The Analysis of Sharia-Compliant Equity Fund and Conventional Equity Fund Performance in Relation to the Economic Conditions of Indonesia

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Abstract
This study aims to evaluate the performance of Islamic equity funds by comparing the Sharpe ratio, Treynor ratio, and Jensen's Alpha Sharia equity funds with conventional equity funds, in January 2014 to December 2018 observation period. This sample selection uses purposive sampling with specific criteria. The results of a direct comparison of the performance of conventional equity mutual funds and sharia equity funds showed no different results, meaning that the two types of mutual fund shares performed equally well. In this case, it shows that Sharia mutual fund shares have returns that are almost similar compared to conventional stock mutual funds. Islamic sharia mutual funds and conventional shares have no different risks and returns, but sharia mutual funds carry out Islamic law. In addition, the three methods used are still considered good because they have a high level of similarity in ranking mutual fund performance with Kendall's W test.

Keywords: Jensen's Alpha, Performance of Equity Funds, Sharpe Ratio, Treynor Ratio

1.   **INTRODUCTION**

1.1.   Background

The number of investors in capital market has always been increasing significantly every year. When referring to the Minister of Finance Decree Number 1548/KMK/90 concerning regulations on the capital market, capital market is defined as an organized financial system which consists of commercial banks and all financial intermediaries as well as all circulated securities. Capital market provides significant benefits to the world of business, investors, capital market supporting institutions, as well as the government. Capital market's primary role is to provide the society with opportunities to participate in the development of an economy. Through capital market, those who take part as investors can channel excess funds to be invested in numerous companies by purchasing stocks, bonds, or derivatives from the exchange issued by the companies. At the same time, the economic rate of the country has been growing up along with development of the industry. Stock is one of preferred capital market instruments in Indonesia. Compared with other instruments in the capital market, liquidity of stock is considered the highest.

Changes in economic conditions are main factors influencing investors in making stock investment. Investors need to know changes that occur in capital market in order to make sound and profitable investment decisions. Changes in economic conditions are seen as uncertainty which can be highly risky for investors (Wiksuana, 2009).

Compared with bank deposits, stock is more likely to provide higher returns. Its risk, however, is also higher. Generally speaking, when investing with higher risks, people expect higher returns. In stock investing and portfolio building, investors aim at gaining highest possible returns with lowest possible risks. Such situation is generally referred to as optimal portfolio of stock. Not all investors are capable of determining stock value and selecting which stocks are worth buying and optimal for their portfolio. Securities firms see this as an opportunity to increase investment in stocks and therefore start constructing equity funds that invest primarily in selected stocks that provide high returns but with low risks.

Securities firms are engaged in creating mutual fund products and constructing stock portfolio. Portfolio selection has long been one of critical research topics in modern finance. Modern portfolio theory was first proposed by Markowitz (1952, 1959) and Sharpe (1966). One takeaway that remains popular these days is the use of mean-variance as the basis for constructing portfolio. This analysis refers to a technique used to construct portfolio by minimizing possible risks. Risks are measured using variance and reward by looking at the average returns of the portfolio. Mutual funds are portfolio of assets constructed by investment managers (Bodie and Keane, 2014).

Mutual funds can be classified into two, conventional and sharia (The Financial Services Authority, 2019). Pursuant to the Islamic sharia principles, all transactions in the capital market should avoid all prohibited activities and be free from usury (*riba*), gambling, and ambiguity. Sharia law also encourages investment only in companies that conduct business ethically. Investment activity is where investors and capital market players collaborate and share both profits and risks (Abdullah et al., 2007).

According to regulations of Capital Market and Financial Institutions Supervisory Agency Number 11.K.1 (as cited in Hartono, 2016), companies' financial ratio should adhere to the sharia principle regulating a maximum 45% of interest-based debt to total asset ratio and 10% of non-permissible contribution income to revenue.

According to Wu et al. (2008), one of factors affecting mutual fund performance is its models. Ethics-based or faith-based mutual funds adopt different investment styles. Compared with their conventional counterpart, faith-based mutual funds are usually less exposed to market returns volatility (Bauer et al., 2005). A number of regulations and

requirements stipulated by the Financial Services Authority expect companies whose stocks fall under sharia stock category perform well in both finance and business.

This study measures mutual funds' performance using Sharpe's, Jensen's, and Treynor's performance ratios. Mutual funds allow investors whose funds and knowledge are limited to invest since their funds will be managed by investment managers. This is the reason for selection of mutual funds.

2.   LITERATURE REVIEW
2.1.   Investment Portfolio
Investment process requires basic understanding of investment decisions and organization of activities in investment decision making process. The underlying factor in investment decision making process is the understanding about correlation between expected returns and investment risks. A positive and linear correlation exists between expected returns and risks of an investment. This, in other words, indicates that greater risk comes with higher expected return. With potential great risks, it is time to diversify the risks in the portfolios. It is, therefore, possible to attain investment objective that is to earn optimal returns. Investors can invest in numerous investment alternatives which include either real investment such as land, gold, machinery, and property or financial investment such as time deposits, stocks, and bonds (Tandelilin, 2007).

2.2.   Mutual Fund
A mutual fund pools money from investors to be invested in exchange portfolios managed by an investment manager (Jamaludin et al., 2012). Pursuant to Capital Market Law Number 8 Year 1995 Article 1(27), a mutual fund is defined as a pool of money from investors to further be invested in exchange portfolios by an investment manager. There are three main points in relation to the aforementioned definition. First, funds are sourced from investors. Second, funds are pooled and invested in exchange portfolio. Third, the funds are managed by investment managers. In other words, all the money in mutual funds own mutually by the investors while the role of investment managers are limited to managing the funds invested.

2.3.   Sharia Mutual Fund
Pursuant to Financial Services Authority (OJK) Regulations Number 15/POJK.04/2015 Chapter 1 Article 1(1), sharia exchange is an exchange, as stipulated in Capital Market Law, whose implementation, including contract, ways of doing business, and business activities that underlie its issuance, abides by sharia principles in the capital market. Financial Services Authority (OJK) Regulations Number 15/POJK.04/2015 Chapter 1 Article 2(1) describes that business that conflicts with the sharia principles include, for example, systems that constitute usury (riba) applied by, for example, interest-based banks and financing companies, companies producing cigarettes or alcohol-based beverages, gambling, and trading of risk that contain uncertainty such as conventional insurance. In addition to complying with the sharia-based financial ratio, companies must comply with two other requirements which include a maximum 45% of total interest-based debts to total assets ratio and a maximum 10% of non-permissible contribution income to revenue (Hartono, 2016).

In sharia mutual fund, cleansing process is performed to purify certain types of income that contravene the sharia principles. These income types will be withdrawn to be donated to a charity. Different from conventional mutual funds that constitute only two components namely custodian banks and investment managers, sharia mutual funds constitute three components, one of them is known as Sharia Supervisory Board (SSB). SSB is a board responsible for supervising compliance of a mutual fund with the sharia principles

that is investment pursuant to Sharia Securities List and cleansing. This board is a group of independent experts in capital market and sharia law. SSB can also provide recommendations in relation to how to donate the fund from the cleansing process. Criteria for sharia-compliant category are set to ensure only well-performing stocks are included. This is in line with the study conducted by Al-Khazali et al. (2014) claiming that Islamic index outperformed conventional stock index after comparing Dow Jones Islamic index with Dow Jones conventional index. Other study also demonstrated that sharia-compliant stock indices outperformed their conventional counterpart during the 2008-2009 financial crisis (Jawadi et al., 2014).

2.4.   Return
Return is the gain or loss one earns from an investment. It can be either realized return, which has been made, or expected return, which has not been made but is expected to be earned in the future. Realized return is return that has been made calculated using historical data. Realized return is considered important as one of indicators in measuring performance of a company as well as the basis for determining expected return in the future. Expected return is described as return investors expect to earn for some future period. The differences between realized and expected returns lie on the fact that realized return has actually been made while expected return has not (Jones, 2007).

2.5.   Risk
In investing, measuring returns only will not be sufficient. Investment risks should also be taken into consideration. Risk is the difference that potentially occurs between the actual return and the expected return. Return and risk are inseparable as risk-return trade-off should be made when considering an investment. Return and risk are positively correlated and therefore indicate that greater risk should be compensated with higher return (Saunders & Cornett, 2014).

2.6.   Stock
If stocks are eggs, which of them are worth putting in the basket or, similarly, which stocks are worth buying for a profitable investment portfolio? It is obvious that answering the above question has never been easy. In capital market, no one are really sure about the rise of stock A or the fall of stock B. For instance, when global stock market fell, Indonesian capital market followed. Therefore, to avoid such risks, investors need to understand the characteristics of the stocks included in their investment portfolio. To be able to do such thing, investors need to know the types and characteristics of the stocks (Hartono, 2009).

2.7.   Assessment of Stock Portfolio Performance
Investment decision making process is an ongoing process that involves five decision stages that continue to happen until ones achieve their best investment decisions. The five stages include investment goal setting, determination of investment policy, selection of portfolio strategy, assets selection, and portfolio assessment and evaluation. The fifth stage of the investment decision process is a critical stage to identify whether or not the portfolio constructed is able to provide relatively higher return than return from other portfolio and whether the return justifies the risk that one should bear. It is therefore clear that to evaluate performance of a portfolio, considerations involve not only return but also other factors such as portfolio risks and investment goals.

2.7.1.   Sharpe Index
The Sharpe ratio measures portfolio performance using capital market line concept as a benchmark (Tandelilin, 2010). The Sharpe index was first developed by William Sharpe and was widely known as the reward-to-variability ratio (Sharpe, 1966). The Sharpe index measurement adopts the concept of capital market line as a benchmark to measure the total risk of a portfolio (systematic and non-systematic risks) by dividing the difference between the returns of the investment and the risk-free rate of return by the standard deviation of the investment.

2.7.2.   Treynor Index
The Treynor index that measures performance of portfolio was first developed by Jack Treynor in 1966 and was often referred to as reward-to-volatility ratio. The Treynor ratio measures performance of portfolio by dividing the excess return by the volatility. This ratio uses volatility to indicate systematic risk (beta) of a portfolio (Treynor, 1965 as cited in Hartono, 2016). Treynor assumed that portfolio has been well-diversified, making it relevant to take into account systematic risk (measured using beta).

2.7.3.   Jensen Index
The Jensen's Alpha is an index presenting portfolio performance by measuring the difference between the actual return of a portfolio and the expected return if the portfolio lies on capital market line (Tandelilin, 2010). The Jensen index adopts the CAPM approach to measure the mutual fund performance by measuring the excess return of a portfolio compared with its market benchmark. The Jensen index is an index that shows differences between the actual return of a portfolio and its expected return when the portfolio lies on capital market line. In addition, the Jensen index also compares return of a portfolio to the market return of a portfolio (passively managed) at the same level of risk.

2.8.   Hypothesis
2.8.1.   Sharia-Equity Funds and Conventional Equity Funds
Sharia-compliant stock is identified as having low liabilities. In addition, its criteria are also more strictly established. Ashraf (2013) in Saudi Arabia has conducted a study on mutual fund performance and revealed that Islamic mutual funds outperformed their conventional counterparts. Other study conducted by Ho et al., (2014) also suggested that Islamic mutual funds outperformed their conventional counterparts particularly during crisis.

It is expected that performance and risks of the companies whose stocks are sharia-compliant are better than performance and risks of companies issuing conventional stocks. Study conducted by Abdullah et al. (2007) found that, in bearish market, sharia-compliant mutual funds performed more satisfactorily than conventional mutual funds on Malaysia based mutual fund products. A study conducted by Handaka (2002) (as cited in Romadhonny, 2011) found that sharia-compliant mutual fund products performed more satisfactorily than Mawar mutual funds when measured using total return, average daily return, and risk adjusted performance methods. Referring to the study, when measured using Sharpe ratio and Treynor ratio, differences in performance between conventional and sharia equity funds were found.

Differences in performance between conventional and sharia equity funds were also found in the study conducted by Romadhony (2011) that compared performances of conventional equity funds with that of sharia-compliant equity funds. Reward-to-market-risk and reward-to-diversification methods were adopted in the above study to assess performances of conventional and sharia equity funds in 2010-2011 period. The study

evidenced that performance of conventional mutual funds and performance of sharia-compliant mutual funds differed. By referring to the above studies and details stated in literature review, hypothesis of the study was developed.

H_1: Sharia-compliant equity fund performs better than conventional equity fund does.

2.8.2. Consistency of Sharpe Ratio, Treynor Ratio, and Jensen's Alpha Methods

Mutual funds or portfolio performance assessment has grown in popularity. Three basic methods to assess performance of mutual funds include the Sharpe ratio, the Treynor ratio, and Jensen's Alpha. Those three methods measure mutual fund performance by adopting different approaches. Sharpe ratio measures mutual funds by dividing excess return by standard deviation of portfolio (total risk) (Sharpe, 1966 as cited in Tandelilin, 2010 and Hartono, 2016). Treynor ratio assesses portfolio performance by using the ratio of excess return to portfolio beta or a measure of systematic risk (Treynor 1966 as cited in Tandelilin, 2010 and Hartono, 2016). On the other hand, Adjusted Jensen's Alpha measures differences between realized return of a portfolio and expected return when the portfolio lies on capital market line. (Tandelilin, 2010) divided by portfolio beta.

A study conducted by Simanjuntak (2011) found that Sharpe ratio, Treynor ratio, and Jensen's Alpha were consistent in assessing mutual fund performance. The study involved products of balanced mutual fund which were then measured using Sharpe ratio, Treynor ratio, and Jensen's Alpha. Study results demonstrated consistency among the three methods in assessing performance of balanced mutual funds. Similarly, Taib and Isa (2007), whose study assessed performance of mutual funds in Malaysia, evidenced consistency in the rating of mutual fund performance measured using various measures based on Kendall's W test. Therefore, by referring to details of previous studies and review of related literature, hypothesis of the study was developed.

H_2: Sharpe ratio, Treynor ratio, and Jensen's Alpha are consistent in rating performance of conventional and sharia-compliant equity funds.

3.   RESEARCH METHODS
3.1.   Data Collection Procedure

This research collected secondary data of mutual funds starting January 2014 to December 2018. The mutual funds constituted both conventional and sharia-based mutual funds within observation period. Research period extended from the year of 2014 to 2018 considering fluctuating economic conditions in Indonesia that affected the IDX Composite within the period of time. The data required are as follows:

a. The IDX monthly statistics on Composite Index (IHSG) from January 2014 to December 2018
b. The IDX weekly statistics on Composite Index (IHSG) within 2015 period
c. Monthly-based Net Asset Value (NAV) of conventional and sharia-compliant equity funds from January 2014 to December 2018
d. Monthly-based Net Asset Value (NAV) of conventional and sharia-compliant equity funds within 2015 period
e. Interest rate of Bank Indonesia Certificates (SBI) from January 2014 to December 2018.

Mutual fund samples in this research are as follows:

a. Sharia equity mutual funds

This sharia category was composed of portfolios comprising sharia-compliant stocks actively traded and registered in Financial Services Authority in 2015 period and between January 2014 and December 2018.

b. Conventional equity mutual funds

This conventional category comprised of portfolios holding stocks actively traded and registered in Financial Services Authority in 2015 period and between January 2014 and December 2018.

3.2. Data Analysis Technique

3.2.1. Net Asset Value per Share (NAVPS) of a Mutual Fund

Net asset value is a component to measure return. According to Bodie et al., (2014) net asset value equals market value of an asset less its liabilities. Realized return is the actual return earned from differences between current value of an asset and its value in previous period (Hartono, 2016). Meanwhile, expected return indicates the anticipated level of return an investor will earn in the future.

Realized return can be calculated as follows:

$$\text{Rp} = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}}$$

Rp = portfolio return

NAB_t = current net asset value

NAB_{t-1} = net asset value of previous period

Meanwhile, expected return can be calculated as follows:

$$E(\text{Rp}) = \frac{R_p}{n}$$

Rp = portfolio return

n = period

3.2.2. Reward to Variability (Sharpe Ratio)

Using this index, portfolio performance is measured by dividing excess return by variability of portfolio return (portfolio risk) formulated below:

$$RVAR = \frac{TR_p - R_{FR}}{\sigma_p}$$

RVAR = reward to variability

TR_p = average total return of portfolio in a given period

R_{FR} = average risk-free rate of return in a given period

σ_p = standard deviation of portfolio return in a given period

3.2.3. Reward to Volatility (Treynor Ratio)

Using this index, portfolio performance is measured by dividing excess return by portfolio beta (a measure of systematic risk) formulated below:

$$RVOL = \frac{TR_p - R_{FR}}{\beta_p}$$

RVOL = Reward to Volatility

TR_p = average total return of portfolio in a given period

R_{FR} = average risk-free rate of return in a given period

β_p = a measure of portfolio systematic risk in a given period

3.2.4. Adjusted Jensen's Alpha

Adjusted Jensen's alpha measures portfolio performance by dividing the intercept of the portfolio by portfolio beta. The greater the intercept is, the higher the return of the portfolio will be.

$$\alpha_p = \frac{(TR_p - R_{FR}) - \beta_p(R_M - R_{FR})}{\beta_p}$$

α_p = Jansen's Alpha

TR_p = average return of portfolio in a given period

R_{FR} = average risk-free rate of return in a given period

β_p = volatility measured using portfolio beta in a given period

R_M = average market return in a given period

3.3. Hypothesis Test Method

   Hypothesis one in this study was tested using independent samples t-test. This test was to determine if there is a significant difference between the means of the two groups of data. Furthermore, a t-test was also conducted on the Sharpe ratio, Treynor ratio, and Jensen's Alpha of conventional and sharia equity funds.

   The steps include:

1. Calculating the Sharpe ratio of conventional and sharia equity funds using the Sharpe formula.
2. Performing a t-test on Sharpe ratio of conventional equity funds and sharia equity funds. A statistically significant t-test result indicates that sharia equity funds perform better than the conventional ones.
3. Calculating the Treynor ratio of conventional and sharia equity funds using the Treynor formula.
4. Performing a t-test on Treynor ratio of conventional equity funds and sharia equity funds. A statistically significant t-test result indicates that sharia equity funds perform better than the conventional ones.
5. Calculating the Jensen's Alpha of conventional and sharia equity funds using the Jensen's Alpha formula.
6. Performing a t-test on the Jensen's Alpha of conventional equity funds and sharia equity funds. A statistically significant t-test result indicates that sharia equity funds perform better than the conventional ones.

   Second hypothesis of the study was tested by calculating Kendall's W. This test was to determine if Sharpe ratio, Treynor ratio, and Jensen's Alpha are significantly consistent in rating two or more sample groups. Kendall's W test was performed on Sharpe ratio, Treynor ratio, and Jensen's Alpha of conventional and sharia equity funds in one-year observation period (2015) and five-year observation period (January 2014 to 2018) to see consistency of Sharpe ratio, Treynor ratio, and Jensen's Alpha of two mutual fund types being studied. A statistically significant Kendall's W test result indicates consistency among the three ratios in rating the mutual funds. Kendall's W concordance coefficient is to examine strength or weakness of the instrument and it ranges between zero and one. The higher the Kendall's W concordance coefficient, the higher the consistency of the raters is.

4.   DISCUSSION

4.1.   Comparative Analysis of Sharia and Conventional Equity Funds

Hypotheses of the study were tested using independent sample t-test. This test determines if sharia equity mutual fund performance is higher than performance of conventional equity mutual fund.

Table 4.1. Normality Test for Mutual Fund Data

Equity Fund Normality Test for January 2014-December 2018 Period				
	RDSS	Data Distribution	RDSK	Data Distribution
Sharpe	0.200	Normal	0.023	Non-normal
Treynor	0.200	Normal	0.010	Non-normal
Jensen's Alpha	0.200	Normal	0.000	Non-normal

Source: Processed data (2019)

As, referring to the above table, data are non-normally distributed, a non-parametric counterpart of independent t-test would be conducted (Lind et al., 2015). The parametric test would be conducted using the independent sample t-test whereas the non-parametric counterpart would adopt the Mann-Whitney U test.

Table 4.2. Results of Hypothesis Test on Equity Mutual Fund Performance from January 2014 to December 2018

No.	Variable	Mean Rank		Statistical Test		
		Sharia	Conventional	z value	Sig.	H_0
1	Sharpe	14.30	14.80	-0.245	0.826	Accepted
2	Treynor	14.25	14.86	-0.890	0.890	Accepted
3	Jensen	14.20	14.93	-0.341	0.818	Accepted

Source: Processed Data (2019)

Results of the hypothesis test on sharia and conventional equity funds, according to the above table, suggested that, within a three-year period, no differences in performance among all three indices (Sharpe, Treynor, and Jensen's Alpha) are found. Acceptance of the null hypothesis (H_0) indicates that performance of sharia-compliant and conventional equity mutual funds are the same.

The above details indicate that return provided by sharia-compliant equity funds is almost similar to that offered by their conventional counterpart. Moreover, risk and return of sharia and conventional equity funds are almost similar. Sharia-compliant funds, however, are governed by the sharia principles.

4.2.   Consistency Analysis for Sharpe Ratio, Treynor Ratio, and Jensen's Alpha Methods

To test consistency of the mutual fund instruments, Kendall's W test was performed on the three indices. The greater the coefficient, the stronger the agreement among variables tested is.

Table 4.3. Kendall's W Test on Sharpe Ratio, Treynor Ratio, and Jensen's Alpha for Conventional Equity Funds

	1 Year	3 Years
Kendall's W	0.726	0.509
Sig.	0.000	0.000

Source: Processed Data (2019)

As can be observed in Table 4.3, the three performance indices are consistent and in agreement in rating performance of sharia-compliant and conventional mutual funds in either one-year or five-year period and, therefore, relatively similar rate will be generated by whichever method applied individually.

Table 4.4. Kendall's W Test on Sharpe Ratio, Treynor Ratio, and Jensen's Alpha of Sharia Equity Fund

	1 Year	3 Years
Kendall's W	1.000	0.739
Sig.	0.000	0.000

Source: Processed Data (2019)

The above table presents results of Kendall's W test on the three performance indices in both one-year and five-year period. Results suggest that the three performance indices are consistent and in agreement in rating sharia-compliant equity fund.

As can be seen in Table 4.3 and Table 4.4, Kendall's W coefficient of concordance is relatively high and is closer to one, indicating higher agreement among instruments of the test in rating. Differences in Kendall's W coefficient of concordance between one-year and five-year periods can exist since degree of variability in return from five-year mutual fund is greater than that in one-year mutual fund return.

5.   CONCLUSIONS
5.1.   Conclusions
5.1.1. After conducting a hypothesis test, no differences in the performances of sharia and conventional equity funds measured using the Sharpe ratio, the Treynor ratio, and Jensen's Alpha are found.
5.1.2. The Sharpe ratio, the Treynor ratio, and Jensen's Alpha methods are considered consistent in the measurement of conventional equity funds performance within one-year and five-year periods. It is then concluded that investment managers have performed diversification satisfactorily.
5.2.   Limitations
5.2.1. The number of mutual fund samples compared in this study was small due to limited number of sharia equity funds available.
5.2.2. A bearish period occurred and caused the majority of mutual funds' returns negative.

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