

The Influence of Assets Allocation, Inflation Levels, and Return Jakarta Composite Index (JCI) On Mutual Fund Performance

Endri¹, Sulistiyo²

¹Lecturer of Magister Management Program, Universitas Mercu Buana (UMB), Jakarta, Indonesia,

²Student of Magister Management Program, Universitas Mercu Buana (UMB), Jakarta, Indonesia,

Corresponding author: Endri

Abstract: *This research is conducted to know the performance of equity fund by using Sharpe Ratio and look for asset allocation relationship, inflation rate and return of JCI to the performance of the mutual fund. The population in this study are all effective stock mutual funds and registered in OJK during the period January 2012 to December 2016. The sample in this study was selected by Purposive Sampling. The population of 236 mutual funds, taken as many as 67 mutual funds that meet the criteria of sampling. This research is correlation research. Analysis method used in this research is panel data regression. The results obtained that the asset allocation policy partially significant effect on the performance of equity funds while the inflation rate and returns JCI partially have no effect on the performance of equity funds. Simultaneous test with F statistic test obtained that asset allocation, inflation rate, and return of JCI together have an effect on to performance of equity fund. Increase/decrease of asset allocation, inflation rate, and JCI's return simultaneously affect the increase/decrease of sharpe ratio of equity fund. However, based on the value of R-square the influence is very small only equal to 1.88 percent, while 98.12 percent of the rest influenced by other factors.*

Keywords: *asset allocation, inflation rate, return of JCI, sharpe ratio, performance of equity fund.*

Date of Submission: 18-06-2018

Date of acceptance: 03-07-2018

I. Introduction

Mutual funds become one of the alternative investment instruments designed to raise funds from the community. Investment in mutual funds is a diversified investment in several securities traded in the capital market and money market. The Indonesian mutual fund industry began in 1995 with the issuance of Law No.8 of 1995 on the capital market. Now 20 years later many people are getting interested to invest in mutual funds. Although to be one of the favorite investment instruments is not easy and takes a long time. Currently, the number of new mutual fund investors is around 500 thousands or not yet touched 1% of the total population of Indonesia. The managed fund from mutual funds until the end of fourth quarter 2016 reached Rp 328 trillion, this number has grown almost 2-fold since 2012 (Infovesta, 2016).

Basically, mutual fund investment aims to help and mobilize small investors and investors of corporations/ institutions to invest in the capital market. According Kapoor (2012) mutual funds offer several advantages in investing in mutual funds are investors who have limited funds to invest, investors who do not have much time and knowledge do not have to worry in managing their funds with the investment manager. Therefore, one of the most important things in doing the best mutual fund search is to find the best investment manager. The success of a mutual fund does not depend on one or two investment instruments, and usually the investment manager must constantly pay attention to the market and adjust the portfolio of mutual funds it manages to achieve the best possible performance. This is where reliability is required in allocating assets and the selection of appropriate securities.

The asset allocation policy undertaken by the investment managers in managing the funds between mutual funds with one mutual fund is different. The asset allocation policy taken can be distinguished into money market instruments and instruments in the capital market or a combination between them with certain compositions. The large number of investment choices makes investors feel compelled to study and compare them first before investing. Although the asset allocation policy is different, but in principle has the same goal, which is to provide a higher level of investment returns than other investments with certain risks (Alves and Mendes, 2011).

Aside from asset allocation, this study also makes the Composite Stock Price Index (JCI) as benchmark in assessing the performance of mutual fund. JCI which tend to move positively, of course, also influence the performance of equity funds, which allocate the majority of its assets on stock instruments. The release of macroeconomic data, including inflation data, generally has an impact on the movement of stock and bond markets which ultimately impacts the performance of mutual funds (Endri, 2018).

II. Literature Review

Capital Market Law No.8 Year 1995, article 1, paragraph (27), defines Mutual fund is a container used to raise funds from the capitalist community to be invested in securities portfolio by the investment manager. There are three things related to the definition of equity funds (Hamzah dan Yohanes, 2014), i.e.:

- 1) The existence of a pool of public funds, both individuals and institutions.
- 2) Collective investment in the form of a diversified portfolio of securities
- 3) Investment manager is trusted as investor fund manager.

According to Sharpe (1995) in Yuliarti (2013), the mutual fund provides two facilities that make it easy for investors to fulfill them, which are also advantages of mutual funds, i.e.: For individuals, there are two advantages to investing in companies. Specifically the advantages arise from: (1) economic of scale, and (2) professional management.

In general, mutual funds will be divided into two categories: open-end mutual funds and closed-end mutual funds. Open-ended mutual funds will usually provide inclusion units for ongoing withdrawals and purchases. Investors can purchase this investment unit directly to the Investment Manager or to a sales agent such as a bank, insurance agent, or other intermediary. While closed-end Mutual Funds tend to sell units of inclusion during initial public offering and are only provided in limited quantities. The investor must sell his or her own unit of investment before withdrawing his investment.

From instruments where mutual funds invest. Mutual funds can be divided into four types of categories, i.e.: (1) money market funds, 100% investment in money market securities, (2) fixed income mutual funds, investing at least 80% of the portfolio it manages into debt securities (3) equity funds, investment of at least 80% of the portfolio under management into equity securities (shares) and (4) mixed mutual funds, investing both in debt securities, equity and money market instruments with a portion of more allocation flexible.

The basic principle of portfolio theory revealed by Markowitz is do not put all your eggs in one basket which means do not invest all funds in just one share. William Sharpe introduced a method for measuring portfolio performance called reward-to-variability ratio (RVAR) based on his research on capital market theory. The results of RVAR calculations by Sharpe are known as Sharpe Ratio. Sharpe ratio is calculated based on the formula:

$$S_p = \frac{\bar{R}_p - \bar{R}_{rf}}{\sigma_i}$$

S_p = Sharpe Ratio, R_p = Average return of mutual fund in a period, R_{rf} = Average of risk free interest rate in a period, and σ_i = Standard deviation of mutual fund in a period. Samsul (2007) in Sari and Purwanto (2012) defines asset allocation policy as an action to place investment weight or the proportion of risk free asset and risky asset. Risk free asset is defined as an investment instrument that is unlikely to fail to pay interest and principal investments, such as Bank Indonesia Certificates (SBI). Risky Asset is defined as a financial instrument that contains the risk of not getting investment returns or principal of the investment does not return as a whole, such as stocks and deposits. Measuring tool to calculate the effect of asset allocation policy on mutual fund performance is used multiple linear regression analysis model whose mathematical model is developed based on Asset Class Factor Model (Sharpe *et al.*, 2006). This model is to determine how effective mutual fund managers perform their functions from Asset Allocation Policy and Security Selection. In this research, asset allocation variable is used. The equations are:

$$R_{it} = (b_1 F_{1t}) + \epsilon_{it}$$

R_{it} = Return of asset i in period t , b_1 = Proportion of mutual fund fund i for asset allocation 1, ie stock, F_{1t} = Return obtained from asset index 1, that is JCI in period t , ϵ_{it} = Error term (securities selection) and stock picking. To maintain the relevance of the asset allocation variable, in this study the securities selection variable (ϵ_{it}) in the Asset Class Factor equation The above model is assumed not to be calculated.

The inflated price levels of up to 100% or more in a year (hyperinflation), will cause a loss of public confidence in the currency, so the public will tend to store their assets in other forms of investment instruments other than deposits. While Return of JCI is benchmark return of investment in general. JCI positive return will certainly be responded well by investors.

Prior research on the effect of asset allocation on the performance of equity funds has resulted that asset allocation has a negative influence

III. Methodology

The selection of sample using purposive sampling method based on several criteria, i.e.: (1) Mutual fund shares listed in OJK during period 2012 - 2016, (2) Mutual funds must have an effective date before the study period, which is January 2012 and ends in December 2016, (3) Equity funds are still active and managed by their respective investment managers, and (4) The selected stock funds have availability of the required data during the period 2012-2016. Samples meeting the criteria of 67 mutual funds. Data source is accessed through www.ojk.go.id website, www.bi.go.id website, Infovesta.com, Investing.com, Bareksa.com and from each Investment Manager in the form of mutual fund prospectus data in OJK during period 2012-2016.

Methods of data analysis using panel data regression with equations

$$Y = \alpha + b_1X_{1it} + b_2X_{2it} + b_3X_{3it} + e$$

Y_{it} = Performance of Equity Mutual Fund X₁ = Asset Allocation, X₂ = Inflation Rate, X₃ = JCI, α = Constant, β₁ ... β₃ = slope, and ε = component error.

There are three approaches in making panel data regression, namely: (1) Pooling Least Square, in this model combined cross section data and time series data, then used OLS method to panel data, (2) Fixed Effect Approach, in this approach, the data panel model has a mutable intercept for each individual and time, where each cross section unit is fixed in time series, and (3) Random Effect Approach, in this approach the differences between time and between individuals are accommodated by error using Generalized method Least Square (GLS). Model selection used: (1) Chow test to choose between Pooling Least Square with Fixed Effect Approach, (2) LM test to choose between Pooling Least Square with Random Effect Approach, and (3) Hausman test to choose between Fixed Effect Approach and Random Effect Approach.

IV. Empirical Results

Sharpe ratio is the difference between the average return of the mutual fund against the average risk free rate. If the sharpe ratio is positive then the average return of the mutual fund is higher than the risk free rate. Conversely, if the sharpe ratio is negative then the average return of the mutual fund is lower than the risk free rate. Average sharpe ratio during 2012-2016 each mutual fund can be seen in Figure 1.

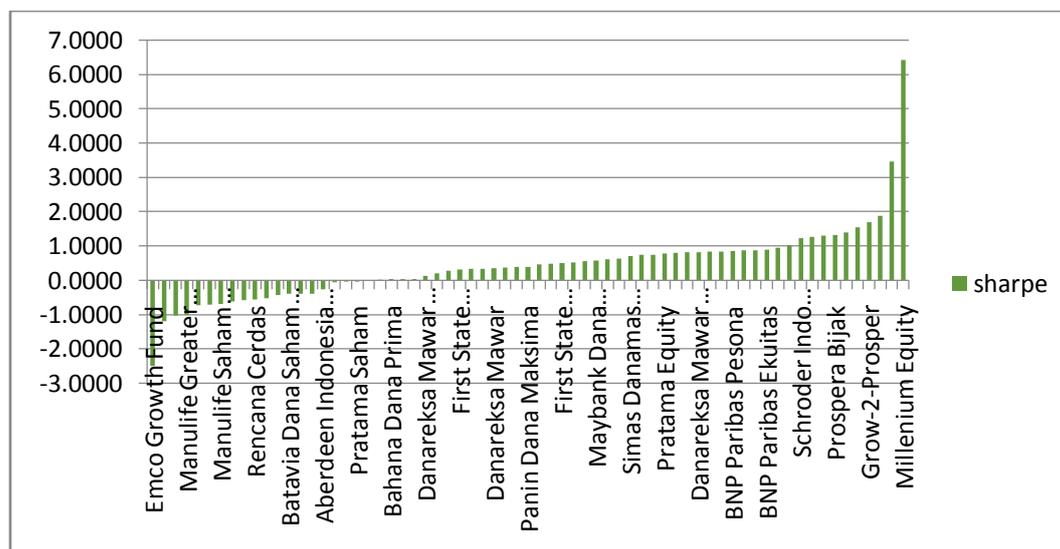


Figure 5.1. Average Sharpe Ratio Period 2012 – 2016

The average of each research variable on an annual basis from 2012-2016 can be seen in table 1 below.

Table 1. Average Research Variables, 2012-2016

| Year | Sharpe Ratio | Aset Allocation | Inflation (%) | Return JCI (%) |
|------|--------------|-----------------|---------------|----------------|
| 2012 | 0,49 | 0,02 | 4,30 | 12,99 |
| 2013 | -0,31 | 0,24 | 8,38 | -0,78 |
| 2014 | 0,64 | 0,04 | 8,36 | 19,70 |
| 2015 | 0,94 | 0,03 | 3,35 | -12,75 |
| 2016 | 0,44 | 0,03 | 3,02 | 14,71 |

Source: research data (processed)

In 2013, the average sharpe ratio and return of JCI were negative, while the average asset allocation and inflation were the highest among other periods. The average sharpe ratio is the highest in 2015, while the return of JCI in that year actually shows negative value. The result of choosing the regression model of panel data can be seen in table 2 below.

Table 2. Selection Test Results Panel Data Regression

| Test | Prob. | Conclusion |
|----------|--------|----------------|
| Uji Chow | 0,2891 | PLS more exact |
| Uji LM | 0,0954 | PLS more exact |

Source: Output of e-Views 6.0

Both tests conclude that the pooled least square model is more appropriate than the fixed effect and random effect model, so the Hausman test is not required. So next model analyzed is pooled least square model. Since the most appropriate model is pooled least square, a classic assumption test is required. In the panel data does not need to be tested normality and autocorrelation, which needs to be done only heteroscedasticity test and multicollinearity. The result of heteroscedasticity and multicollinearity assumption test can be seen in table 3 below.

Table 3. Heteroskedasticity and Multicollinearity Test Results

| No. | Asumtion's test | Hypothesis | Result | Conclusion |
|-----|---------------------|--|---|--|
| 1. | Heteroskedastisitas | H ₀ : residual variance is homogeneous H ₁ : residual variance is heterogeneous Reject H ₀ if prob < 0.05 | Prob. (Obs*R-squared)=0.218849 > 0,05 | Residual residual variance, assuming heteroscedasticity is met |
| 2. | Multikolinieritas | Multicollinearity exist when VIF < 10 | VIF allocation = 1,506 VIF inflation = 1,496 VIF retJCI = 1.221 | There is no multicollinearity between variables |

Source: output evIEWS (processed)

Based on table 3 above, assumptions of heteroscedasticity and multicollinearity are met. The result of panel data regression with pooled least square model that has been free from violation of heteroscedasticity and multicollinearity assumption can be seen in table 4.

Table 4. Panel Data Regression Results

| Variable | Coefficient | Std. Error | t-statistik | Prob. |
|--------------------|-------------|--------------------|-------------|-----------|
| Konstanta | 0.783760 | 0.335154 | 2.338504 | 0.0200* |
| Alokasi aset | -3.607336 | 1.429188 | -2.524046 | 0.0121* |
| Inflasi | -0.004635 | 0.067042 | -0.069134 | 0.9449 |
| Return JCI | -0.911757 | 1.219923 | -0.747389 | 0.4554 |
| R-squared | 0.027643 | F-statistic | | 3.136611 |
| Adjusted R-squared | 0.018830 | Prob (F-statistic) | | 0.025644* |

* Significant at level 5%

Source: The output of e-views

Partial test using statistical t test obtained only asset allocation variables that significantly affect the sharpe ratio, while the inflation and return variables JCI not significant effect. Simultaneous test with F statistic obtained statistical probability value F equal to 0,025 less than 0,05, hence can be concluded that asset allocation, inflation and return of JCI together have significant effect to sharpe ratio.

The value of determination coefficient (adjusted R-square) generated equal to 1.88 percent. This means that the variation in the stock equity sharpe ratio of only 1.88 percent can be explained by the variation in asset allocation, inflation and return of JCI, the remaining 98.12 percent is explained by other variables not examined. The contribution of these three variables is very small to the sharpe ratio of the equity fund. Therefore it is necessary to add other variables that are quite influential on the performance of equity funds.

V. Discussion

Asset allocation aims to minimize risk and optimize results. Based on OJK regulation No. 47.POJK.04 / 2015, equity funds are required to invest at least 80 percent of NAV in the form of shares. Shares are more risky instruments than bonds. Thus, the risk of equity funds is highest compared to other mutual funds. A good asset allocation policy is expected to improve the performance of equity funds.

The calculation of the asset allocation policy in the study only considers the asset allocation to the first asset type ie the stock. The asset allocation variable coefficient is negative, this means that the asset allocation policy on the stock will be responded negatively by the sharpe ratio. In other words, the greater the asset

allocation in stocks, the sharpe ratio will decrease. This is because stock instruments have an impact on the high volatility of return of equity funds (standard deviation of return of mutual funds increase) so that the sharpe ratio which is the proxy of the performance of equity fund decreased. The increase in asset allocation policy in stocks by 1 percent, will be followed by a sharpe ratio decrease of 3.607 percent.

Previous research conducted by Yusbardini (2014) also showed similar results that asset allocation has a negative and significant effect on the performance of equity funds. The result of research by Widodo (2012) shows that asset allocation has a positive and significant effect to the performance of equity fund. This is because the difference in the method of calculation of asset allocation in research Widodo (2012) involves instruments of bonds and deposits.

Theoretically, the better the investment manager to allocate its assets into productive investment instruments the better the performance of the mutual fund. But on the other hand a good allocation alone is not enough, need to be balanced with proper stock selection. The results of this study indicate that asset allocation policy in stocks has a negative effect on the performance of equity funds, so that proper stock selection (timing and stock picking) is required.

Inflation rate negatively affects the investment climate in Indonesia. The higher the rate of inflation, the worse the investment climate conditions, the return earned investors even less and even minus. But in this research shows that the inflation rate partially does not affect the performance of equity funds. Previous research conducted by Trivanto also shows the same thing that the inflation rate does not affect the return rate of equity funds in Indonesia. However, research by Sholihat *et al.*, (2015) is able to prove that the inflation rate has a negative and significant influence on equity refund rates.

More than 80 percent of equity funds are invested in shares. JCI is leading indicator of stock price movement. The higher the return of JCI is expected to be higher the performance of equity funds. But in this study did not prove its influence. The increase in JCI's return was not followed by an increase in return of equity funds. Return of equity fund is sometimes bigger or smaller than JCI return. This inconsistency that caused the return of JCI did not affect the return of equity fund.

Previous research by Trivanto *et al.*, (2015), Sholihat *et al.*, (2015), and Pradhipta (2015) proved similarly that the JCI had a positive and significant effect on the performance of equity funds. However, in this study has not been able to prove it. The difference in results is due to different samples and time periods.

VI. Conclusion

Equity funds that always have a positive sharpe ratio throughout 2012-2016 are Mandiri Attractive Shares and Schroder Dynamic Performance Fund. Referring to the result of statistical t test, asset allocation policy partially has significant effect on stock mutual fund performance and negative coefficient sign. While inflation and returns JCI partially does not affect the performance of equity funds. Increase / decrease asset allocation, inflation rate, and JCI returns together affect the increase / decrease in sharpe ratio from equity funds. However, based on the value of R-square very little effect only 1.88 percent, the remaining 98.12 percent is influenced by other factors. The results of this study indicate that equity funds are investment instruments that are not affected by the increase / decrease in inflation rate, so it's one of the best alternatives for investors to invest. However, equity funds are one of the highest risk mutual funds, because there is no guarantee when JCI returns high, equity returns will also be high, it is worth considering choosing the right investment manager. In addition to a good asset allocation policy, it is also necessary to consider legitimate elections.

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Endri "The Influence of Assets Allocation, Inflation Levels, and Return Jakarta Composite Index (JCI) On Mutual Fund Performance "IOSR Journal of Economics and Finance (IOSR-JEF) , vol. 9, no.3, 2018, pp. 72-77