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The effect of expense ratio, fund size and fund age on performance of ETF mutual funds with interest rate as a moderating variable

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ABSTRACT

The focus of this study is to exploraton the impact of expense ratio, fund size, and fund age on ETF mutual fund performance with interest rates as a moderating. The population is ETF Mutual Funds registered with the Financial Services Authority (OJK) using a purposive sampling technique in taking a sample of 20 Mutual Funds with an observation period of 4 years. The review technique used in this evidence is the moderated regression analysis (MRA) with the STATA 17 program to tabulate the data. These findings indicate that the expense ratio has a positive and insignificant effect on the sharpe ratio; fund size has a negative and significant effect on the sharpe ratio; fund age has a positive and significant effect on the sharpe ratio; then, the interest rate is not a moderating variable that influences the expense ratio positively and is not significant to the sharpe ratio; interest rate is not a moderating variable that affects fund size negatively and significantly to the sharpe ratio; while the interest rate is a moderating variable that influences fund age positively and significantly to the sharpe ratio.

INTRODUCTION

Nowadays, everyone wants to have additional income. Additional income is one way to improve welfare and stronger financial conditions. One of the ways that can be done to get additional income is by investing. One of the investment instruments that has been growing rapidly in recent years is Mutual Funds. A Mutual Fund is a container used to collect funds from investors and then invested in a collection of securities by the Investment Manager who manages the Mutual Fund (Wicaksono, 2021). In practice, Mutual Funds are divided into several types, including the Exchange Trade Fund (ETF). An ETF is a Mutual Fund as a Collective Investment Contract whose participation units are traded on the Indonesia Stock Exchange (IDX). ETF is a Mutual Fund, and this product can be traded like stocks on the stock exchange.

Until the end of 2022, a significant increase was recorded where the number of products recorded was 51 types, with total Managed Funds of IDR 13.7 Trillion. This shows that ETF Mutual Fund products are increasingly popular in Indonesia. The Indonesia Stock Exchange also has the largest number of ETFs listed in the Southeast Asia region, following behind Indonesia is Singapore, with a total of 45 ETFs as of December 31, 2022. Based on data from the Indonesia Stock Exchange, until the end of December 2022, there were 51 ETF products registered. Of the 51 products, 2 products are ETFs with underlying bonds, while the other 49 products are ETFs with underlying stocks. The difference is that ETFs with underlying bonds themselves have the advantage of being able to provide returns in addition to capital gains; investors can also get dividends.

To minimize the possible risks that investors will obtain, investors need to pay attention to the assessment of mutual fund performance to make choices and compare which mutual funds can provide optimal returns (Vinith et al., 2021). The larger the mutual fund, the greater the costs that must be borne by investors but contrary to other researchers Ippolito in Ferreira et al (2013). The older the age of the mutual fund, the better the performance of the mutual fund because it has enough experience to be trusted as an instrument and manager of investor funds to provide the return expected by investors (Nugroho et al., 2023). A long track record can provide a good picture to its investors (Wulansari et al., 2023). Measurement of mutual fund performance can use several methods that are often related to return and risk (risk-adjusted performance), namely by measuring performance including: Sharpe in Ji et al. (2021), Treynor in Coqueret & Guida (2020), and Jensen in Kaushik (2019), all three of which use the concept of capital market line. The expense Ratio

compares mutual fund operating costs and the funds it manages. The expense ratio consists of investment advisory fees, administrative costs and distribution fees, and other operational costs. According Farid, & Wahba (2022), expense ratio has a significant effect on mutual fund performance. In addition to the expense ratio, investors also need to pay attention to the size of the mutual fund (fund size), which can be seen from the total NAV. The larger the size of the assets under management will provide flexibility, increase bargaining power and facilitate the creation of economies of scale which can have an impact on reducing costs and positive effect on profit performance (Abebe Zelalem & Ali Abebe (2020); Suzan & Sausan Nabilah, 2020). The argument put forward by Abdul kareem et al. (2023), Alaabed et al. (2019), and Hidayat et al. (2018) on correlated fund size. In making investment decisions, an investor also needs to consider macroeconomic aspects.

One of the indicators in macroeconomics that can be used as a measuring indicator of the country's economy is the interest rate (e.g., Del Negro et al., 2019; Hayat et al., 2021; Iacoviello & Navarro, 2019; Rachel & Smith, 2017). Transformations in SBI interest rates are susceptible because they can affect the economy at large, and shift in these interest rates can affect financial performance. This study uses the SBI interest rate as a moderating variable, which is used to see the role of interest rates in explaining the relationship between expense ratio, fund size, and fund age on mutual fund performance (Nur et al., 2023). The SBI interest rate is one part of the macroeconomy and part of the external information that can affect the literacy of the capital market. If the SBI interest rate rises, it will have an impact on increasing deposit interest which in turn results in high lending rates, so that investment in the economy decreases (Sulong et al., 2023). Based on the perspectives that have been stated above, the authors take the object of the effect of expense ratio, fund size, and fund age on etf mutual fund performance with interest rates as a moderating variable. This research design uses quantitative approach. An investigation from Hair & Brunsveld (2020), "quantitative data are measurements where an object's characteristics are immediately represented by numbers. Since they are directly recorded as numbers, they are in a format conducive to statistical analysis". This means that quantitative data refers to measurements where numbers are used directly to display the characteristics of something. Since they are directly recorded as numbers, they are in a format suitable for statistical analysis.

RESEARCH METHODS

The data analysis technique used in this research is the interaction test or what is known as "moderated regression analysis/MRA" (Sugiyono, 2016), with statistical data processing divided into two parts, namely descriptive statistics used to see a general description of the object and research variables and also inferential statistics used to determine and prove the results of hypothesis testing that has been determined where all data processing uses "STATA 17". This research uses secondary data sources (secondary data), where this data is obtained through data sourced or derived from other sources such as financial reports of mutual funds classified as ETFs registered with the Financial Services Authority (Wati et al., 2022). Moreover, this financial report is obtained through the official website of each company. In addition, it was also obtained from the websites www.idx.co.id; www.bi.go.id; bareksa; pasardana, andliterature related to this research.

Table 1 Population and Sample

No.	Sample Criteria	Number of Companies
1.	ETF mutual funds listed on the Indonesia Stock Exchange from 2019 to 2022	51
2.	ETF mutual funds that are not listed on the Indonesia Stock Exchange from 2019 to 2022	(1)
3.	ETF mutual funds with incomplete data from 2019 to 2022	(30)
Number of samples that fit the criteria		20
Observation period		4 Years
Number of data (n/observation)		80

The population used in this research is ETF Mutual Funds registered with the Financial Services Authority (OJK) from 2019 to 2022, totaling 51 companies. In determining the sampling, the authors use non-probability sampling techniques where this technique does not provide opportunities or

opportunities for each member of the population to be sampled, and one of the non-probability sampling techniques is purposive sampling. According to Bell et al (2022), "purposive sampling is a non-probability form of sampling. The researcher does not seek to sample research participants on a random basis. The goal of purposive sampling is to sample cases/participants strategically so that those sampled are relevant to the research questions that are being posed." This means that purposive sampling is a form of non-probability sampling in which the researcher does not randomly search for research samples. The purpose of purposive sampling is to strategically sample cases/participants so that those sampled are relevant to the research questions. The considerations or criteria for ETF Mutual Funds are determined to represent the population, as shown in Table 1 above.

Table 2 Sampling Criteria

No.	ETF Code	ETF Name	Investment Manager	Recording Date
1.	XIPI	Reksa Dana Indeks Premier ETF PEFINDO i-Grade	PT Indo Premier Investment Management	Friday, December 21, 2018
2.	XIHD	Reksadana Indeks Premier ETF IDX HIGH DIVIDEND 20	PT Indo Premier Investment Management	Tuesday, December 18, 2018
3.	XPFT	Reksa Dana Pinnacle FTSE Indonesia	PT Pinnacle Persada Investama	Monday, September 10, 2018
4.	XBNI	Reksa Dana Indeks BNI- AM Nusantara ETF MSCI Indonesia	PT BNI Asset Management	Wednesday, May 23, 2018
5.	XDIF	Reksa Dana Danareks ETF Indonesia Top 40	PT Danareksa Investment Management	Monday, April 23, 2018
6.	XBLQ	Reksa Dana Batavia Smart Liquid ETF	PT Batavia Prosperindo Aset Manajemen	Tuesday, April 10, 2018
7.	XPSG	Reksa Dana Pinnacle Indonesia ESG ETF	PT Pinnacle Persada Investama	Friday, February 02, 2018
8.	XPES	Reksa Dana Pinnacle Enhanced Sharia ETF	PT Pinnacle Persada Investama	Thursday, October 12, 2017
9.	XPDV	Reksa Dana Pinnacle Core High Dividend ETF	PT Pinnacle Persada Investama	Friday, June 09, 2017
10.	XISB	Premier ETF Indonesia Sovereign Bonds	PT Indo Premier Investment Management	Thursday, February 02, 2017
11.	XPLQ	Reksa Dana Pinnacle Enhanced Liquid ETF	PT Pinnacle Persada Investama	Monday, August 15, 2016
12.	XISC	Premier ETF Indonesia State-Owned Companies	PT Indo Premier Investment Management	Thursday, October 01, 2015
13.	XIIF	Reksa Dana Premier ETF Indonesia Financial	PT Indo Premier Investment Management	Wednesday, November 19, 2014
14.	XISR	Reksa Dana KIK Premier ETF SRI-KEHATI	PT Indo Premier Investment Management	Friday, September 26, 2014
15.	XISI	Reksa Dana KIK Premier ETF SMinfra18	PT Indo Premier Investment Management	Thursday, March 06, 2014
16.	XIJI	Reksa Dana KIK Syariah Premier ETF JII	PT Indo Premier Investment Management	Tuesday, April 30, 2013
17.	XIIC	Reksa Dana KIK Premier ETF Indonesia Consumer	PT Indo Premier Investment Management	Tuesday, April 30, 2013
18	XIIT	Reksa Dana KIK Premier IDX30	PT Indo Premier Investment Management	Tuesday, October 30, 2012
19.	R-ABFII	Reksa Dana KIK ABF IBI Funds	PT Bahana TCW Investment Management	Tuesday, December 18, 2007
20.	R-LQ45X	Reksa Dana KIK Premier LQ45	PT Indo Premier Investment Management	Tuesday, December 18, 2007

Source: Otoritas Jasa Keuangan (2023)

Based on Table 1, regarding the sampling criteria and following the research population in this ETF Mutual Fund, there are 20 (twenty) suitable samples in this research. The ETF Mutual Funds sampled in this research are shown in Table 2.

RESULTS AND DISCUSSION

The research data used as variables are Expense Ratio, Fund Size, and Fund Age on ETF Mutual Fund Performance with Interest Rates as a Moderating Variable. ETFs first entered Indonesia on December 18, 2007, and continued to grow until they became one of the investment instruments that attracted many investors. ETF (exchange-traded fund) is an investment product that was first introduced in Canada on the Toronto stock exchange in 1990 and continued to grow throughout the world until it finally entered Indonesia on December 18, 2007, using the LQ45 index mutual fund as the underlying. Simply put, ETFs are mutual funds traded on exchanges such as the Indonesian stock exchange; in other words, ETFs are collective investment contracts that can be traded on the stock exchange. Exchange Traded Fund (ETF) is a collective investment contract whose participation units are traded on the Stock Exchange. ETF is a combination of mutual fund elements in terms of fund management with stock mechanisms in terms of buying and selling transactions. The variables used in this study are expense ratio; fund size; fund age; interest rates; and mutual fund performance reflected in the Sharpe ratio.

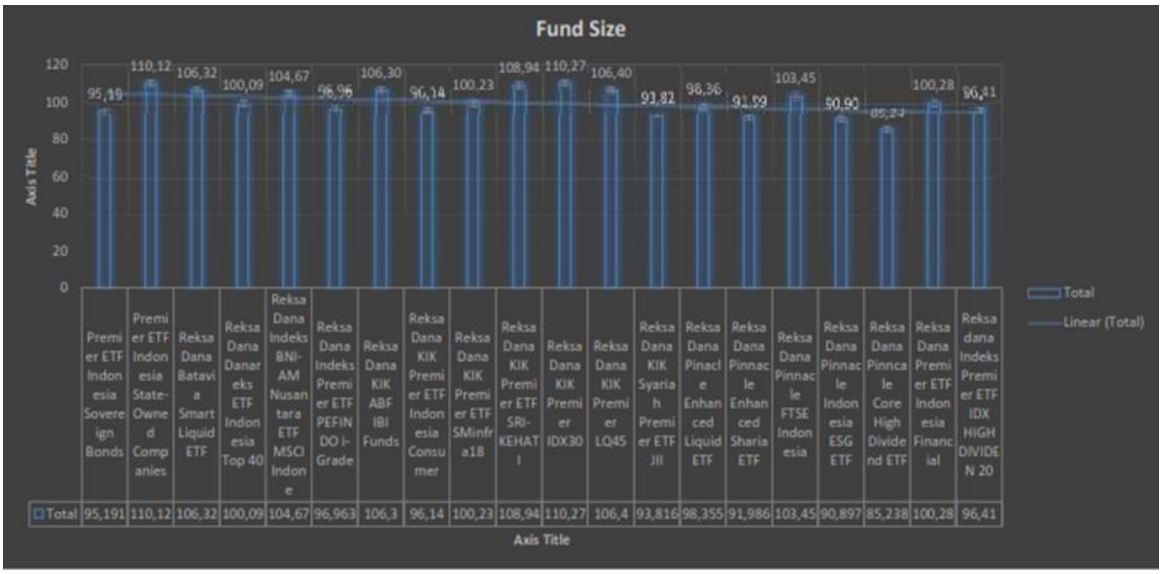
The expense ratio is the operating expense obtained from the sum of the ratio between the cost of operating the mutual fund to the total fund in a year and the average net asset value in that year. More simply, the expense ratio is all costs investment managers use to manage mutual funds divided by the average investment assets in one year. The expense ratio provides an overview of operations as well as salaries of investment managers and custodian banks and taxes for the benefit of mutual fund management which will be expressed as a percentage.

Figure 1 Expense Ratio
Source: Pasardana (2023)

The development of the expense ratio value of ETF mutual funds from 2019 to 2022 is very low or negligible, as shown in Figure 1. For 2019, the lowest expense ratio value is the issuer R-ABFII of 0.005, and the highest is the issuer XISB of 0.131; for 2020, the lowest expense ratio value is the issuer R-ABFII of 0.005 and the highest with the issuer code is XBNI of 0.303; For 2021, the lowest expense ratio value is the XIIT issuer of 0.007 and the highest is the XIIF issuer of 0.045; Then, for 2022 the lowest expense ratio value is the XBNI & XISR issuer of 0.008 and the highest is the XBLQ issuer of 0.481. This means that most of the expense ratio values are below 1% or close to zero, which means very low, when operating costs are very low, then mutual funds are well managed.

Fund Size is a measuring tool for determining the size of a mutual fund based on the funds it manages, which are described by Total Net Assets (Lantana et al., 2023). The greater the assets, the easier it will be to create an economy of scale which can have an impact on reducing the costs charged to investors indirectly, such as management fees, custodial fees, transaction fees, and other costs. As well as fixed costs such as auditor fees, the greater the number of funds managed as a percentage of costs will also decrease. The

value of fund size in ETF Mutual Funds is excellent as seen in Figure 2 below. This means that most ETF Mutual Funds have a large fund size or mutual fund size, which occurs because this Mutual Fund can manage managed funds or assets under management (AUM).



	Premier ETF Indonesia Sovereign Bonds	Premier ETF Indonesia State-Owned Companies	Reksa Dana Batavia Smart Liquid ETF	Reksa Dana Danareks ETF Indonesia Top 40	Reksa Dana Indeks BNI-AM Nusantara ETF MSCI Indone	Reksa Dana Indeks Premier ETF PEFINDO i-Grade	Reksa Dana KIK ABF IBI Funds	Reksa Dana KIK Premier ETF Indonesia Consumer	Reksa Dana KIK Premier ETF SMinfra18	Reksa Dana KIK Premier ETF SRI-KEHATI	Reksa Dana KIK Premier IDX30	Reksa Dana KIK Premier LQ45	Reksa Dana KIK Syariah Premier ETF JII	Reksa Dana Pinacle Enhanced Liquid ETF	Reksa Dana Pinnacle Enhanced Sharia ETF	Reksa Dana Pinnacle FTSE Indonesia	Reksa Dana Pinnacle Indonesia ESG ETF	Reksa Dana Pinnacle Core High Dividend ETF	Reksa Dana Premier ETF Indonesia Financial	Reksa dana Indeks Premier ETF IDX HIGH DIVIDEN 20
Total	95,191	110,12	106,32	100,09	104,67	96,963	106,3	96,14	100,23	108,94	110,27	106,4	93,816	98,355	91,986	103,45	90,897	85,238	100,28	96,41

Figure 2 Fund Size
Source: Pasardana (2023)

Fund age reflects a mutual fund that began trading on the stock market. In addition, fund age can also reflect the company's fund cash flow. Fund cash flow is generally compiled based on data from the income statement during the current period and from balance sheet data in the previous period (Ria, 2023). Cash flow is often used to evaluate the company's past performance, as well as to plan for future investment and financing activities. Fund cash flow is measured based on the total net asset value of the fund (NAV), indicating when a mutual fund began trading. The following is the development of ETF Mutual Fund fund age from 2019 to 2022. Based on Figure 3, shows that of all ETF Mutual Funds from 2019 to 2022, the longest with ETF codes are R-ABFII and R-LQ45X. This means that investment managers with the ETF code have good performance because they are experienced compared to young ones and have a longer track record that can provide an excellent picture to investors.

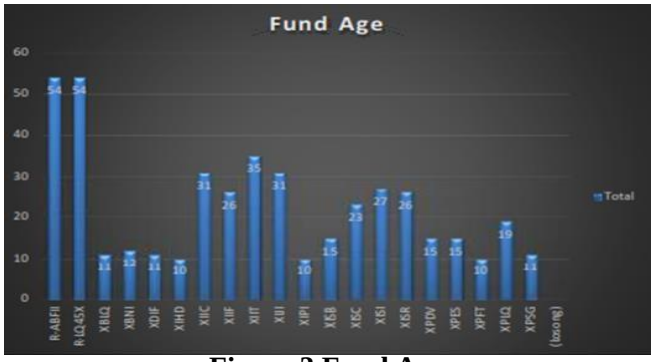


Figure 3 Fund Age
Source: Pasardana (2023)

All ETF Mutual Funds from 2019 to 2022, the longest with ETF codes are R-ABFII and R-LQ45X. This means that investment managers with the ETF code have good performance because they are experienced compared to young ones and have a longer track record that can provide an excellent picture to investors. Interest rates are one of the parameters or indicators of macroeconomics which is important to see economic policies or investment decisions of investors in the future. To measure the likelihood of this interest using the BI Rate as an interest rate policy representation of monetary policy based on an agreement of Bank Indonesia and known by the public. BI Rate is a Bank Indonesia policy

issued every month after a meeting of the board of governors to regulate finance by reflecting on the economic conditions of a country. The following interest rates occur from 2019 to 2022, as seen in Figure 4.

Figure 4 Interest Rate
Source: Pasardana (2023)

The interest rate value is 5.63; in 2020, the interest rate value is 4.25; in 2021, the interest rate value is 3.25; while for 2022, the interest rate value is 4.00. The high-interest rate value greatly affects the investment decisions made because if it is high, it will affect the investment made. Mutual fund performance is the result that the investment manager wants to achieve in managing invested funds. In measuring the performance of this mutual fund using the Sharpe ratio. Sharpe ratio measures excess return compared to risk-free investment for each unit of risk, and Sharpe ratio uses the standard deviation of mutual funds as a unit of risk. The following is the development of ETF Mutual Fund performance from 2019 to 2022, as shown in Figure 5 below.

Figure 5 Sharpe Ratio
Source: Pasardana (2023)

The performance of mutual funds reflected in the Sharpe ratio value for 2019 which is the lowest with the ETF code XPFT of 0.002 and the highest with the ETF code R-ABFII of 2.470; 2020 the lowest with the ETF code is XISC of 0.036 and the highest with the ETF code is R-ABFII of 1.631; for the performance of mutual funds in 2021, the lowest that occurred with the ETF code was XIHD by 0.071, and the highest with the ETF code was XISB by -1.584; while the lowest mutual fund performance for 2022 occurred with the ETF code was XISC by -0.062, and the highest with the ETF code was XIHD by 1.120. The results of the analysis applied in this study are divided into descriptive statistics and inferential statistics. The following data analysis is used to measure the expense ratio variable; fund size;

fund age; mutual fund performance reflected in the Sharpe ratio value; and interest rates as a moderating variable using the help of the STATA 17 program in processing data (see Table 3):

Table 3 Descriptive Statistics

Variable	Obs	Min	Max	Mean	Std. Dev
Expense Ratio (X1)	80	0.005	0.481	0.419	0.077
Fund Size (X2)	80	19.98	29.15	25.025	1.988
Fund Age (X3)	80	2.00	15.00	5.613	3.407
Interest Rate (Z)	80	3.52	5.63	4.350	0.789
Sharpe Ratio (Y)	80	- 1.830	2.470	- 0.188	0.588

Source: Processed by STATA 17

The multicollinearity test aims to look at the high correlation between independent variables, as seen in Table 4. The cut-off value of VIF (variance inflation factor) of all variables and the average, is less than 10.00, which means that it is free from multicollinearity symptoms, which also means that there is no high collinearity between these variables. The heteroscedasticity test aims to determine whether there is an inequality in the variance of the residuals between one observation to another. For the heteroscedasticity test in this research, using a scatter plot graph is shown in Figure 6.

Table 4 Multicollinearity Test

Variable	VIF	1/VIF
Expense Ratio*Interest Rate (x1*z)	1.95	0.514
Fund Size*Interest Rate (x2*z)	4.39	0.228
Fund Age*Interest Rate (x3*z)	2.91	0.344
Mean VIF	3.08	

Source: Processed by STATA 17

Based on the results of the classical assumption test as a requirement that must be met in a linear regression model with an ordinary least square/OLS-based estimation technique, it can be concluded that there are no problems or symptoms of normality; multicollinearity; autocorrelation; and heteroscedasticity, which also means that the data distribution is unbiased and consistent. Before testing the involvement of the moderating variable, namely "interest rate", first find out the regression model without the moderating variable with multiple linear regression analysis in STATA, as shown in Table 5.

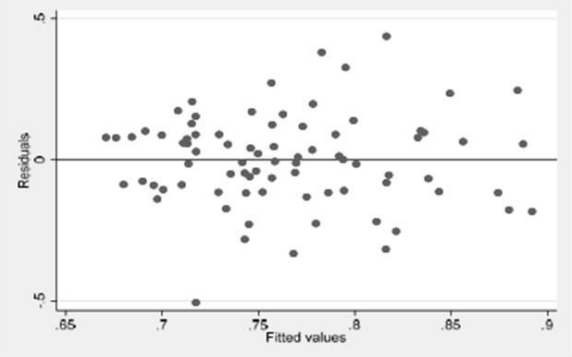


Figure 6 Heteroscedasticity Test
Source: Processed by STATA 17

From these results, it is known that two variables significantly affect the expense ratio of 1.2459 unity, with one variable that has a negative or unidirectional effect on mutual fund performance reflected in the expense ratio value. Then, some variables have a positive or unidirectional effect but are not significant. The increase or decrease in ETF mutual fund performance reflected in the expense ratio value can align with the increase or decrease in performance by 1.2459 units. After obtaining the equation of the multiple linear regression model without involving the moderating variable, the researchers tested the effect of the regression model involving the moderating variable "interest rate".

Table 5 M ltiple Linea Regression

y	Coefficient	Std. Err	t	P>|t|	[95% conf. Interval]	
x1	0.0109	0.007	1.50	0.137	-0.004	0.025
x2	- 0.0309	0.011	-2.83	0.006	-0.053	-0.092
x3	0.0937	0.028	3.29	0.002	0.037	0.150
_cons	1.2459	0.237	5.25	0.000	0.773	1.719

Source: Processed by STATA 17

From these results, it is known that two variables significantly affect the expense ratio of 1.2459 unity, with one variable that has a negative or unidirectional effect on mutual fund performance reflected in the expense ratio value. Then, some variables have a positive or unidirectional effect but are not significant. The increase or decrease in ETF mutual fund performance reflected in the expense ratio value can align with the increase or decrease in performance by 1.2459 units. After obtaining the equation of the multiple linear regression model without involving the moderating variable, the researchers tested the effect of the regression model involving the moderating variable "interest rate", as shown in Table 6. Two interaction variables have a positive or unidirectional, and there is 1 interaction variable that has a negative or unidirectional relationship of 0.6890 unity. Then, there is one interaction variable that has a significant effect on the expense ratio, while there are two interaction variables that have an insignificant effect on the expense ratio of 0.6890 unity. Then, two variables do not affect significantly with one variable affecting negatively or unidirectionally and significantly on the expense ratio of 0.6890 unity. Based on the statistical test results, it can be concluded that "interest rate as a moderating variable" is only based on fund age, while expense ratio and fund size are not moderating variables. From the results, it can also be concluded that the type of moderation is "pure moderation".

Table 6 Moderated Regression Analysis

y	Coefficient	Std. Err	t	P>|t|	[95% conf. Interval]	
x1z	0.1511	0.131	1.15	0.252	-0.110	0.412
x2z	- 0.1042	0.084	-1.23	0.221	-0.272	0.064
x3z	1.2323	0.520	2.37	0.020	0.198	2.267
_cons	0.6890	0.062	11.39	0.000	0.566	0.812

Source: Processed by STATA 17

The expense ratio with a coefficient of 0.0109 does not affect the performance of mutual funds, reflected in the Sharpe ratio in ETF Mutual Funds with a probability level (p-values) of 0.137 > 0.05. This result has a positive or unidirectional relationship direction which also means "H1 is rejected". Fund size, with a coefficient of -0.0309, affects mutual fund performance reflected in the Sharpe ratio in ETF Mutual Funds with a probability level (p-value) of 0.006 < 0.05. However, this result has a negative or unidirectional relationship direction which also means "H2 is rejected". Fund age with a coefficient of 0.0937 affects mutual fund performance, reflected in the Sharpe ratio in ETF Mutual Funds with a probability level (p-values) of 0.002 < 0.05. This result has a positive or unidirectional relationship direction which also means "H3 is accepted". Fund Age on Mutual Fund Performance moderated by interest rates Expense ratio with a coefficient of 0.1511 has no significant effect on mutual fund performance reflected in the Sharpe ratio in ETF Mutual Funds with a probability level (p-values) of 0.252 > 0.05 which is moderated by interest rates. Also, fund size with a coefficient of -0.1041 negatively and insignificantly affects the Sharpe ratio with a probability level (p-values) of 0.221. However, fund age with a coefficient of 1.232 positively affects the Sharpe ratio with a probability level (p-values) of 0.002 < 0.05. From the results of this calculation, "H4 is accepted", which states the interest rate as a moderating variable with the identification of the coefficients β2 and β3 is not significant and then the moderation is pure.

In the extensive version, the comparison between the performance of mutual funds formed by expense ratio, fund size, and fund age has been highlighted. Take for example in Vietnam, India, USA, Indonesia, and Egypt, Bai et al. (2019), Farid & Wahba (2022), Hadaa & Suri (2020), Junaeni (2022), Nguyen & Nguyen (2019), and Nur & Fernandika (2022) link the causality of the three components to mutual funds, where mutual funds are positively formed by the expense ratio, fund size, and fund age.

In the empirical context, the role of interest rates in the relationship between expense ratio, fund size, and fund age to mutual fund schemes has a more specific scope. As an illustration in Nepal, UK, Indonesia, Pakistan, and USA, Artamonov et al. (2020), Hakim et al. (2022), Harahap et al. (2022), Jin et al. (2022), Muñoz (2021), Pant et al. (2022), and Saleem et al. (2021) set the expense ratio, fund size, and fund age, which are integrated into mutual funds by highlighting interest rate patterns. However, among academic magazines with a similar lens, it is proven that an increase in expense ratio, fund size, and fund age mediated by interest rates tends to bring a negative landscape to the performance of mutual funds in Vietnam, Malaysia, Ghana, and Pakistan (Bui et al., 2023; Musah et al., 2014; Ul-Hameed et al., 2019; Zain ul Abdin et al., 2022).

Future research is expected to increase the number of samples because it is proven that fund size can harm mutual fund performance which should be that when the size of the mutual fund is large, it means that it has a high net asset value (NAV) so that it can be said that the mutual fund has good performance in terms of asset management or funds from investors. Future research should focus on ETF Mutual Funds with a positive value, which means that in its annual operational activities, it has a good profit in fund management because this is to convince or prove that good or positive performance is influenced by the expense ratio and fund size.

CONCLUSION

Following the discussion described above regarding the effect of expense ratio, fund size, and fund age on ETF mutual fund performance with interest rates as a moderating variable, the conclusion is that seen from the characteristics of the ETF mutual fund sample, most of them have a small expense ratio, meaning that the expense ratio with high costs remains valuable in the eyes of investors to invest in ETF mutual funds, but also when the greater the expense ratio obtained, the greater the costs incurred so that it will reduce the performance of mutual fund products which can directly harm the performance of mutual funds carried out by investment managers. However, when the fund size is small, which means that the NAV value is also low, it will reduce the performance of mutual funds carried out by investment managers. Interestingly, in the age of the company or fund age is high or long, it can encourage an increase in mutual fund performance because when a mutual fund has a long age, the mutual fund has high experience in fund management, so investors are interested in investing because investors believe that if the mutual fund is old, it can manage assets well. At the same time, interest rates are high, it can encourage a decrease in expense ratio and fund size on mutual fund performance because the operational costs are quite significant, and assets can be paid to cover the debt incurred.

Referring to the existing findings, practical implications are directed to mutual fund investment managers to maintain a low potential expense ratio, starting with the intensity of mutual funds that have low operating expenses. To stimulate growth in net assets driven by majority assets, a comprehensive managerial strategy is needed, including concentrating on asset structures that can foster investor interest. Studying the experiences and behaviors of investors leads to high enthusiasm for managing funds; ideally, the performance of mutual funds should be improved. Also, optimal management routines for assets, including a focus on mutual funds with long fund ages, need to highlight a good track record regarding trading fund exchange mechanisms.

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