a weight of 0.559.

The test results using the AHP method show that the FWD Asset Dividend Yield Equity Fund has a superior performance compared to eight other mutual funds. FWD has the largest final weight of 0.155. Then followed by Syailendra Equity Opportunity Fund in second place and Panin Dana Maksima in third place. Investors who want to invest in mutual funds can make FWD Asset Dividend Yield Equity Fund as the main alternative because it has better performance than other results. This research can also be developed using other criteria or the addition of sub-criteria, and can be done on other mutual fund alternatives such as fixed income mutual funds, money market mutual funds, equity mutual funds, or mixed mutual funds.

RESEARCH IMPLICATIONS

This research can contribute in the form of information that can be used as material for consideration in making decisions, especially for mutual fund investors in selecting mutual funds with good financial performance. Making good decisions will minimize investment losses.

ACKNOWLEDGEMENT

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