

CHAPTER 3

RESEARCH METHOD

3.1. Population and Sample

This research tried to compare between conventional equity mutual funds and sharia equity mutual funds. The research used population from several investment companies that have conventional and sharia mutual fund products. Mutual fund products used for the comparison of equity mutual funds and the samples for this research are equity mutual funds from 2014-2015

Mutual funds that used in this research were mutual funds listed in JSX and derived from investment companies in Indonesia.

3.2. Types and Sources of Data

For this research, the type of data was secondary data. It means that obtained were from sources related to this research, which are conventional and sharia mutual funds from 2014-2015.

Types of data used in this research are such as:

- a. NAV (Net Asset Value) published monthly from the selected equity mutual funds.
- b. Return data from the equity mutual funds.

- c. Risk free rate using the certificate of Bank Indonesia.
- d. Return data from IHSG as the market index.

3.3. Variable Definition

The variable for this research was mutual fund performance, having 5 methods of measurement which are as follows:

a. Sharpe Method

The predicted performance of a portfolio is described with two measurements: the expected rate of return (E_i) and the predicted variability or risk, expressed as the standard deviation of return (σ_i) (Sharpe, 1966)

$$\frac{\text{Average return Portfolio} - \text{Average risk free rate}}{\text{Standard deviation}}$$

- Average return portfolio means the average return of selected equity mutual funds in monthly period.
- Average risk free rate means the average of risk free rate, which in this research used Indonesian Bank certificate.
- Standard deviation:

$$\sqrt{\frac{\sum (R_i - R)^2}{N - 1}}$$

Where:

R_i : Return

R : Average return

N : Number of observation

b. Jensen Method

In Jensen method, it only accepts mutual fund investment that can generate returns exceeding the expected return or minimum rate of return. Return in Jensen method is past average return, and for the minimum rate of return is the expected return calculated by using Capital Asset Pricing Model (CAPM). The difference between the average return minus the minimum rate of return is called alpha α (Samsul, 2015)

$$\alpha = (R_i - RF) - \text{expected return (CAPM)}$$

R_i : average return on period

$$\text{Expected return} = (\beta(R_m - RF))$$

β = Beta

R_m = Expected market return

RF = Risk free rate

c. Treynor Method

For evaluating mutual fund performance, Treynor used past average return as the expected return and used beta β , as a risk benchmark. Beta showed the large-small change in mutual fund returns to change in the market return (Samsul, 2015).

$$\frac{\text{Average return Portofolio} - \text{average risk free rate}}{\beta \text{ (as the risk benchmark)}}$$

- Average return portfolio means the average return of selected equity mutual funds in monthly period
- Average risk free rate means the average of risk free rate, which in this research used Indonesian Bank certificate

β = Beta, and the formula is:

$$\beta_{il} = \frac{\sigma_{il}}{\sigma_{2l}}$$

d. Modigliani and Modigliani (M^2)

M^2 using the minimum return benchmark is the performance of the market which is the ratio between the market return and market risk. Market performance was used as a benchmark and all portfolio performances adjusted proportionally to the performance of the market (Samsul, 2015).

$$M^2 = r_p^* - r_m$$

r_p^* : portfolio return

r_m : market return

e. Miller Method

Miller modified appraisal ratios into:

$$\text{Appraisal ratio} = \alpha_p / \sigma(e_p)^2$$

Where:

α_p = Alpha of individual stock

$\sigma(e_p)^2$ = Specific risk portfolio, variance on error

The specific risk is the stock residual variance, the variance of individual stock, (σ_i^2) minus market variance (σ_m^2) multiplied by the square of the portfolio beta (β_p^2).

Specific risk is the risk of any type of different portfolios. The specific risk formula according to Samsul (2015) is:

$$\sigma(e_p)^2 = \sigma_p^2 - \sigma_m^2 \beta_p^2$$

3.4. Hypothesis testing

To know whether there is a different performance of conventional and sharia mutual funds, the researcher used the t-test. The t-test was intended to know two samples that was not related had a different value or not.

To test the H1, the researcher used independent sample of T-test, aiming to compare between the two groups or more, which did not relate to each others which are the conventional and sharia.

To know the result of H1, the researcher compared the mutual funds per method.

1. Conventional equity mutual funds using sharpe were compared with sharia equity mutual funds using Sharpe.
2. Conventional equity mutual funds using Treynor were compared with sharia equity mutual funds using Treynor
3. Conventional equity mutual funds using Jensen were compared with sharia equity mutual funds using Jensen
4. Conventional equity mutual funds using M^2 were compared with sharia equity mutual funds using M^2
5. Conventional equity mutual funds using Miller were compared with sharia equity mutual funds using miller

To test the H2, to compare the Miller with another method, by ranking the mutual funds company, used the results of all of the methods. After the calculation of all the

methods, the ranking by each method would appear, and from the results it could be seen whether there is a different or not.

To know the result of H2, the researcher compared the Miller method with the other methods one by one:

1. Miller method compared with Sharpe in conventional equity mutual funds.
2. Miller method compared with Sharpe in sharia equity mutual funds.
3. Miller method compared with Jensen in conventional equity mutual funds.
4. Miller method compared with Jensen in sharia equity mutual funds.
5. Miller method compared with treynor in conventional equity mutual funds.
6. Miller method compared with treynor in sharia equity mutual funds.
7. Miller method compared with M^2 in conventional equity mutual funds.
8. Miller method compared with M^2 in sharia equity mutual funds.