

## **Factors Affecting the Performance of Sharia Equity Funds in Indonesia**

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### **Abstract**

By the end of 2018, the net asset value in total and the number of Sharia mutual funds in Indonesia is dominated by the Sharia equity fund. Therefore, this study sought to address the factors of internal and external factors affecting the Sharia equity funds' performance in Indonesia in the period 2010-2018. The fund performance is measured with the Sharpe ratio. The determinants of fund performance are investment manager's Stock selection skill, Market timing ability, and Percentage change in asset under management as internal factors. In addition, the selected external factors are Inflation rate and Percentage change in exchange rate. This study adopted panel data analysis using secondary data of 8 selected samples of Sharia equity funds. The results revealed that investment manager's Stock selection skill, Percentage change in asset under management, and Inflation rate positively and significantly affect performance of Sharia equity funds. On the other hand, investment manager's Market timing ability insignificantly affects Sharia equity fund performance. While, Percentage change in exchange rate negatively and significantly affects Sharia Equity Funds Performance.

### **Keywords**

Sharpe ratio, Stock selection skill, Market timing ability, Inflation rate, Exchange rate.

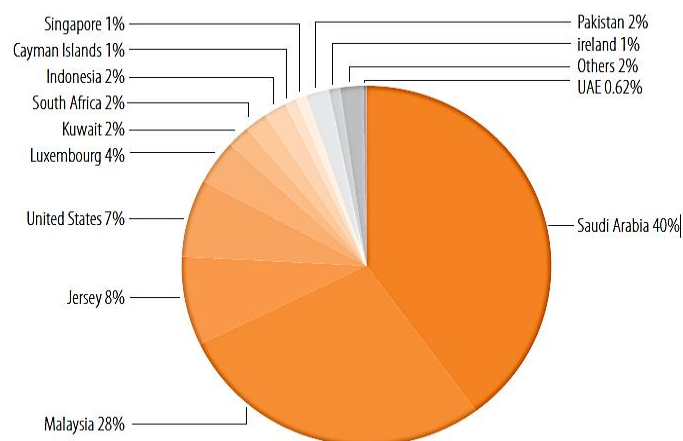
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## Introduction

The Islamic or Sharia capital market is an alternative for investors who prefer to invest their funds in accordance with Sharia principles. One of Sharia capital market products is the mutual fund. According to a Law of the Republic of Indonesia, Number 8 in 1995, concerning the Capital Market, the mutual fund is a securities portfolio managed by Investment managers that are used to raise funds from the community. Differing from the conventional mutual fund, Sharia mutual fund only operates under the terms and principles of Islamic law. Sharia mutual funds will not invest the funds in securities, bonds or in companies whose management or products are in conflict with the Sharia concept. According to the Regulation of the Financial Services Authority Indonesia (OJK), Number 19 / POJK.04 / 2015, Sharia Mutual Fund should be managed as follows (Otoritas Jasa Keuangan, 2015):

- a. The Investment Manager is a representative (*wakiliin*) who acts for the benefit of the Board of Directors of the Sharia Investment Fund in the form of a company as a party represented (*muwakil*) by the authority to manage Sharia Mutual Funds;
- b. Contracts (*Akad*), management methods, and Mutual Fund portfolios are not contradictory with Sharia Principles in the Capital Market;
- c. Supervisory Board: There are Sharia National Councils (DSN) and OJK that supervise the Sharia mutual fund. For the conventional, it is only supervised by OJK.
- d. There are screening and filtering process to select assets that follow the sharia laws. In addition, there is a cleansing process to separate the profit from non-halal income. Overall, the management has to follow Sharia principles.
- e. Mutual fund name should contain "Sharia" word.
- f. Fund compositions: the investment of Sharia fund can only be made on securities issued by the issuer whose types of business activities are not contrary to the Islamic Law/Sharia. Types of business activities that are contrary to Islamic Sharia include gambling and conventional financial institutions that use interest rate (*ribawi*), enterprises that produce, distribute and trade illegal food and beverages, or provide goods or services that are morally destructive and harmful.



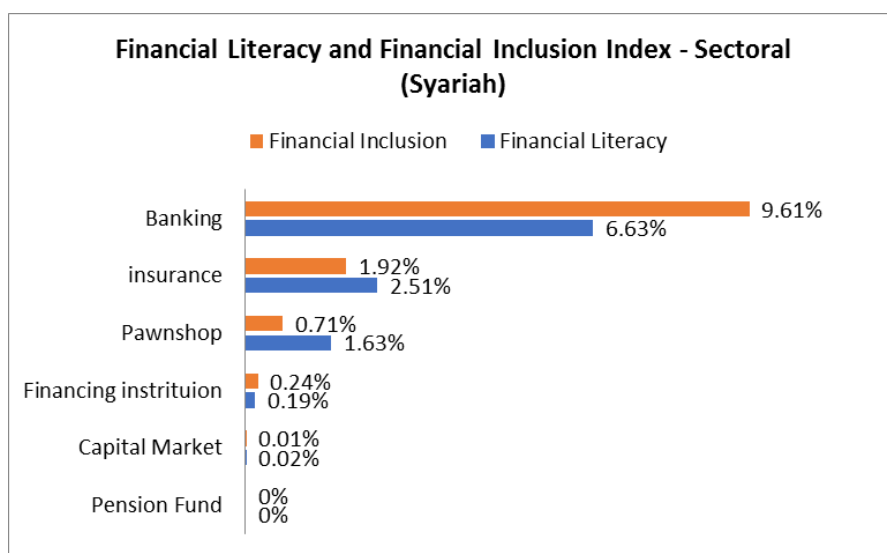
**Fig. 1. Market share of Sharia mutual fund, Based on country**  
*Source : (Otoritas Jasa Keuangan, 2016)*

By the end of October 2015, as revealed in Figure 1, the highest market share of Sharia mutual fund was in Saudi Arabia with 40% market share of their mutual fund industry, followed by Sharia mutual fund in Malaysia with 28% market share, Jersey with 8% market share, and the United States with 7% out of their mutual fund industry in each country. In Indonesia, the market share of Sharia mutual fund was only 2%. The low market share of Sharia mutual fund in Indonesia itself might occur since the Indonesian mutual fund industry is still in its emerging phase. In addition, Indonesian financial literacy based on the latest survey by OJK in 2016<sup>1</sup> was low. Indonesian financial literacy based on capital market sectors was only 4.4% and the financial inclusions was only 1.25%.

As shown in the Figure 2, financial literacy on Sharia Capital market was only 0.02% and financial inclusions was only 0.01% (Otoritas Jasa Keuangan, 2017). To boost the development of Sharia mutual fund industry in Indonesia, synergy and support between related parties and improvement in every related aspect are highly important. Based on Figure 2, the financial literacy and inclusion in

1. The Survey is conducted by OJK every three years. The next survey will be conducted in 2019.

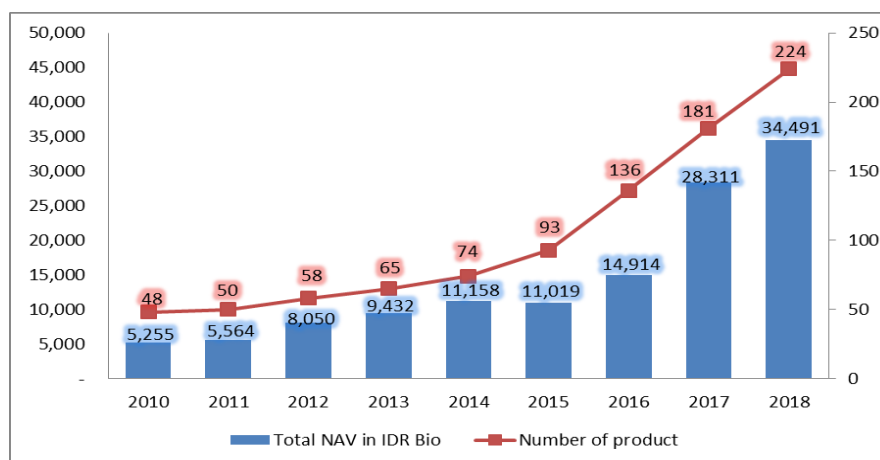
Indonesia is low, but the prospect of Sharia mutual fund development in Indonesia is high, since 87.2% of its total population are Muslim; in addition, Indonesia ranked 4th of the most populated country in the world with 264 million people in 2017 as reported by World Bank (World Bank, 2018). Thus, it makes Indonesia a high target market of Sharia mutual funds. In addition, the Indonesian Directorate of Sharia Capital Market has implemented strategies and summarized them in a book titled, “Roadmap of Indonesian Sharia Capital Market 2015 – 2019” which explains strategies and programs from the government to develop Sharia capital market in general, including Sharia mutual fund market.



**Fig. 2. Financial Literacy and Financial Inclusion Index based on sectoral**  
*Source: (Otoritas Jasa Keuangan, 2017)*

Several strategies being mentioned are strengthening regulation, increasing supply and demand, developing human resources and information technology, promotion and education, and synergy with related parties in order to develop the Sharia capital market industry in general, including Sharia mutual fund industry (*Direktorat Pasar Modal Syariah, 2015*).

In recent years as shown in Figure 3, the development of Sharia mutual fund in Indonesia has been increasing based on the number of products and total NAV. By the end of 2018, there were 224 products registered in OJK that has been increasing from 48 products in 2010. Meanwhile, there was a total of IDR 34.5 Trillion funds being managed by the end of 2018. It has been increasing almost 556.34% from 2010 (Otoritas Jasa Keuangan, 2019).



**Fig. 3. Development of Sharia Mutual Fund in Indonesia (2010-2018)**

*Source: (Otoritas Jasa Keuangan, 2019)*

By the end of 2018, the highest number and total NAV Sharia mutual fund industry in Indonesia is coming from Sharia equity fund. Equity fund is the type of funds that invest at least 80% of their managed portfolio into equity securities or shares and 20% of managed funds are invested in other instruments. Since the majority of the fund is invested in stock market, this type of mutual fund generates a higher level of risk compared to others. There were 61 products of Sharia equity fund, with the total NAV of IDR 10.38 trillion by the end of 2018 in Indonesia (*Direktorat Pasar Modal Syariah, 2018*)

Since Sharia equity fund can generate a higher level of risk compared to other types of mutual fund, before deciding to invest in the Sharia equity fund, it is important for investors to examine the

fund performance to maximize their return and minimize their risk. One of the indicators used to measure fund performance is the Sharpe ratio. Sharpe ratio is a widely used indicator by investors in Indonesia to examine the fund performance. Therefore, reasons mentioned previously encourage researchers in investigating factors that can affect the performance of Sharia equity fund in Indonesia from 2010 to 2018.

Several researchers have been examining factors that can affect fund performance. However, the results of the impact of each variable towards the fund's performance vary. A study by Alexandri (2013) explains that Stock selection skill and Market timing ability are the most dominant factors that can affect the equity funds industry in Indonesia. Stock selection skill affects it positively, while Market timing ability affects it negatively. He explains that the negative directions of Market timing ability can occur if the investment manager does not have the ability to predict the market to do the buying and selling of assets at the right time. However, a different result occurs in another study by Gusni, et al. (2018) that also examines equity funds in Indonesia during 2011-2015 by taking 19 samples of equity funds. They found only Stock selection skill and Inflation rate have significant positive effects towards the equity fund performance, while Market timing ability and Asset under management do not have a significant influence. A study by Tangjitprom (2014) focusing on the effect of fund size (AUM) and mutual fund performance in Thailand during 2006-2012 revealed that for relatively small funds, the performance increases as the fund size increases. This can be explained by size advantage from economies of scale. However, when funds become larger, the performance deteriorates by the size due to diseconomies of scale. The result differs from Sehgal & Jhanwar (2008) that examine the mutual fund in India. They explained that the growth in the Asset Under Management affects negatively towards the mutual fund performance. Monjazebe & Ramazanpour (2013) in their study examining the impact of macroeconomic factors towards mutual fund in Iran found that both the Inflation rate and the exchange rate have a positive significant influence towards the performance of mutual fund. Anwar Hasan (2015) in his study investigating the causal relationship of Islamic

equity unit trust funds and the chosen macroeconomic variables in Malaysian unit trust fund industry found that Exchange rate did not seem to have a significant causality with the NAV of the Islamic equity funds in the short run.

Based on the literature, only few studies focus on the Sharia equity fund performance. The research mostly examines the mutual fund or equity fund in general. Studies that examine Indonesian Sharia equity funds performances are limited. This is due to the Indonesian Sharia equity fund industry still in its emerging phase; thus it lacks the number of samples and availability of data. Since each type of fund has different characteristics, it is better for the researcher to examine based on the fund type. Compared to another type of Sharia mutual fund, Sharia equity fund is more volatile and generates higher risk. As the number of investor in Sharia equity fund is growing, it is important to examine factors that might affect its performance to minimize the risk and maximize the return.

This study is conducted to assess factors that affect Sharia equity fund performance in Indonesia expressed by the Sharpe ratio (Y), as one of the widely used indicators for fund performance in Indonesia. The selected independent variables are Stock selection skill (X1), Market timing ability (X2), Percentage Change in AUM (X3), Inflation rate (X4) and Percentage change in exchange rate (X5). Therefore, this study aims to answer the question if the chosen factors affect the performance of Sharia equity fund in the period of 2010-2018.

## **Literature Review**

### **1. Sharia Equity Fund**

Sharia equity fund can be described as mutual funds that make investments with a minimum of 80% of the portfolio managed into equity securities, while 20% of managed funds can be invested in other instruments in accordance with Sharia principle. In Indonesia, the type of investment that can be accepted is stocks included in Jakarta Islamic Index (JII) or *Index Saham Syariah Indonesia* (ISSI); from the bond that is in accordance with the Sharia that periodically received profit sharing from issuers; from profit sharing of deposit received from Sharia banks; from money market securities in

accordance with the Sharia principles, etc. The investment manager in Indonesia can use the List of Sharia Securities (*Daftar Efek Syariah*) as an investment guide in placing the managed funds. The list of Sharia Securities is a collection of Securities that are not contrary to Sharia Principles in Capital Market. This is stipulated by the OJK or other parties that have been approved by the OJK (*Direktorat Pasar Modal Syariah*, 2016).

## **2. Sharpe Ratio**

The Sharpe ratio is a well-known tool that measures the mutual fund's risk-adjusted performance. The Sharpe ratio was developed by William F. Sharpe and often is called the reward-to-variability ratio. The Sharpe ratio calculations equal average fund excess return divided by its standard deviation. The standard deviation can be interpreted as the total risk carried by the mutual fund. Meanwhile average excess return is the average mutual fund return minus the average risk-free rate. The Sharpe Ratio will become negative if the excess return is negative. It describes that the return on the mutual fund is smaller compared to the risk-free interest rate. The higher the Sharpe ratio is, the better the fund performance is. The Sharpe ratio calculated the extent to which the optimal combination of the portfolio diversification can generate profit over the total risk (Anson, 2009). To measure the Sharia equity fund performance in this research, the Sharpe ratio is used as the dependent variable.

According to Anson (2009), there are some concerns in figuring the Sharpe ratio. First, using annual or annualized data is intuitive. In addition, the Sharpe ratio should be used on a stand-alone basis. That means the Sharpe ratio should not be used in a portfolio context. It needs to be examined based on the total portfolio as one asset, rather than evaluating its components. It can be considered that Sharpe ratio is appropriate to be used in a well-diversified portfolio. The Sharpe ratio is also sensitive to time measurements, as it changes substantially when the length of time changes. Based on these characteristics and since Sharpe ratio is generally used by Indonesian Investment Manager, in this study Sharpe ratio is being used as performance measurement of Sharia equity fund.



### **3. Stock Selection Skill and Market Timing Ability**

In this study, there are several factors used as independent variables. Investment manager's stock selection skill is one of the variables. Stock selection skill is the capability of the investment manager to choose the right stock in the portfolio as well as provide a good return. Market timing ability is also used as an independent variable in this study. Market timing ability is an investment manager's ability to do adjustment of the asset portfolio that includes the buying and selling strategy to anticipate changes or market price movements in general. Both of these variables can be generated by using the Treynor-Mazui model. Treynor & Mazui (1966) explained that when the result of regressions of alpha ( $\alpha$ ) is positive, it indicates a Stock selection skill of the investment manager. This means that the investment manager can generate an excess return on the fund portfolio greater than the excess return of the market. They also stated that the coefficient of squared market risk premium can reflect Market timing ability of the investment manager. When the value of gamma ( $\gamma$ ) has a significant positive value, it indicates a Market timing ability.

The proxies used to regress the Treynor-Mazui model in this study are the monthly return of Sharia equity fund, the monthly SBIS rate as risk free-rate, and the monthly return of JII for the risk market. SBIS is considered as a relevant proxy to calculate risk-free rate. Bank Indonesia Sharia Certificate or SBIS is a short-term security with operations based on sharia principles issued by Bank Indonesia. In addition, JII has been used as a benchmark for Sharia equity fund in Indonesia. Jakarta Islamic Index or JII is one of the stock indices in Indonesia that calculates the weighted market capitalization of 30 stocks that meet the criteria of Sharia principles and has the highest market capitalization (Desiana, 2012).

The previous study by Tambunan (2016) showed Stock Selection Skill has a partial, negative and significant influence towards the Performance of Equity Fund. Meanwhile Investment Manager's Market Timing Ability has an insignificant influence towards the Performance of Equity Fund. A different result occurs in another study by Muriazi (2016) that explained both of the Stock Selection Skill and Market Timing Ability have a significant positive influence towards Equity Fund Performance.

Another study that was done by Wicaksono (2017) shows that Market Timing Ability has a partial, insignificant and positive influence towards Sharia Mutual Fund Performance. In addition, Investment Manager's Stock Selection Skill has a partial, significant and positive influence towards Sharia Mutual Fund Performance. Ardi Prasetyo (2017) in his study found that Indonesian Sharia fund manager has a good stock selection skill, and it affects the fund performance positively. However, only few fund managers have Market timing ability, and it insignificantly influences the fund performance.

#### **4. Asset Under Management**

Another independent variable is percentage change in Asset Under Management (AUM). Asset Under Management is the total value of managed funds in a mutual fund product deducted by its liabilities. AUM is also referred as total net asset value. This is calculated from the total market price of the assets (such as stocks, bonds, and deposits) in the portfolio, plus the interest of the bonds or deposits in the portfolio, minus its operating costs such as management fees, custodian fees, tax, and others. AUM can represent the fund size. The greater the AUM, the greater the total capitalization of the mutual fund. In this study, the percentage change in AUM measures the increase or decrease in total net value of the managed fund (Lailiyah, 2016).

According to Kurniadi (2013), positive growth in AUM will increase the mutual fund return. It is because, with larger funds, the company can make transactions with a larger volume. The broker commissions will become smaller and overhead cost will not increase in proportion to the increase in the value of funds.

#### **5. Inflation Rate**

Inflation is defined as a degree of rising prices in goods and services that happens continuously and affects prices in general. Consumer Price Index (CPI) is one of the indicators that have been used to calculate the Inflation rate in Indonesia. The percentage changes in CPI from time to time can indicate the price changes of services and goods in general that are consumed by the community (Bank Indonesia, 2013). The estimations in the CPI Index are based on the survey of the prices of goods and services held by the Indonesian Central Bureau of Statistics. When the Inflation rate is too high, Bank

Indonesia will raise the BI Rate (Gusni, *et al.*, 2018). Theoretically, the increase in BI rate will cause the interest on bank loans to increase. In relation to investments, when interest rates are raised, people tend to choose deposits as their investment asset, since it has a lower risk. Subsequently, when stock and bond instruments are sold, the price of stocks, bonds and mutual funds fall. Conversely, when interest rates are lowered, investors will tend to look for another investment that can yield higher returns. Consequently, there is a huge demand for stocks and bonds that cause stock prices, bonds and mutual funds to rise. This phenomenon will lead to a higher NAV/unit of Sharia equity fund. The increase in NAV/unit can lead the Sharia Equity Fund Performance to increase.

According to a research from Denny Hermawan (2016), the Inflation Rate has a negative effect on the performance of equity fund. It contradicts the findings of a study by Gusni, *et al.* (2018) that shows Inflation has a positive significant effect. However, a research conducted by Wiradiyasa (2016) shows that inflation rate does not affect the performance of Islamic mutual funds, and exchange rate has a significant positive effect. Nurlis (2012) shows that inflation has a positive significant effect and exchange rate has a negative significant effect on the performance of equity fund in Indonesia.

## **6. Exchange Rate**

Exchange rate is expressed as a value of a currency in terms of another country's currency. There are two ways of expressing the exchange rate terms: it can be shown as a unit of foreign currency per unit of domestic currency, or vice versa (Krugman, 2017). This study is using the USD/IDR exchange rate. The increase in exchange rate implies depreciation in IDR. Meanwhile, the decrease in exchange rate implies appreciation in IDR. Appreciation in the IDR represents a good macroeconomic condition. When the macroeconomics become stronger, the investors are likely to invest in securities that can generate a higher return, e.g. stocks. Improvements in stock price could lead to higher NAV of the equity fund, since a minimum of 80% of the assets are invested in stock, and vice versa. The percentage change in exchange rate measures the increase/decrease in the

exchange rate that represents whether IDR is appreciating or depreciating toward the USD (Kurniasih & Johannes, 2015).

However, for Sharia equity funds that invest in stocks, fluctuations in exchange rates against stock performance are very diverse. It is determined based on the kind of stock they have invested in. If they have invested in the stocks of a company which mostly imports the raw materials, it could be disadvantageous as the cost to import the raw materials gets higher, and vice versa (Andriana, 2015).

In their study examining the impact of macroeconomic factors towards mutual fund in Iran, Monjazez and Ramazanpour (2013) found that both the Inflation rate and the exchange rate have a positive significant effect on the performance of a mutual fund. On the other hand, Anwar Hasan (2015), in his study on the causal relationship between the exchange rate and Islamic equity unit trust funds in Malaysia, found that exchange rate did not seem to have a significant effect on the performance of the Islamic equity funds in the short run.

## **The Methodology and Model**

### **1. Data**

This study uses the quantitative approach with secondary data gathered from several eligible sources (Bloomberg, Bareksa, Bank Indonesia, Indonesian Bureau of Statistic, Financial Authority Services, etc.) and constructed into an annual panel data for the period 2010-2018. The samples of this study were taken from Sharia equity fund registered in OJK through purposive sampling method. The samples were taken based on criteria as follow: the cases should have been active from 2010 to 2018 and have a complete data of NAV and AUM. Consequently, the total samples included in this study consist of 8 Sharia equity funds.

### **2. Research Variables**

- **Sharpe Ratio (Y)**

The dependent variable in this study is the Sharpe ratio which is used to examine the fund performance. It was developed by William F. Sharpe (1966) and measures how the fund could generate excess return against its total risk. The calculation formula is as follows:

$$\text{Sharpe Ratio} = \frac{\text{Annualized Return} - \text{Annualized Riskfree Rate}}{\text{Annualized Standard Deviation}}$$

- **Stock Selection Skill (X1)**

Stock selection is the capability of the investment manager to choose the right stock in the portfolio in addition to providing a good return. It is generated using Treynor-Mazui regression. The proxy for the annual regression is on a monthly basis.

- **Market Timing Ability (X2)**

Market timing ability is an investment manager's ability to do the adjustment of asset portfolio to anticipate changes or market price movements. It is generated using Treynor-Mazui regression. The proxy for the annual regression is on a monthly basis. The regressions of Treynor-Mazui (1966) can be constructed as follows:

$$(Rp_t - Rf_t) = \alpha + \beta(Rm_t - Rf_t) + \gamma(Rm_t - Rf_t)^2 + \epsilon_t$$

where :

- Rp<sub>t</sub> = Fund return at t period
- Rf<sub>t</sub> = Risk-free-rate at t period
- Rm<sub>t</sub> = Market risk at t period
- A = Stock selection skill
- B = Beta of portfolio
- γ = Market Timing Ability
- ε<sub>t</sub> = Error term

- **Percentage Change in AUM (X3)**

Percentage change in AUM shows the increase/decrease in the total net asset value managed. The proxy used for calculation is the closing AUM at the end of each year. It can be calculated as follows (Lailiyah,2016):

$$\frac{\text{Asset Under Management}_{(t)} - \text{Asset Under Management}_{(t-1)}}{\text{Asset Under Management}_{(t-1)}}$$

- **Inflation Rate (X4)**

Annual Inflation rate is generated by the sum of monthly inflation rate. The monthly inflation rate is calculated by the percentage

changes in the CPI index (Bank Indonesia, 2016). The annual inflation rate is calculated as follows:

$$\sum \left( \frac{\text{Consumer Price Index}_{(t)} - \text{Consumer Price Index}_{(t-1)}}{\text{Consumer Price Index}_{(t-1)}} \right)$$

- **Percentage Change in Exchange Rate (X5)**

Percentage change in exchange rate shows the appreciation or depreciation of IDR towards USD. The proxy used for calculation is the closing mid exchange rate at the end of each year. The percentage change in exchange rate is calculated as follows (CFA Institute, 2012):

$$\frac{\text{Exchange rate}_{(t)} - \text{Exchange Rate}_{(t-1)}}{\text{Exchange Rate}_{(t-1)}}$$

### Research Model and Data Analysis Method

First, the researchers need to determine the panel data regression model. It can be the Common effect, Fixed effect, or Random effect model. The determination will be based on the result of Chow test, Hausman test, and LM test. Then, before entering the multiple regression analysis to test the hypotheses, the data has to pass the classical assumption tests. The tests are the normality test, autocorrelation test, multicollinearity test, and heteroscedasticity test.

Next, the researchers perform the multiple regression analysis. Based on the results, the researchers can generate the multiple regression equations, F-test result, T-test result, and R-squared result. The multiple regression aims to measure the strength of the influence of the independent variables towards the dependent variable and indicate the direction of the relationship between them. The result of regression analysis is a regression coefficient for each independent variable. This coefficient is obtained by predicting the value of the dependent variable through an equation as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Y = Dependent variable

$\alpha$  = Constanta

$\beta_1, \beta_2, \dots, \beta_i$  = Regression Coefficient

X1, X2, Xn = Independent variables

e = Standard Error

The T-test is used to examine whether each of the variables has a partial impact towards the dependent variables. The T-test is done with 95% confidence level and 0.05 significance level. The null hypothesis (H<sub>0</sub>) will be accepted if the level of significance is > 5%. This expresses that there is no partial effect from one independent variable towards the dependent variable. Meanwhile, if the level of significance is <5%, then H<sub>0</sub> is rejected and H<sub>a</sub> accepted. This means that there is a partial effect from one independent variable towards the dependent variable. The null hypotheses are constructed as follows:

- a. H<sub>01</sub>:  $\beta_1=0$ ; There is no partial significant effect of Stock stock selection skill on Sharia Equity Fund performance in Indonesia during 2010 to 2018.
- b. H<sub>02</sub>:  $\beta_2=0$ ; There is no partial significant effect of market timing ability on Sharia Equity Fund performance in Indonesia during 2010 to 2018.
- c. H<sub>03</sub>:  $\beta_3=0$ ; There is no partial significant effect of percentage change in AUM on Sharia Equity Fund performance in Indonesia during 2010 to 2018.
- d. H<sub>04</sub>:  $\beta_4=0$ ; There is no partial significant effect of inflation rate on Sharia Equity Fund performance in Indonesia during 2010 to 2018.
- e. H<sub>05</sub>:  $\beta_5=0$ ; There is no partial significant effect of percentage change in exchange rate on Sharia Equity Fund performance in Indonesia during 2010 to 2018.

The F-test is used to examine whether all of the independent variables in this study simultaneously affected the dependent variables. Decisions of the F-test result are based on the value of F statistic and F table. The value of F-table can be sought in the F-table of 5% level of significance with degrees of freedom: df:  $\alpha$ , (k-1), (n-k), where n is the number of observations and k is the number of independent variables used in the research. If the F statistic < F table, it means the null hypothesis (H<sub>0</sub>) is accepted. That means, none of the independent variables used in the research simultaneously affect the dependent variable and vice versa. The null hypothesis for F-test are constructed as follow:

- a. H06:  $\beta_1=\beta_2=\beta_3=\beta_4=\beta_5=0$ ; There is no simultaneous significant effect of stock selection skill, market timing ability, percentage change in AUM, inflation rate, and percentage change in exchange rate on Sharia Equity Fund performance in Indonesia during 2010 to 2018.

The next step regards the adjusted  $R^2$ . The adjusted coefficient of determination (adjusted  $R^2$ ) means that the coefficient has been corrected via the inclusion of the number of variables and samples size used. This expresses the contribution of the independent variables of the regression model to the estimation of the dependent variable values. The higher the coefficients of determination, the higher the ability of the variation of independent variables to explain the variation of change in the dependent variable (Baltagi, 2005).

### The Findings

Based on the Chow test, the panel data regression model used in this research is found to be a common effect. The Chow test is used to determine whether the panel regression model will use the common effect or the fixed effect. According to Table 1, Chi-square probability is more than 0.05 ( $p=0.96$ ). Therefore, the selected model is based on the common effect.

Table 1. Chow Test

| Effects Test             | Statistics | Prob. |
|--------------------------|------------|-------|
| Cross-section F          | 0.25       | 0.97  |
| Cross-section Chi-square | 2.06       | 0.96  |

Source: Adjusted by researchers, 2019

In addition, all of the data included in this study have passed the classical assumptions. First, a normality test is performed that tests if the residual values standardized in the regression model are normally distributed or not. Jarque-Bera is used to determine whether the data is normally distributed. According to Table 2, the Jarque-Bera probability is greater than 0.05 ( $p=0.86$ ). Therefore, the residual value is normally distributed since the Jarque-Bera probability is greater than the critical value.



**Table 2. Jarque Bera Test**

|              |          |
|--------------|----------|
| Jarque- Bera | 0.295035 |
| Probability  | 0.862847 |

Source: Adjusted by researchers, 2019

**Table 3. Multicollinearity Test**

|    | X1    | X2    | X3    | X4    | X5    |
|----|-------|-------|-------|-------|-------|
| X1 | 1.00  | -0.68 | 0.23  | 0.22  | -0.01 |
| X2 | -0.68 | 1.00  | -0.12 | -0.03 | -0.08 |
| X3 | 0.23  | -0.12 | 1.00  | 0.19  | 0.17  |
| X4 | 0.22  | -0.03 | 0.19  | 1.00  | 0.33  |
| X5 | -0.01 | -0.08 | 0.17  | 0.33  | 1.00  |

Source: Adjusted by researcher, 2019

Next is the multicollinearity test. The multicollinearity problem exists if there is a high correlation between independent variables. The multicollinearity test can be performed using a correlation matrix. The data is free from multicollinearity if the correlation between the variables is lower than  $|0.7|$ . According to the correlation matrix on Table 3, all of the correlations of independent variables in this research are lower than  $|0.7|$ .

Heteroscedasticity occurs when the residual and the predicted values have a correlation or a relationship pattern. The regression model is expected to be homoscedastic or non-heteroscedastic. One of the methods to check whether the regression is free from heteroscedasticity or not is to use the White test. The regression is homoscedastic if the probability of Chi-square is greater than 0.05. According to Table 4, the regression model in this research is homoscedastic since the probability of the test is 0.16.

**Table 4. Heteroskedasticity Test**

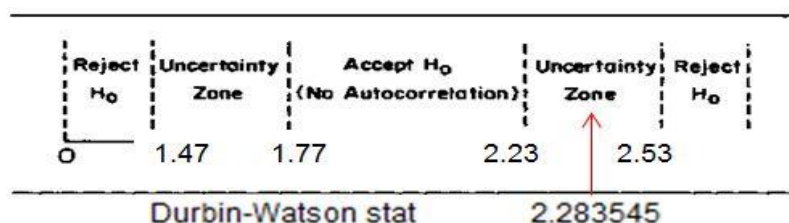
|                     |          |                       |        |
|---------------------|----------|-----------------------|--------|
| F- statistic        | 1.444075 | Prob. F(20.51)        | 0.1455 |
| Obs *R- squared     | 26.03191 | Prob. Chi- Square(20) | 0.1648 |
| Scaled explained SS | 23.12074 | Prob. Chi- Square(20) | 0.2829 |

Source: Adjusted by researcher, 2019

Lastly, there are several autocorrelation tests that can be used. One of them is the Durbin-Watson test. In using the D-W test, the researcher has to compare the value of the D-W statistic to the D-W table significance

level at 5%. According to the table of 5% significance, in addition to the number of independent variables ( $k=5$ ) and the number of observations ( $n=72$ ), the result of the D-W table shows that there is no autocorrelation between 1.77 to 2.23. Since the Durbin-Watson benchmark is 2.28, it falls between the uncertainty zone (Table 5). Thus, another test is required to detect the autocorrelations. Another test used to detect autocorrelation is the Breuch-Godfrey Serial Correlation Test. The data is free from autocorrelation if the value of Prob. Chi-Square is  $> 0.05$ . Based on Table 6, the value of Prob. Chi-Square is 0.12; thus, it passes the autocorrelation test.

**Table 5. Autocorrelation Test (Durbin-Watson Test)**



**Table 6. Autocorrelation Test (Breusch-Godfrey Serial Correlation Test)**

|                 |          |                      |        |
|-----------------|----------|----------------------|--------|
| F- statistic    | 2.214587 | Prob. F(1,57)        | 0.1422 |
| Obs *R- squared | 2.393558 | Prob. Chi- Square(1) | 0.1218 |

Source: Adjusted by researcher, 2019

Since the data has passed the classical assumption tests, it fits the BLUE or Best Linear Unbiased Estimator. Consequently, the multiple regression test can be executed. Table 4.1 reveals the descriptive statistics of the data, while Table 4.2 reveals the panel data regression result.

### 1. Descriptive Statistics of the Variables

According to the descriptive statistics test results shown in Table 7, the mean of the Sharpe ratio is 0.0367. This indicates that the overall sharia equity fund in Indonesia has a good performance. The table also shows that the average value of stock selection skill variable is -0.0037, while the average value of market timing ability is 0.7154. The mean value of percentage change in AUM is 0.2016, the inflation rate is 0.0499 and the average percentage change in exchange rate is 0.0525.

**Table 7. Descriptive statistics of dependent and independent variables**

|              | Y       | X1      | X2      | X3      | X4     | X5      |
|--------------|---------|---------|---------|---------|--------|---------|
| Mean         | 0.0367  | -0.0037 | 0.7154  | 0.2016  | 0.0499 | 0.0525  |
| Median       | 0.0095  | -0.0006 | 0.0545  | -0.0557 | 0.0379 | 0.0206  |
| Maximum      | 2.2633  | 0.0185  | 19.1893 | 4.0490  | 0.0838 | 0.2604  |
| Minimum      | -2.9747 | -0.0968 | -7.5711 | -0.7331 | 0.0302 | -0.0435 |
| Std. Dev.    | 1.0726  | 0.0173  | 4.2317  | 0.9079  | 0.0214 | 0.0870  |
| Observations | 72      | 72      | 72      | 72      | 72     | 72      |

Source: Adjusted by researchers, 2019

## 2. Multiple Regression Result

**Table 8. Multiple regression**

| Variables          | Coefficient | t-stat   | Prob.  |
|--------------------|-------------|----------|--------|
| C                  | -1.0843     | -7.5136  | 0.0000 |
| X1                 | 19.8049     | 4.3439   | 0.0000 |
| X2                 | 0.0289      | 1.6197   | 0.1100 |
| X3                 | 0.2845      | 4.5899   | 0.0000 |
| X4                 | 31.3735     | 11.1302  | 0.0000 |
| X5                 | -8.5497     | -12.6549 | 0.0000 |
| Adjusted R-squared | 0.8248      |          |        |
| F-stat             | 67.8633     |          |        |
| Probability F-stat | 0.0000      |          |        |

Source: Adjusted by researchers, 2019

Based on the previous results, the multiple regression equations can be constructed as follows:

$$Y = -1.0843 + 19.8049X1 + 0.0289X2 + 0.2845X3 + 31.3735X4 - 8.5497X5$$

The results presented in Table 8 reveal that the variables of stock selection skills have a positive and significant effect on the performance of Sharia equity funds. This is reflected in the regression coefficient of stock selection skill variable that is equal to 19.8049, with a significance level equal to 0.0000. The direction of the positive coefficient of stock selection skills variable means that the higher the stock selection skills owned by the investment manager, the better the performance of Sharia equity funds. It indicates that if the investment manager has the capability to choose the right stock in the portfolio, it will lead the Sharia equity fund to generate a higher return and thus

better performances. This is in line with the findings of a previous study that has been done by Ashraf (2013). That study found that investment managers in Sharia mutual funds in Saudi Arabia have superior stock selection capabilities, which has a positive and significant coefficient effect. Alexandri (2013) also found that stock selection skills have a positive and significant effect on the performance of mutual funds in Indonesia.

Variables of market timing ability have a positive and insignificant influence on the Sharia Equity Funds performances when 5% level of significance is used. It is reflected in the regression coefficient of market timing ability variable that is equal to 0.0289, with a significance level equal to 0.1100. The insignificant results might occur since, in this study, the researcher uses monthly data to calculate the Treynor-Mazui model for one year. According to Sherman et al. (2017), the Treynor-Mazui model that is constructed from daily data could generate a significant market timing ability rather than using the monthly data. It is also supported by Sehgal and Jhanwar (2008) study which stated that by using daily data it will generate a higher number frequency of observations that can show if the investment managers do the selling and buying decisions in aggressive manners. Another assumption is that the investment managers in Indonesia do not have significant skills in market timing. The direction of the positive coefficient means that the higher market timing ability owned by the investment manager will result in better performance of Sharia equity funds. It shows that the investment manager is able to predict the market condition and buy or sell the shares at the right time.

Percentage change in AUM variables has a significant positive effect on the Sharia Equity Funds performances. This is reflected in the regression coefficient which is 0.2845, with a significance level of 0.0000. The direction of the positive coefficient means that the larger AUM growth of Sharia Equity Fund will result in a better performance. This finding is in line with the results of previous studies conducted by Gusni, *et al.* (2018) and Tangjitprom (2014). These studies explained that AUM has a positive effect on the performance of mutual fund. Mutual funds with large sizes usually have transaction costs that tend to be low because it has reached economies of scale. The average transacted effect is done in relatively large amounts so

that brokers will charge lower commission fees. According to Bialkowski and Otten (2011), mutual funds with relatively larger sizes have a higher chance of identifying investment opportunities that have the potential to generate returns. In addition, Sharia equity funds that have a good performance will attract the investors to spend and invest in them and boost the AUM.

Variables of inflation rate have a positive significant effect on the Sharia equity funds performance. It is reflected in regression coefficient of inflation rate variable that is equal to 31.3735, with a significance level equal to 0.0000. Usually, the inflation rate will have a negative influence towards the performance of Sharia equity funds performance, since the investors will be likely to seek lower risk investment such as a deposit. However, based on the raw data presented in Table 9, it is shown that inflation rate in Indonesia was less than 10% in one year that represents a mild inflation. If the inflation rate is still under control and in the mild level, it can boost the economic growth and create a stable macroeconomic condition. Investors will probably tend to invest in the instrument that can outperform the inflation rate, e.g. stocks and equity funds. Since a minimum of 80% of the assets in Sharia equity funds is invested in stocks, an increase in stock price will lead to a better performance of Sharia equity funds. Thus, the inflation rate has a positive effect on Sharia equity fund. These findings are in line with a study by Gusni, *et al.* (2018) that examines the equity funds performance in Indonesia.

**Table 9. Inflation rate in Indonesia**

| Year | Inflation Rate |
|------|----------------|
| 2010 | 0.0696         |
| 2011 | 0.0379         |
| 2012 | 0.043          |
| 2013 | 0.0838         |
| 2014 | 0.0836         |
| 2015 | 0.0335         |
| 2016 | 0.0302         |
| 2017 | 0.0361         |
| 2018 | 0.0313         |

Source : Bank Indonesia (2018)

The test results showed negative and significant percentage change in exchange rate variable towards Sharia equity funds performance. This is reflected in regression coefficient of percentage change in the exchange rate variable that is equal to -12.6549, with a significance level equal to 0.0000. This means that when the exchange rate of USD/IDR decreases or there is appreciation in IDR, the performance of Sharia equity funds is improved. It is because appreciation means IDR is strengthened against USD, and it represents a good macroeconomic condition. When the macroeconomics becomes stronger, the investors are likely to invest in securities that can generate a higher return, for example, stocks. Improvement in stock price could lead to higher NAV of the equity fund, thus improving the performance of Sharia equity funds. This finding is also supported by Saraswati (2013) research that shows negative influence of exchange rate towards Sharia mutual fund in Indonesia.

All of the independent variables in this study which are stock selection skill, market timing ability, percentage change in AUM, inflation rate, and percentage change in exchange rate have simultaneous significant effects on the Sharia equity funds performance in Indonesia, represented by the Sharpe ratio during 2010-2018. The regression model of this study shows that the value of adjusted  $R^2$  is 0.8230, which indicates that the variation of all independent variables can explain 82.48% of the variation of Sharia equity funds performance. The remaining 17.52% is explained by other variables that are not included and not examined in this study.

### **Summary and Conclusions**

This study aimed at examining the factors that affect the Sharia equity fund performance. The hypotheses test results showed that stock selection skills, percentage change in AUM, and inflation rate significantly affected the Sharia equity fund performance in Indonesia in positive directions, while market timing ability affected it positively but insignificantly. In addition, the percentage change in exchange rate significantly affected the Sharia equity funds performance of Sharia equity fund, but in negative directions.

Taken into account simultaneously, all of the independent variables of this study significantly affected the Sharia equity funds

performance in Indonesia in the period 2011- 2018. The variations in the independent variables were able to explain 82.48% of the variations in the dependent variable. The other 17.52% variations can be explained by other factors that were not included in this study. This shows that the variables included in this regression model were good enough to predict the Sharia equity funds performances.

There were several limitations in this study. First, it was better to have a larger sample and include a longer period of time. This study was limited to 8 samples and 9 years in annual data due to the lack of sources. Sharia equity fund industry in Indonesia is still developing as there are only a few Sharia equity funds that have been active since 2010. Second, the variables of internal and external factors can be selected from other variables such as allocation ratio of the fund, fund age, BI rate, etc. This can help us make sure about and improve the factors that might influence the Sharia equity funds performance.

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