

Performances of Sharia Mutual Funds in Indonesia: Empirical Evidence from a Developing Economy

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Abstract— This study aims to analyze the performances of Sharia mutual funds, especially in the Sharia mutual funds on stocks, money market, fixed income, and mixed funds. To enact such a purpose, a descriptive quantitative approach was used in the investigation of on Sharia mutual funds listed in Indonesia Stock Exchange 2015-2020 following the criteria of Sharia mutual funds of actively operate in Indonesia stock exchange which has great performance seen from Net Asset Value (NAV). The data analysis was carried out using phases of determining the rate of return calculated from NAV, the measurement of total risk with the standard deviation proxy, and the measurement of its performance using Sharpe ratio. The results indicate that fixed return of Sharia mutual fund carries the best performance compared to the stock, money market, and mixed investment funds. It has a higher return per unit risk and maximum probability of investment return above the income with riskfree. These research findings can be a reference for investors, primarily those who follow Sharia rules, in making mutual funds investment related decision in the future. They also can consider the Sharpe ratio to select the type of Sharia mutual funds in Indonesia, as the proper hedge investment.

Keywords-Component; Performance; Mutual Fund; Sharpe Ratio

I. INTRODUCTION

Sharia mutual funds experience a rapid development following the growth of technology and other commodity [23]. Sharia mutual fund is an investment method for the investors with minimum knowledge, skills, and ability to directly invest. It is also seen as an ethical investment method. Besides considering the moral dimension, Sharia mutual funds only select the suitable assets and securities to the Sharia rules (Islamic law) [17]. Currently, in choosing the type of investment, investor consider the risk, return, as well as the compliance to ethics and religion [11]. The basic principle or

Sharia mutual fund investment relies on its compliance to Islamic financial system accepted by the world as a unique, ethical, and universal system [10], [37].

The Sharia fund investment also brings periodic dividend for the investors, as the stock investment [14]. The dividend is obtained from the fund invested in various companies that comply to Sharia. As mentioned in the Islamic principle, investment should be made considering the Islamic ethics, as the halal guarantee [27] and Sharia compliance requires consistency of all transactions with Islamic principles [9]. The manager is not allowed to purchase the stocks from companies who have the elements of usury, alcohol, gambling, tobacco, etc. Besides, they are also prohibited to purchase the stocks of companies that bring negative effects for society, environment, or discriminating the employees [16]. Even with limitations in Islamic investment, the ethical investment trend has grown exponentially. In the last 20 years, the Sharia mutual funds investment has become the alternative for ethical investors who comply to Islamic values [16]. Through the assets management companies, the Sharia mutual funds investment has an interesting reciprocal relationship for the purpose of investment on different securities following the Islamic laws.

In relation to the global Sharia mutual fund investment development, it has attracted the interest of investors [29]. In Indonesia, Sharia mutual funds experience a significant growth in the last six years. Per December 2020, its Net Asset Value (NAV) reached 74.37 trillion, with 289 Sharia mutual funds companies. Its NAV increased by 38.4%, from 53.74 trillion in 2019. Besides, its performance increased by 55.8% in 2019, from 34.49 trillion in 2018 to 53.74 trillion. Meanwhile, in 2018, it improved by 21.8% in 2017, from 28.31 trillion to 34.49 trillion. A spectacular increase occurred by 89.87% in 2017, from 14.91 trillion in 2016 to 28.31

trillion. In 2016, its NAV went up approximately 35.3% in 2015, from 11.02 trillion to 14.91 trillion [36]. The accelerated Sharia mutual fund performance shows the investors' concern on ethical investment with greater return and lower risk. The results of previous studies suggest that Sharia investment has lower risk exposure than conventional investment, so that it attracts the interest of investors who comply to Sharia [28]. Besides, it also has a greater performance, primarily during an economy recession [19].

Previous studies on Sharia mutual funds bring mixed results. Using Sharpe ratio and Jansen measurement method from 21 companies, it is known that there are four companies with positive and consistent performance during the study period [31]. Other findings show that there is no difference in the performance of Sharia and conventional mutual funds seen from the level of risk and Sharpe method [5]. In addition, using Sharpe, Treynor, and Jensen's alpha methods, the performance of Sharia mutual funds shows good performances during the crisis period [41]. The finding from previous research also shows that the Sharia mutual funds have lower volatility than the conventional mutual funds [38]. In addition, other than the risk and return as the cut off, the Sharia investors also consider the Islamic principle, positioning it as the intriguing research topic [3], [26]. The results from those studies indicate the superiority of Islamic financial system (Sharia mutual funds) in the investment processes that also consider ethics and compliance toward Sharia. Unfortunately, those studies of Sharia mutual funds have not investigated the type of Sharia mutual funds that should be considerable and they have specifically not analyzed the performance. Thus, this study investigates the performance of Sharia mutual funds types, consisting of stocks, money market, fixed return, and mixed investment funds. Their performance was measured using the Sharpe ratio [35] to assess the excess return by considering the total risks. Based on the previous research, the Sharpe ratio was used as the performance index that has been generally used to measure the investment portfolio performance [39], including the Sharia investment [15].

II. LITERATURE REVIEW

Sharia mutual fund is the collection of individual capital managed to be invested by a specific investment institution following the Sharia [17]. Consequently, the Sharia investment is made following the five primary prohibition of usury (*riba*), speculation (*maysir*), excessive uncertainty (*gharar*), investment on the prohibited activities and the division of risk and return [18], [34]. These fundamentals guide the Sharia mutual funds investment. It has a strict filter to select the portfolio following the Sharia rules [18], [22]. In this context, Islamic scholars have made criteria of Sharia filter to analyze Sharia compliance [22]. The qualitative filter includes the business sector. The Sharia mutual funds should

not involve the businesses that are prohibited in Islam, such as the industry of alcohol, cigarette, biotechnology for human cloning, or the company that attain capital from loan, to avoid interest. Besides, Sharia mutual funds also have to follow the criteria of quantitative of financial filter [13]. The criteria put aside the investment on company with loan, liquidity, and investment based on high interest. Sharia mutual funds do not involve the investment on the fixed capital investment, such as the bond company, certificate of deposit, warrant and their derivatives such as the put and call option. The funds invested in this investment should also be free of interest-based loan, speculation or the excessive uncertainty.

The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) suggests some filters of financial ratio [1]. The Sharia mutual funds only invest in the companies with the financial ratio within the set range. If their ratio has gone above the ratio set by Islamic scholars, then the investment is prohibited. The financial ratio involves the debt to market capitalization ratio, the cash ratio and cash and interest-bearing securities to market capitalization ratio, also cash and account receivables to market capitalization ratio. Related to the investment standard AAOIFI stated the total debt of a company should never exceed the 33% of its company's total market capitalization. This limitation is applied to ensure that the company has no excessive debt rate, because the interest-based debt is prohibited in Islam. Therefore, Sharia mutual funds made no investment in the company stock that increased its interest-based debt higher than 33% of its market capitalization.

The second financial filter is the cash ratio and securities with interest toward market capitalization. This ratio ensures that the investment on interest-based security is in the acceptable level. According to the Sharia investment rule, the prohibited investment is in the fixed income investments such as securities, corporate bonds, government bonds, certificates of deposit and preferred stock. The AAOIFI established that the total interest-based saving should not go above 33% of the company's market capitalization [1]. Thus, this Sharia mutual funds could not invest on the companies that take more than saving interest 33% from its market capitalization or total asset. The third criteria are in the ratio of cash and receivables to market capitalization. The Sharia mentions that all liquid tools such as cash and credit should be traded in the nominal rate to avoid interest. The AAOIFI also set the total value of tangible assets of a company should never exceed 30% of its total assets. Therefore, the Sharia mutual funds only invested in companies with accepting cash and credit ratio to their market capitalization [28].

Sharia funds investment should independently be analyzed, since Sharia fund still has efficiency and carries effective investment opportunities even it comply to the Islamic laws [11], [32]. It is due to the Sharia funds investment tends to be selective on the small capital companies that give premium [19]. Even with its compliance to Islamic laws, it carries great influences, especially on the religion based geographic area [25]. Therefore, it is essential

to know the types of available Sharia funds suitable for the investor purposes before investing on Sharia mutual funds companies or asset management companies. Sharia mutual funds can be classified into regular income funds (monthly or quarterly) and growth funds focusing on the capital growth with appreciation toward the security that follows Sharia that gives no yearly or quarterly income [17].

III. METHODS

This study employed a descriptive quantitative approach [12] that focused on the Sharia mutual funds 2015-2020. This period is a very significant growth of Sharia mutual funds in Indonesia. The data were obtained from Indonesia Financial Services Authority, consisted of four types of Sharia mutual funds, subsisting of stocks, fixed income, mixed investment, and money market Sharia mutual funds. These four types of Sharia mutual funds were selected based on criteria of the Sharia mutual funds actively operated and had the best performance seen from their Net Asset Value (NAV) on 2015-2020. The following is the data analysis procedure.

- a. Determining the mutual fund realization rate of return using the below formula:

$$R_t = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}}$$

Description:

R_t = Investment return rate

NAV_t = Net Asset Value in the current month

NAV_{t-1} = Net Asset Value in the previous month

- b. Determining the mutual fund's expected rate of return using the formula below:

$$E(R_i) = \frac{\sum_{t=1}^n R_t}{n - 1}$$

Description:

$E(R_i)$ = Mutual fund's expected rate of return i

R_t = Realized Return Rate from mutual funds i

n = The total period of transaction

- c. Determining the rate of risk from the mutual funds

- 1) Determining the mutual funds variance

$$\text{Var } R_1 = \frac{\sum_{i=1}^n ((R_i - E(R_1))^2)}{n - 1}$$

Description:

$\text{Var } (R_i)$ = Variance of return on investment i

$E(R_i)$ = Mutual fund expectation rate of return i

R_i = Realized rate of return from mutual funds i

n = The total period of transaction

- 2) Determining the standard deviation of mutual funds

$$\sigma_i = \sqrt{\text{var}(E(R_i))}$$

σ_i = Mutual fund's standard deviation i

$\text{Var } (R_i)$ = Variance of return on investment i

- d. Measuring the return risk-free

$$R_f = \frac{\text{BI rate}}{n}$$

Description:

R_f = Monthly average risk-free return

BI rate = Bank of Indonesia rate on the specific period

n = Total n period

- e. Calculating the mutual funds performance using Sharpe method

$$S_{p_i} = \frac{R_{p_i} - R_f}{SD_{p_i}}$$

Description:

S_{p_i} = Index Sharpe of portofolio i

R_{p_i} = Average return of portofolio i

R_f = Average return of a risk-free asset

SD_{p_i} = Standard deviation of portofolio i returns

IV. RESULTS AND DISCUSSION

This study was conducted to investigate the performance of Sharia mutual funds in Indonesia, primarily the stocks, money market, fixed income, and mixed investment mutual funds during 2015-2020. The analysis was started by determining the return rate calculated from the net asset value, the total risk ratio with the proxy or standard deviation, and the measurement on Sharia mutual funds efficiency using Sharpe ratio.

A. Determining the Return Ratio

The return ratio of Sharia mutual funds have been calculated by calculating the average net value asset in every year from each Sharia mutual funds type [28] from 2015-2020. The results of that calculation are presented in Table 1.

TABLE 1. THE AVERAGE RETURN RATIO OF SHARIA MUTUAL FUNDS 2015-2020

Year	Stocks Sharia Mutual Funds	Money Market Sharia Mutual Funds	Fixed Income Sharia Mutual Funds	Mixed Investment Sharia Mutual Funds
2015	-0.00032	0.01044	0.02935	-0.00719
2016	0.00897	0.01464	0.05531	0.00644
2017	0.01073	0.05074	0.05902	0.02323
2018	0.01580	-0.00520	-0.00271	-0.00196
2019	-0.01390	0.03835	0.01061	0.00732
2020	-0.00353	0.03129	0.01703	-0.01049
Average	0.00296	0.02338	0.02810	0.00289

Table 1 shows the return ratio from types of Sharia mutual funds, including the stocks, money market, fixed income, and mixed investment mutual funds. The highest return ratio was observed from fixed income mutual funds in 2017, with 0.05902 value of the average realized rate of return. The second greatest average return ratio was found in the money market mutual funds (0.05074). The third most significant average return ratio was also observed on money market mutual funds in 2019 (0.03835) and 2020 (0.03129). The fifth most significant average return ratio was observed in mixed investment funds in 2017 (0.02323). Meanwhile, mutual fund type with the least average return ratio was the stocks mutual funds in 2018 (0.01580). Even if each type of Sharia mutual funds fluctuated, but the trend positive on money market and fixed income mutual funds had been observed. Generally, the data in Table 1.1 shows the average realized return rate of Sharia mutual funds in 2015-2020, with the greatest return ratio in fixed income mutual funds.

The fixed income Sharia mutual funds can be an alternative for investors using investment manager to gain yield. The period of 2015 to 2020 is a turning point for economic growth marked by the potential for information technology growth, although at the end of 2020 it began to decline rapidly [30]. However, investors see a great investment opportunity in the Sharia mutual funds with some logical consideration such as risk and return, business diversification and ethics. The findings from some current studies also aligns with it. During the period of economy growth, small business has the opportunity to conduct mutual funds investment in developing their businesses, that at a time will aid the economy acceleration [33]. Even if, during that period, the market is in the bearish situation, and then Sharia mutual funds remain to be optimistic, but it is not in 2020 because of COVID-19 pandemic. The impact of this pandemic has been suffered by corporations. However, Islamic business performance (e.g. Islamic Banks) have a strong immunity on the economic performance during the pandemic [2]. Likewise, the positive trend of Sharia mutual funds is

maintained. As explained in the previous study that Sharia mutual funds can survive even during the financial and economy crisis situation [6], [19].

In addition, the results of return ratio calculation also indicate low volatility level of Sharia mutual funds. Even if all types of Sharia mutual funds have ever experienced negative return, but they have satisfying turning point. For instance, the money market mutual funds which encountered negative point in 2018, but gained positive trend in the next several years. The results of this study is in line with a previous study that shows Sharia mutual funds have a lower volatility than the conventional mutual funds [20], [38], [4]. Another previous study also states that during a bearish market, conventional mutual funds' performance on fixed income get worse during the high volatility period [8]. Further, using the univariate and multi-variate system that usually fixed income conventional mutual funds gets low during a recession [8]. The finding of this study contradicts the findings from study conducted by on equity conventional mutual funds [21], but fixed income conventional mutual funds seems no investment facility that protects investors from the decrease during recession period [8]. Therefore, Sharia mutual funds' investments carry out the hope and it is seen as bringing positive opportunity to improve the economy. The return ratio presented in Table 1.1 indicates that the volatility of Sharia mutual funds can respond the market movement. Such conditions is indicated as great opportunity for investor to get credit for their Sharia mutual funds investment portfolio based on the trend performance in the market [23].

B. Measurement of Risk

Sharia mutual funds refer to an essential investment method for individual investor who have limited skills and ability to invest directly. Through the asset management company, the investor can invest in a number of distinctive securities. In this context, the risk and return analysis on the Sharia mutual funds become the determinant of the investment decision. Even if Sharia mutual funds are classified as great investment, but it still carries risks. There are several risks that should be considered, such as the market risks, risk of reduction, risk of Sharia compliance, and so forth. In this study, the total risk was measured using monthly refund standard deviation [40]. The results of total risk calculation are presented in Table 1.2.

TABLE 2. AVERAGE RISKS OF SHARIA MUTUAL FUNDS 2015-2020

Year	Stocks Sharia Mutual Funds	Money Market Sharia Mutual Funds	Fixed Income Sharia Mutual Funds	Mixed Investment Sharia Mutual Funds
2015	0.01178	0.01282	0.03840	0.01011
2016	0.00787	0.04065	0.03185	0.00655
2017	0.00606	0.02023	0.04070	0.00736
2018	0.00652	0.02366	0.00499	0.00614
2019	0.00645	0.01937	0.00440	0.00671
2020	0.01809	0.01987	0.01656	0.00949
Average	0.00946	0.02277	0.02282	0.00773

Table 2 shows that the most significant risk ratio from Sharia mutual funds have been observed with the fixed income Sharia mutual funds obtained 0.04070 in 2017, followed by the money market Sharia mutual funds of 0.04065 in 2016. In the yearly average, the fixed income Sharia mutual funds also have the greatest risks, followed by money market, stocks, and mixed investment Sharia mutual funds. Interestingly, the fixed income Sharia mutual funds in 2019 were the lowest risk compared to the other types of Sharia mutual funds (0.00440). It demonstrates that fixed income Sharia mutual funds are the best alternative for the investors, without set aside the other types of Sharia mutual funds as the investment diversification in their portfolio. The risks of Sharia mutual funds demonstrated in Table 1.2 also show the volatility of each period. The risks of each Sharia mutual funds type fluctuate differently, in each period. Additionally, the stocks mutual funds have a very smooth trend, followed by mixed investment Sharia mutual funds. However, the fixed income and money market Sharia mutual funds do not show the similar trend. The extreme risks symptom is observed in the 2016 to 2017, and 2018. During those periods, the money market Sharia mutual funds' risk increased from 0.01282 in 2015 to 0.04065 in 2016 and reduced to 0.02023 in 2017. Similarly, the fixed income Sharia mutual funds also increased from 0.031854 in 2016 to 0.04070 in 2017, then it has been observed to reduce drastically to 0.00499 in 2018 and to decrease again to 0.00440 in 2019.

That pattern of risk movement suggests the investors to stick to risk and return as their cut off in making investment related decision, aside of other consideration, as confirmed by previous study [3]. In the macro scale, after a global crisis, investor present investment style adjusted to the risks. Investors choice on the fixed income Sharia mutual funds may be caused by the non-pessimistic risk exposure, even if it carries equal yield to the conventional version. It confirms that Sharia mutual funds bring a less worrying risk than the conventional mutual funds. It supports the findings from previous study [41]. Even if another study explained that

Sharia mutual funds is more risky than the conventional mutual funds with proxy of standard deviation [23]. The findings of this research also indicate that even if the investors have various risk preference, but the Sharia mutual funds remain to be an excellent selection, especially for those investors who comply to the Sharia principles. The findings from previous study also confirms that investors who comply with Sharia are more sensitive toward risk exposure [28].

C. The Calculation of Sharia Mutual Funds Performance

The investors of Sharia mutual funds use a lot of considerations, including calculating the risk and return ratio of the portfolio. This consideration is taken to ensure that their investment meets their expectation since each portfolio performance becomes the indicator of investment selection. In this study, the performance of Sharia mutual funds portfolio was measured using Sharpe ratio. As explained that Sharpe ratio is used as performance index and generally used to assess the performance of an investment portfolio, including the Sharia mutual funds [39]. The results of that calculation are presented in Table 1.3.

TABLE 3. PERFORMANCE OF SHARIA MUTUAL FUNDS IN 2015-2020 CALCULATED USING SHARPE METHOD

Year	Stocks Sharia Mutual Funds	Money Market Sharia Mutual Funds	Fixed Income Sharia Mutual Funds	Mixed Investment Sharia Mutual Funds
2015	-3.45088	-3.66646	-5.84256	-1.35726
2016	-1.38651	-0.43237	0.12675	-1.61323
2017	0.20379	0.28849	3.07370	-18.7588
2018	-2.30126	-1.17405	-1.59730	-1.22195
2019	-2.91039	0.20934	0.36163	-3.96783
2020	0.58012	1.90549	2.15369	-4.12144
Average	-1.54419	-0.47826	-0.28735	-2.35959

According to Table 3, averagely, the fixed income Sharia mutual funds have the most excellent performance, followed by money market, stocks, and mixed investment Sharia mutual funds. This interpretation is obtained from the average Sharpe scores of fixed income Sharia mutual funds is greater by -0.28735 point than the other type of Sharia mutual funds. The standardize perspective indicates that the greatest Sharia mutual funds should carry the biggest Sharpe ratio, indicating a higher return rate per unit risk. Another perspective also shows that investors choice should be made based in the maximum investment return probability of Sharia mutual funds above the risk-free level. This interpretation supports previous argumentation that the higher Sharpe ratio of the fund indicates the higher expected return per unit of risk

[24]. Except in the negative return level, it is not applied for the best mutual funds' performance using Sharpe ratio [21]. The results of this study confirm the finding that the average Sharpe ratio is followed by the average positive excess return during the research period.

The results on Sharia mutual funds' performance illustrates the way an investor decides to invest in Sharia mutual funds. Even if, there is a sudden negative average Sharpe ratio, but it is followed by the positive average ratio. It indicates the Sharia mutual funds in Indonesia demonstrate great performance. Many supporting factors of that phenomena, such as investors preference on Sharia portfolio, and the market share that mostly are Moslem. As mentioned earlier, the Muslim majority countries tend to present good Sharia mutual fund performance [19]. Besides, the performance of fixed income Sharia mutual funds that remain great, indicates the ability of the investment manager or companies in diversifying the portfolio. This research result signifies the conformity with the previous phenomena that Sharia mutual fund investment manager's ability and accuracy becomes the essential element of great performance since they need to obey the Sharia principles [7].

The effects of global economic crisis and the Covid-19 pandemic since 2020 caused an economic slowdown in Indonesia, but the Sharia mutual funds' performance remains to be optimistic. The Sharia screening criteria of selecting the proper portfolio by investment manager yields better Sharia mutual funds' performance and return, during this economic slowdown. The previous study explains that a combination of skills to select superior Sharia mutual funds portfolio and the negative market timing ability of conventional mutual funds' investments offer a better hedging opportunity during the economic slowdown [7]. The conventional investors (without religious orientation) can also take the hedging opportunity by investing on Sharia mutual funds as part of their portfolio diversification. They can also adopt the screening criteria applied in Sharia mutual funds investment so that they can improve the performance Sharia mutual funds during the bearish trend market [7]. In line with the earlier argumentation, Sharia mutual investment helps protect the reduction risks during the economic crisis [3].

V. CONCLUSION

The Sharia mutual funds growth is observed in Indonesia, as a developing country. The Net Asset Values (NAV), as the performance indicator of the Sharia mutual funds experience significant development during the period of this research. The increase of Sharia mutual funds' performances in Indonesia represents the investors' expectation for an ethical investment that carries yield in the normal risk ratio. The excess return of Sharia mutual fund calculated from the NAV indicates the volatility in responding to the market. Besides, the pattern of market move also shows that the investors always hold on the risk and return as their

cut off in making the investment related decision, other than the other consideration. The Sharpe ratio was used to calculate the performance of Sharia mutual funds. The results suggest that fixed income Sharia mutual funds have the most excellent performance compared to the other types of Sharia mutual funds, such as stocks, money market, and mixed investment funds. It indicates that fixed income Sharia mutual funds have a higher return per risk unit and maximum probability to attain Sharia mutual funds return exceeds the risk-free return. The results of this study are expected to be the reference for investors, primarily those who comply with Sharia, in making decisions relevant to their investment in the future. The investors can also consider the Sharpe ratio in deciding the type of Sharia mutual funds in Indonesia, as a developing country. This findings on this study can be suggestions for investors. They should consider the risk of Sharia mutual funds, other than the benefits offered when they make the investment. Future studies are encouraged to investigate the performance of Sharia mutual funds based on different market cycles.

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