

Equity Fund's Performance Evaluation

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Abstract—One of the long-term investment's option is equity fund, since it suitable for the investor who have limited fund, time, and information. In Indonesia, there are 132 products of equity fund that offer many investment alternatives, but in the other hand investors must choose it thrifty based on their investment's purposes.

The purpose of this study was to evaluate the performance of equity fund products that are still active as a reference for investors in the selection of long-term investment. Since the purpose's for long-term investment, the objects used in this study were 43 equity funds' products that are still active during the study period from 2009 to 2013. Data that is used in this study are secondary data based on historical data taken from Net Asset Value (NAV) per unit with monthly sub-period of equity fund, data movement of Jakarta Stock Exchange Composite Index (CSP1), and BI's rate as risk-free interest rate (risk-free rate).

Performance measurement engage risk-adjusted factor by using Sharpe's index, Treynor's and Jensen's. The performance's evaluation resulted that there are only 6.98% of equity fund that measured having outperform the market. Other findings in this case study is that determinats coefficient also playing an important role on determining which index that can be used for investment's referencet.

Keywords— *Equity Fund; Performance Evaluation; Sharpe Index; Treynor Index; Jensen Index.*

I. INTRODUCTION

Referring to [1], average of the inflation rate in Indonesia for period 1997 – 2013 ranged between 8% - 12%.The increase of inflation rate causes the decline of the value of money. So that people need an effective investment solutions in planning their financial for future purposes, which is the investment with rate of return higher than inflation rate.

Banking products' advantages are fixed income and low risk but offer the low return. The average of savings' return for period 2008 – 2013 is 2.27% [2] and average of deposits' return is 5.7% [2]. Comparing with the average of inflation rate during the same period which is 5.24% [1], deposits can overrun the inflation rate. But, if we compare with investment in the stock market such as bonds and stocks, they can offer higher expected return than banking products.

Investment in stock market offer higher expected return but also have high risk. The average return of government

bond during the same period is 7.67% [3] and the average return of Jakarta Stock Composite Index (JSCI) is 29.5% [3].

Due to the lack of financial literacy, fund, time, and information; most of Indonesians prefer to save their money on bank whereas there is other instrument that suitable for investor who have limited fund, time, and information; but interest in having diversified portfolio in capital market which is mutual fund.

In this research, since the investment purpose is for the long run, the time period that used is 5 years, with the research's object is equity fund. Equity fund is the mutual fund with at least 80% of the portfolio is managed in the form of stocks [4]

In Indonesia, there are 132 equity fund products in the state of active [5]. Which means, investors has many alternatives to invest easily in the capital market, but also may cause difficulties for investors in selecting the investment products. If investors choose an equity fund product inappropriately may evoke risks such as investment incompatibility with its purposes as far as dissolution of equity fund's products due to lack of Net Asset Value.

As reference in selection of equity fund's products are conducted the portfolio's performance evaluation which have included risk is by using Sharpe's index, Treynor's index, and Jensen's index. It is expected that the results of this research can give input to the investors, financial planner, and other researcher as first step in selection of long-term investment instruments in the form of equity fund.

II. A BRIEF REVIEW OF LITERATURE

A. Investment

Referring to [6] that stated that investment as the commitment of current fund in anticipation of receiving a larger future flow of funds. The investors expect to be compensated for abstinence immediate consumption with higher value. Investors' considerations in the selection of investment products aside from the rate of return is the level of risk. The expected return has linear relationship with the level of risk which the higher the expected return will be the greater the risks taken. The risks which is the difference between the expected return and the actual return, always have to considered in the process of investment selection.

Reference [7] stated that the process of investment selection consists of several stages, as follows:

1. Setting of investment objectives.
2. Setting of investment policy, including asset allocation decisions.
3. Selection of portfolio strategy in order to achieve the efficient portfolio combinations.
4. Measurement and evaluation of the portfolio's performance that includes portfolio performance measurement and benchmark it with the market performance.

B. Mutual Funds

Mutual fund is an investment vehicle that is made up to collect funds from many investors and invested in the securities portfolio by investment managers. Referring to [4] the type of mutual fund in Indonesia as following :

- a. Money market fund or *Reksa Dana Pasar Uang (RDPU)*, where the funds will be managed and invested 100% in the money market instruments.
- b. Fixed-Income Funds or *Reksa Dana Pendapatan Tetap (RDPT)*, where the funds will be managed and invested at least 80% of the portfolios in bonds instruments.
- c. Equity Fund or *Reksa Dana Saham (RDS)*, where the funds will be managed and invested at least 80% of the portfolios in stocks instruments.
- d. Balanced Fund or *Reksa Dana Campuran (RDC)*, where the funds will be managed and invested in the balanced mixture of bonds and stocks instruments.

C. Measurement and Evaluation of the Portfolio's Performances

Measurement and evaluation of the portfolio's performance is the last stage of the process of investment selection. The measurement and evaluation of the portfolio's performances covering two things which is evaluation in achieving rate of return higher than benchmarked portfolio and evaluation in relation to risk.

There are three approaches in measuring the portfolio's performance in relation to risk as following [8] :

1. Sharpe index (reward to variability ratio)
2. Treynor index (reward to volatility ratio)
3. Jensen index (Jensen's differential return / Jensen's alpha)

D. Previous Research

Reference [9] applied Sharpe index, Treynor index, and Jensen index as measurement methods of mutual fund in relation to risk, by comparing 123 mutual fund products'

performance with New York Stock Exchange (NYSE) index by using monthly data during period 1960 – 1969. Reference [10] applied the three indexes while researched 41 mutual fund's performance in Malaysia during period 1995 -1999. Both of the researchs resulted that the mutual fund's performance is lower than market performance.

Reference [11] also applied the three indexes in evaluating the mutual fund's performances in Pakistan. The research resulted that mutual fund industry in Pakistan was in the growth stage, that can be seen in the higher Sharpe index and positive value of Jensen index

III. RESEARCH METHODOLOGY

A. Research Object

Research's object is equity fund with active status for 5 years and listed in Bapepam. From 132 equity fund with active status there are 43 equity fund products that already listed since January 2009. The time range for the research is from Januari 2009 – 31 Desember 2013 and using monthly data

B. Data Collection Methodology

The data that used in this research is secondary data in the form of historical data of monthly Net Asset Value (NAV) of equity fund for the last 5 years. The monthly data was downloaded from [12]. As for referrence in *risk-free rate* is Bank Indonesia Certificate (SBI) maturing 30 days.

C. Analysis Methodology

The type of this research is descriptive qualitative approach. The following is analysis methodology based on Sharpe index, Treynor index, dan Jensen index :

1. Determining the average rate of return of 43 equity fund during period and determining the average rate of return of risk free rate during period.
2. Determining the standard deviation of the equity fund's return during period.
3. Determining portfolio's beta based on Single Index Model.

Single index model is using market index as independent variable in the simple regression model as following [7] :

$$Y = \beta_0 + \beta_1 X + \epsilon \quad (1)$$

with :

Y : equity fund's return

X : Jakarta Stock Composite Index

(JSCI)'s return

4. Measurement of Sharpe index formulated as following :

$$\hat{S}_p = \frac{\bar{R}_p - \bar{R}_F}{\sigma_{TR}} \quad (2)$$

with :

- S_p : Sharpe index
- R_p : average rate of return of portfolio p during period
- R_f : average rate of return of risk free rate during period
- σ_{TR} : standard deviation of return portfolio p during period

5. Measurement of Treynor index formulated as following :

$$\hat{T}_p = \frac{\bar{R}_p - \bar{R}_F}{\hat{\beta}_p} \quad (3)$$

with :

- T_p : Treynor index
- R_p : average rate of return of portfolio p during period
- R_f : average rate of return of risk free rate during period
- β_p : beta portfolio p

6. Measurement of Jensen index formulated as following :

$$\hat{J}_p = \bar{R}_p - \left[\bar{R}_F + (\bar{R}_M - \bar{R}_F) \hat{\beta}_p \right] \quad (4)$$

with :

- J_p : Jensen index
- R_p : average rate of return of portfolio p during period
- R_f : average rate of return of risk free rate during period
- R_m : average rate of return of market m during period
- β_p : beta portfolio p

Measurement of Jensen index can be described as the intersection of the regression line or Jensen's intersection (α). Y as the dependent variable is the average return of portfolio p reduced by the average return of risk-free rate ($R_p - R_f$) during the observation period. And X as the independent variable is the average return of market reduced by average return of risk-free rate ($R_m - R_f$) during the observation period.

IV. RESULT OF THE STUDY

A. Research Result

The following are the result of the measurement of equity fund's performance with JSCI as benchmark. JSCI has average rate of return as 2.15%; standard deviation as 5.78%; beta 1; whereas the Sharpe index is 41.21% and the Treynor index is 2.15%

B. Discussion

1) Equity Fund Performance according to Sharpe Index

Measurement of equity fund performance according to the Sharpe index is based on the difference between the average return of equity funds and the average return of risk-free rate, known as risk premium. The benchmark that used in the Sharpe index is based on the capital market line (CML), which is dividing the portfolio's risk premium by the standard deviation of the portfolio return. The standard deviation is reflected a total risk that consists of systematic risk and unsystematic risk. Furthermore, according to the Sharpe index, formulated the criteria, if the portfolio's Sharpe index is higher than the JSCI's indicates the superior performance (outperform the market) and otherwise indicates inferior performance (underperform the market).

The results of equity fund performance evaluation according to the Sharpe index, showed that 6.98% of equity funds have superior performance, such as MNC Dana Ekuitas products from PT. MNC Asset Management; also Panin Dana Maksima and Panin Dana Prima products from PT. Panin Asset Management. MNC Dana Ekuitas has superior performance due to the average return and the total risk is lower than JSCI's. While the PT. Panin Asset Management's products has superior performance due to having the biggest average return than other equity funds products.



Fig. 1. Sharpe's Equity Fund Performance

TABLE I. SHARPE'S SUPERIOR PERFORMANCE

No	Equity Fund	Code	Average Rate of Return	Standard Deviation of Portfolio's Return	Sharpe's Index
1	MNC Dana Ekuitas	MDE	2.134%	5.023%	47%
2	Panin Dana Maksima	PDM	3.151%	7.308%	46%
3	Panin Dana Prima	PDP	2.909%	7.373%	43%
4	Jakarta Stock Composite Index	JSCI	2.154%	5.777%	41%

2) Equity Fund Performance according to Treynor Index

As with Sharpe index, the measurement of equity fund performance according to Treynor index is based on risk premium, but the benchmark that used in Treynor index is based on security market line (SML), with assumption the portfolio already diversified so that the relevant risk is systematic risk.

Beta is used as the portfolio's systematic risk measurement against the market risk. Equity fund's beta is determined from regression linear where portfolio's return as the dependent variable and JSCI's return as the independent variable. The beta is coefficient of the independent variable. As with the Sharpe's index, the criterion that is used in Treynor index indicates superior performance if the Treynor index of portfolio is higher than JSCI's, otherwise it indicates inferior performance.

The results of equity fund performance evaluation according to the Treynor index, showed that 7.30% of equity fund have superior performance, such as Millenium Equity, MNC Dana Ekuitas, Panin Dana Maksima, and Panin Dana Prima. So that, MNC Dana Ekuitas', Panin Dana Maksima', and Panin Dana Prima's performance is superior according to both Sharpe and Treynor index.

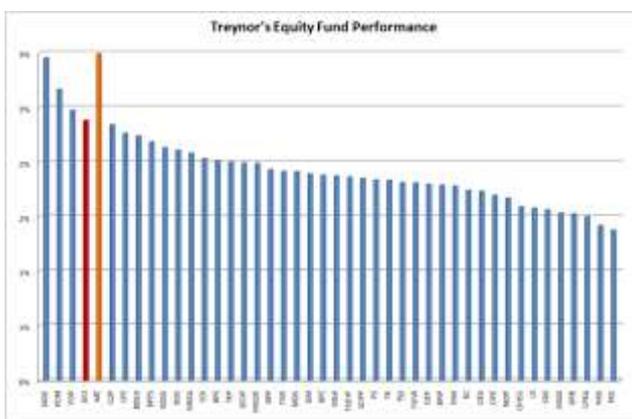


Fig. 2. Treynor's Equity Fund Performance

TABLE II. TREYNOR'S SUPERIOR PERFORMANCE

No	Equity Fund	Code	Average Rate of Return	Portfolio's Beta	Treynor's Index
1	MNC Dana Ekuitas	MDE	2.134%	0.7226	2.95%
2	Panin Dana Maksima	PDM	3.151%	1.1818	2.67%
3	Panin Dana Prima	PDP	2.909%	1.1760	2.47%
4	Jakarta Stock Composite Index	JSCI	2.154%	1	2.38%
5	Millenium Equity ^a	ME	2.078%	0.9054	2.99%

In Millenium Equity's case, according to Treynor's is having superior performance, in the contrary according to Sharpe's is inferior performance. The differences in benchmark application will resulted the difference in measurement between Sharpe's and Treynor's. The coefficient determinant (R^2) of Millenium Equity's return showed 0.385461, which means market returns can explain only 38.55% of Millenium Equity's return variation. While the remaining 61.45% is influenced by other variable. In other words, the portfolio is not diversified, so that the performance evaluation preferably use the Sharpe's.

The difference between Sharpe's and Treynor's is depend on the assumption of portfolio's diversification. A portfolio is concerned diversified if almost entirely the portfolio's return is influenced by the market's return. To determined whether the portfolio already diversified is by conducting the regression between portfolio's return and the market's, then use coefficient determinant (R^2) value as reference. The higher value of R^2 indicates the higher portfolio's return is influenced by the market's.

3) Equity Fund Performance according to Jensen Index

The measurement of Jensen index can be described as the intersection of the regression line or Jensen's intersection (α). Y as the dependent variable is the average return of portfolio p reduced by the average return of risk-free rate ($R_p - R_f$) during the observation period. And X as the independent variable is the average return of market reduced by average return of risk-free rate ($R_m - R_f$) during the observation period. Furthermore, the criterion is obtained based on alpha value, as following [13] :

- Positive alpha value ($\alpha > 0$) show superior performance (outperform the market)
- Negative alpha value ($\alpha < 0$) show inferior performance (underperform the market)
- Alpha value zero ($\alpha = 0$) show portfolio has proportional performance with the market's.

No	Equity Fund	Code	Jensen Index (α)	Coefficient Determinant (R^2)
7	BNP Paribas Pesona Syariah	BPPE	0.03%	0.899850

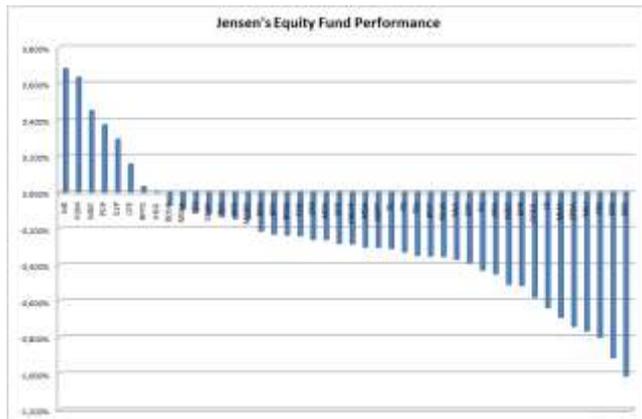


Fig. 3. Jensen's Equity Fund Performance

According to Jensen's measurement, there are 16.28% equity fund that resulted positif alpha value which means have superior performance, such as Millenium Equity, Panin Dana Maksima, MNC Dana Ekuitas, Panin Dana Prima, Grow 2 Prosper, Cipta Syariah Equity, dan BNP Paribas Pesona Syariah.

From the below table, the coefficient determinant of all positive alpha value shown 0.500, that indicates the superior performance according to Jensen index. If we compare the equity fund performance according to the three index, basically the rating of superior performance is almost the same order in every index. But, we have to notice the coefficient determinant of each portfolio. As example, Millenium Equity shown superior performance in Treynor's and Jensen's, but then we found out that the portfolio is not diversified, so that for Millenium Equity's case, our performance measurement should refer to Sharpe's index. In the end, in performace's evaluation according to Sharpe's, Treynor's, and Jensen's; the coefficient determinant played a key role for decision making in portfolio's selection

TABLE III. COEFFICIENT DETERMINANT IN JENSEN INDEX WITH POSITIVE ALPHA VALUE

No	Equity Fund	Code	Jensen Index (α)	Coefficient Determinant (R^2)
1	Millenium Equity	ME	0.68%	0.516189
2	Panin Dana Maksima	PDM	0.63%	0.911958
3	MNC Dana Ekuitas	MDE	0.45%	0.800978
4	Panin Dana Prima	PDP	0.37%	0.899065
5	Grow 2 Prosper	G2P	0.29%	0.838381
6	Cipta Syariah Equity	CSE	0.16%	0,881420

V. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The results of this research regarding the equity fund's performance evaluation during period January 2009 - December 2013, can be concluded as follows :

1. According to Sharpe index, there are 3 equity fund products that have superior performance, such as MNC Dana Ekuitas, Panin Dana Maksima, and Panin Dana Prima
2. According to Treynor index, there are 3 equity fund products that have superior performance, such as MNC Dana Ekuitas, Panin Dana Maksima, dan Panin Dana Prima
3. According to Jensen index, there are 7 equity fund products that have superior performance, such as Millenium Equity, Panin Dana Maksima, MNC Dana Ekuitas, Panin Dana Prima, Grow 2 Prosper, Cipta Syariah Equity, and BNP Paribas Pesona Syariah
4. Thus, equity fund products that have superior performance according to the Sharpe index, Treynor index and Jensen index is 6.98%. There are 37.50% equity fund that have average return higher than market's average return, but having the inferior performance due to having the greater risk than the market's.

B. Recommendations for Further Studies

Since this research is tend to be a preliminary study, the recommendation for other research related with the limitation of this study, as following :

1. Further research is needed with the primary data to the asset management company as an investment manager to find out deeper the process of each equity fund products, such as how much dividends that received, and other costs such as the cost of sales and cost of purchase, in order to get more accurately return of equisty fund based on the cash flow to investors.
2. Further research is needed that focuses only on equity fund with superior performance, in order to find out deeper regarding the composition of each equity fund and to find out whether sectoral performance can influence the equity fund performance.
3. Further research is needed to find out the characteristics of the investor by using primary data

in the form of a questionnaire to determine the utility of investors on equity fund preference.

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