Factors influencing equity fund performance: evidence from Indonesia

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FACTORS INFLUENCING EQUITY FUND PERFORMANCE: EVIDENCE FROM INDONESIA

Abstract

This study aims to discover the factors that affect equity fund performance in companies listed on the Indonesia Stock Exchange (IDX) during 2015–2018. This research is quantitative. Past performance, stock selection skills, market timing abilities, fund size, fund age are independent variables, while fund performance is the dependent variable. The population in this study was 73 equity funds. A total of 21 equity funds were selected as the sample by the purposive sampling method. The analytical method used is panel data regression analysis using the EViews program. Hypotheses were tested using a *t*-test with a significance level of alpha 0.05. The results show that equity fund past performance, stock selection skill, market timing ability, fund size, fund age and IDX composite index simultaneously have a significant effect on equity fund performance. Stock selection skill and IDX composite index partially have a positive and significant effect on equity fund performance. However, past performance, market timing ability, fund size and fund age have no positive and significant effect on equity fund performance.

Keywords equity fund performance, past performance, stock selection skill, market timing ability, fund size, fund age, IDX composite index

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INTRODUCTION

Investment in mutual fund is the right step for people who want to start investing in the capital market because it is easier and inexpensive. However, the mutual fund is not always efficient (Khorana, Servaes, & Tufano, 2005). Mutual fund is a opportunity for managing the fund for the public to invest in investment instruments available in the capital market by buying participation units. These funds are then managed by investment managers (IM) into investment portfolios, whether in the form of shares, bonds, money markets, or other securities.

The data from the Financial Services Authority regarding the development of mutual funds in Indonesia always experience growth from year to year starting from 2014–2018. The growth included the number of mutual fund products, Net Asset Value (NAV) of mutual fund, and mutual fund participation units. In 2014, there were 894 mutual fund products with NAV of IDR 241,571 trillion and participation units of 142.73 billion, whereas in 2018, there were 2,099 total mutual fund products, NAV of IDR 505,390 trillion, and investment units amounting to IDR 373.75 billion. However, if we pay attention to mutual fund returns, there is a decline.

Mutual fund decreased quite sharply in 2018. Rate of return reached its highest point in 2017 of IDR 35.06 trillion in the past five years. However, in the following year, the rate of return has decreased and

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reached its lowest point of IDR 10.47 trillion in the last five years. This shows an imbalance between the development of mutual fund management and returns. The increase in Net Asset Value (NAV) or Asset Under Management (AUM) is not accompanied by an increase in return. This is caused by the lack of investors' ability to choose the right mutual fund. On the other hand, the evaluation of mutual fund performance could not provide optimal benefits. Investors seem to only make an arbitrary assessment or gambling in investing. Interestingly, previous studies by Cuthbertson, Nitzsche, and O'Sullivan (2008) found some evidence that returns from mutual funds are not caused by stock selection skills of investment manager (IM); however, there are luck factors.

There are five types of mutual fund that are on the Indonesia Stock Exchange (IDX): equity fund, capital protected fund, fixed income fund, money market fund, and discretionary fund. Most investors who choose stock equity funds, but investors are less able to analyze mutual funds that have good prospects, as well as the lack of information obtained regarding the analysis of factors affecting mutual fund performance. To understand the factors that affect equity fund performance, in this research, equity past performance, stock selection skills, market timing ability, fund size, fund age and IDX composite index are used as predictor variables. This is because the mapping of previous studies obtained the gap phenomenon from the results of the study.

This research showed that stock selection skill plays an important role regarding the mutual fund performance. Manager expertise in the stock selection will determine the sustainability of the mutual fund itself. The rise of the IDX composite index means a capital market with high stock demand. Both of these can provide high return funds and also reduce the risk of default.

1. LITERATURE REVIEW

The performance of a portfolio cannot be enough just to pay attention to the level of return that the portfolio produces, but one must also pay attention to other factors such as the risk level of the portfolio. Some previous studies have examined the factors that affect mutual fund performance. Grinblatt and Titman (1992), Hendricks, Patel, and Zeckhauser (1993), Goetzmann and Ibbotson (1994), Ben and Hellara (2011) have examined the relationship between mutual fund performance and past performance. Da, Gao, and Jagannathan (2010) and Nallareddy and Ogneva (2017) have examined the mutual fund performance and stock selection skills. Cuthbertson, Nitzsche, and O'Sullivan (2010), Sherman, O'Sullivan, and Gao (2017), and Tchamyou and Asongu (2017) have examined the relationship between mutual fund performance and market timing ability.

Several portfolio performance measures have included return and risk factors in their calculations, e.g., Sharpe ratio (Sharpe, 1966), Treynor-Mazuy measure (Treynor & Mazuy, 1966), and Jensen ratio (Jensen, 1968). Sharpe ratio is used to measure the equity fund performance in this research. Sharpe ratio gives better appropriate measures for high return and all portfolio than others (Scholz & Wilkens, 2005). A higher portfolio Sharpe ratio shows better performance than the others. The Sharpe method is formulated as follows:

$$S_{rd} = \frac{R_{rd} - R_{rf}}{\sigma}, \quad (1)$$

where S_{rd} is Sharpe ratio value, R_{rd} is return of portfolio, R_{rf} is risk-free rate, σ is standard deviation of the portfolio excess return.

Equity fund past performance will affect future performance because investment managers obtained data and information and then take several actions to improve future equity fund performance (Grinblatt & Titman, 1992; Hendricks et al., 1993; Goetzmann & Ibbotson, 1994; Ben & Hellara, 2011). Having more information events and superior trading of shares in the past and the ability to estimate the probability of informed trading (PIN) tends to be an indication of future performance for investment managers (Da et al., 2010). Interestingly, previous studies by Berk and Green (2004) stated that past performance is unable to predict future returns, and gathering information

about performance is needless. Equity fund past performance can be formulated as follows:

$$S_{rd(t-1)} = \frac{R_{rd(t-1)} - R_{rf(t-1)}}{\sigma(t-1)}, \quad (2)$$

where $S_{rd(t-1)}$ is Sharpe ratio value past period, $R_{rd(t-1)}$ is return of portfolio past period, $R_{rf(t-1)}$ is risk-free rate past period, $\sigma(t-1)$ is standard deviation of the portfolio excess return past period.

Stock selection skill is the ability of IM to pick the right stocks to be included in their portfolio and has the potential to produce returns as expected by investors. Stock selection skill components play an important role in growth-oriented funds and income-oriented funds (Da et al., 2010). Previous studies by Nallareddy and Ogneva (2017) have shown that skilled investment manager can avoid investing in low-grade fundamental companies. Interestingly, previous studies by Hsu, Kalesnik, and Myers (2010) found the relationship between positive performance and stock picking-skills on top rank equity income, whereas no relationship was found among small equity funds. The stock selection skill model is developed by Trenor and Mazuy (1966), then, Henriksson and Merton (1981) developed another model. In this research, stock selection skill was calculated using the Treynor-Mazuy method (Treynor & Mazuy, 1966). To measure the ability of micro forecasting (stock selection) of investment managers, this can be seen through the value of α. If the investment manager has $(\alpha > 0)$, it means that investment manager has a superior selection ability, and vice versa, if $(\alpha < 0)$, it means the inferior ability of stock selection.

This model also explains the manager's market timing ability. Previous studies by Cuthbertson et al. (2010) showed that just a small number have successfully implemented market timing ability among income equity in the UK. The research has the same results as the research conducted by Sherman et al. (2017) with Chinese mutual funds as the research object. In this study, we not only measure market timing ability but also examine their relationship with performance. Previous studies by Ferson and Mo (2016) stated that the IM performance depends on market timing, volatility timing, and security selection. Tchamyou and Asongu (2017) found that evidence of a consistent positive threshold of market volatility and return in market timing. The symbol of γ represents the investment manager's ability to perform market timing and is categorized as having this ability when γ is positive, this indicates that the investment manager produces an excess return on the investment fund portfolio that is higher than the market excess return, formulated as follows:

$$R_p - R_f = \alpha + \beta(R_m - R_f) + \\ + \gamma(R_m - R_f)^2 + \varepsilon_p, \quad (3)$$

where α is intercept, which shows the indications of stock selection from investment managers, R_p is average mutual fund return in period t, R_f is average risk-free investment return in period t, R_m is average market return in period t, β is regression coefficient for excess market return or slope when the market falls (bearish), γ is regression coefficient, which indicates the market timing ability of the investment manager, ε_p random error.

The company's total assets generally indicate the economies of scale. The size of the mutual fund will be represented in the total market capitalization of the investment fund. Mutual fund must reach a minimum fund size to gain sufficient returns for their transaction costs (Indro, Jiang, Hu, & Lee, 1999). Previous studies by Othman, Asutay, and Jamilan (2018) found that fund size has a relationship to fund flows as a performance measure. Interestingly, previous studies by Chen, Hong, Huang, and Kubik (2004) showed fund size and assets under management scrape mutual fund performance. Elton (2012) found that growth in the size of funds erodes predictability, but it is slow. Previous studies by Varamini and Kalash (2008) showed that mutual fund with small capitalization provided the highest risk-adjusted return for the entire period, whereas mutual fund with higher capitalization showed lower returns. Previous studies by Zhu (2018) found that fund size has a negative and significant effect on performance. The wealth of an investment fund is obtained from the Net Asset Value (NAV) After the Net Asset Value is obtained, it is converted into a natural logarithm so that the value obtained is not too high when compared with other variables.

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Mutual fund size can be formulated as follows:

$$Size = \ln(TNA), \quad (4)$$

where $Size$ is fund size, TNA is total net asset.

Many investors disagree that the age of the mutual fund reflects its performance. The longer the equity fund's life, the better the mutual fund performance. The old mutual fund products usually have also been tested for their performance even in difficult times. Some previous studies showed fund age have a significant effect on mutual fund performance (Makni, Benouda, & Delhoumi, 2016; Agnesens, 2013; Nguyen, 2018). However, some previous studies by Ferreira, Keswani, Miguel, and Ramos (2013), Othman et al. (2018) show the fund age has no significant effect on mutual performance outside the US funds and Malaysia. Previous studies by Jones (2007) stated that younger funds could provide higher returns than larger funds, whereas larger funds better in terms of maximizing capital preservation. The age of the equity fund is calculated from the date of launch of equity fund on the market until the date the research was conducted.

In Indonesia as an emerging country, the government has opened up the breadth of foreign investment for the last few years. This result affects the increasing number of companies and market capitalization on the Indonesia Stock Exchange (IDX). Previous studies by Beaumont, van Daele, Frijns, Lehnert, and Muller (2008) found a strong relationship between mutual fund flows and market return for all indices in the US. The increased IDX composite index value reflects an increase in share purchases on the capital market. This will have a positive effect on equity funds conversely, if negative market conditions will reduce equity fund performance (Maria Caporale, Philippas, & Pittis, 2004; Akbas, Armstrong, Sorescu, & Subrahmanyam, 2016). Investment managers can take advantage of bearish or bullish market conditions to make decisions to sell or buy stock. However, previous studies by Dah, Hoque, and Wang (2015) found that Islamic mutual funds in Saudi Arabia, the US, Malaysia, and Kuwait did not show lower performance than market index benchmarks. IDX composite index will be calculated from the closing price every month during 2015–2018.

Based on the literature review and previous studies, the hypotheses of this research as follows:

H_1: *Past performance has a positive and significant effect on equity fund performance.*

H_2: *Stock selection skill has a positive and significant effect on equity fund performance.*

H_3: *Market timing ability has a positive and significant effect on equity fund performance.*

H_4: *Fund size has a positive and significant effect on equity fund performance.*

H_5: *Fund age has a positive and significant effect on equity fund performance.*

H_6: *IDX composite index has a positive and significant effect on equity fund performance.*

2. METHODS

The independent variables used are past performance (X_1), stock selection skill (X_2), market timing ability (X_3), fund size (X_4), fund age (X_5), and IDX composite index (X_6). The dependent variable is equity fund performance (Y).

The data used are secondary data, i.e., financial statements that have been published in 2015–2018, monthly NAV, and costs. The sample was determined using the purposive sampling method. The criteria in determining the sample are as follows: (1) equity fund, which is active and available on IDX in 2015–2018, (2) mutual fund has some data requirements, e.g., prospectus data and monthly NAV for December 2015 – December 2018. Based on the criteria, 21 mutual funds were selected as the sample.

Table 1. Sample selection

Criteria	Total
Equity funds that are active and available during 2015–2018	73
Equity funds that do not have complete, e.g., prospectus data and monthly NAV during 2015–2018	(51)
Total sample	21

Data analysis methods consist of descriptive analysis, determination of estimation models, classic assumption test, and panel data regression by using EViews program. To test the hypotheses, the *F*-test and the *t*-test were performed.

3. RESULT AND DISCUSSION

Descriptive statistics are shown in Table 1. The equity fund performance (Y) mean value is −0.460 with minimum value 0.72 and maximum value 0.72, while the Standard Deviation (SD) obtained is 0.31987. Past performance (X_1) mean value is 0.0110 with minimum value −0.63 and maximum value 0.72, while the SD obtained is 0.30667. Stock selection skill (X_2) mean value is 0.0055 with minimum value −0.04 and maximum value 0.01, while SD obtained is 0.00987. Market timing ability (X_3) mean value is 1.5605 with minimum value −10.84 and maximum value 24.38, while the SD obtained is 6.68721. Fund size (X_4) mean value is 26.3801 with a minimum value 21.35 and maximum value 29.09, while SD is 1.51626. Fund Age (X_5) mean value is 10.3464 with minimum value 1.00 and maximum value 22.30, while SD is 5.39338. IDX composite index (X_6) mean value 5453.9136 with minimum value 4875.21 and maximum value 6094.64, while SD is 505.70936.

Table 2. Descriptive statistics

Variables	N	Min	Max	Mean	Std. deviation
Y_Performance	84	−.63	.72	−.0460	.31987
X1_PP	84	−.63	.72	.0110	.30667
X2_SSS	84	−.04	.01	−.0055	.00987
X3_MTA	84	−10.84	24.38	1.5605	6.68721
X4_FS	84	21.35	29.09	26.3801	1.51626
X5_FA	84	1.00	22.30	10.3464	5.39338
X6_IDX	84	4875.21	6094.64	5453.9136	505.70936

Determination of estimation models (Chow test, Hausman test, and Lagrange multiplier), classic assumption tests (normality test, multicollinearity test, heteroskedasticity test, and autocorrelation test) were performed. More details are provided in Appendix A. Random effect model was selected as the best estimation model.

Panel data regression analysis was performed to determine the significant effect between two or more independent variables on the dependent variable partially or simultaneously (cross-sectional and longitudinal) panel data. *F*-test and *t*-test are shown in Table 3 and Table 4.

Table 3. *F*-test and *R*-squared result

R-squared	0.47767	Mean dependent var	−0.04597
Adjusted R-squared	0.43697	S.D. dependent var	0.31987
S.E. of regression	0.24001	Sum squared resid	4.43582
F-statistic	11.7361	Durbin-Watson stat	2.26162
Prob(*F*-statistic)	0.00000		

Table 4. *t*-test result

Variables	Coefficient	Std. error	*t*-statistic	Prob.
C	−7.377481	3.276506	−2.251631	0.0272
X1_PP	−0.389237	0.111749	−3.483128	0.0008
X2_SSS	19.48424	3.120661	6.243626	0.0000
X3_MTA	0.007011	0.004408	1.590344	0.1159
X4_FS	0.016037	0.016745	0.957721	0.3412
X5_FA	0.004672	0.004913	0.950911	0.3446
X6_IDX	0.809484	0.365207	2.216508	0.0296

Based on EViews output for the *F*-Test in Table 3, which is statistically significant at probability $0.000 < 0.05$. Value of *F*-statistic > *F* table ($11.7361 > 2.2188$). Simultaneously, past performance, stock selection skills, market timing ability, fund size, fund size, and IDX composite index have a significant effect on equity fund performance. *R*-squared value is 0.47767, which means equity fund performance is influenced by independent variables (past performance, stock selection skill, market timing ability, fund size by 47.767%. The rest is influenced by other variables outside this research.

To test the effect of the independent variable on dependent variable partially, *t*-test was performed. The result of *t*-test is shown in Table 4. For H_1, past performance prob. is $0.0008 < 0.05$, *t*-statistic > *t* table ($-3.4831 > 1.991$). Past performance has a negative and significant effect on equity fund performance. H_1 is rejected. This result is the same as previous research by Berk and Green (2004). Information from past performance is unable to predict future returns; gathering information about performance is unnecessary. From this result, IM's should not be satisfied with past success. We found past performance is not able to reflect future performance.

For H_2, stock selection skill prob. is $0.0000 < 0.05$, *t*-statistic > *t* table ($6.243626 > 1.991$). Stock se-

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lection skill has a significant effect on equity fund performance. H_2 is accepted. This result is the same as previous studies by Da et al. (2010), Nallareddy and Ogneva (2017), Hsu et al. (2010). Stock selection skill of IM plays a crucial role in equity fund performance. IM with great selection will allocate assets in superior fundamentals companies or appropriate industrial sectors. Companies with inferior fundamentals will be able to avoid it. Moreover, IM invest not only for short-term returns but also for long-term returns.

For H_3, market timing ability prob. is 0.1159 > 0.05, t-statistic < t table (1.590344 < 1.991). Market timing ability has no significant effect on equity fund performance. H_3 is rejected. The result is the same as previous studies by Cuthbertson et al. (2010). IM are less able to decide the right time about buy, hold, and sell stocks to improve equity fund return. This means IM are not punctual to make purchases at the lowest price and resell at a high price. Investment managers are less able to take advantage when the market conditions are bearish, recovery, and bullish.

For H_4, fund size prob. is 0.3412 > 0.05, t-statistic < t table (0.957721 < 1.991). Fund size has no significant effect on equity fund performance. H_4 is rejected. The result is the same as previous studies by Chen et al. (2004), Elton (2012). Equity funds with larger AUM have difficulty in managing their portfolio. Some equity funds that have historical performance will immediately increase AUM in the following year. However, the greater the managed fund, the more difficult it is usually for investment managers to achieve historical performance because of the increasing difficulty of allocating investment. In line with the increase in AUM, the number of shares in the portfolio and transaction costs will increase, so the investment strategy will change and can be difficult to maintain.

For H_5, fund age prob. is 0.3446 > 0.05, t-statistic < t table (0.950911 < 1.991). Fund age has no significant effect on equity fund performance. This result is the same as previous studies by Othman et al. (2018). There is no evidence the older equity funds can achieve better performance, even though they are experienced and can survive in difficult periods. In line with this, also no evidence was found that younger equity funds are more persistent in achieving better performance. Younger equity funds are faced with high costs when starting the operations. However that does not mean younger equity funds have inferior performance and are vulnerable.

For H_6, IDX composite index prob. is 0.0296 < 0.05, t-statistic > t table (2.216508 > 1.991). IDX composite index has a significant effect on equity fund performance. This result is the same as previous studies by Maria Caporale et al. (2004), Akbas et al. (2016). IDX composite movements will affect the performance of equity fund. IDX composite increase will affect an increase in equity fund performance if IM allocate their assets on the right sector or companies. Otherwise, a decline in IDX composite index will erode equity fund performance if IM allocate their assets on the wrong sector or companies.

CONCLUSION

The study examines the factors that affect the performance of equity fund listed in Indonesia Stock Exchange (IDX) during 2015–2018. The results show equity funds past performance, stock selection skill, market timing ability, fund size, fund age, and IDX composite index simultaneously have a significant effect on equity fund performance. Stock selection skill and IDX composite index partially have a positive and significant effect on equity fund performance. However, past performance, market timing ability, fund size and fund age, have no positive and significant effect on equity fund performance.

Past performance is cannot reflect future performance. IM should not be highly satisfied with past performance. Superior performance in the past was not followed by better achievement in the following year. Stock selection skill plays a crucial role in achieving better performance of equity funds. IM must be able to select the right stocks, companies, or appropriate sectors to allocate funds so that the perfor-

mance of equity funds always increases. IDX composite index movement affects overall equity fund performance. IM can take the opportunity from this fluctuation to review and reconsider its portfolio and ensure the appropriate asset allocation and fund strategy in the selection of equity fund in accordance with the characteristics and investment objectives of investors.

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APPENDIX A

Table A1. Chow test result

Effects test	Statistic	d.f.	Prob.
Cross-section *F*	2.370044	(20,57)	0.0057
Cross-section Chi-square	50.835701	20	0.0002

Note: Chow test is the first step to determine the best estimation model for panel data regression. The result show cross-section Chi-square prob. 0.0002, which means that fixed effect is better than fixed effect to estimate the model.

Table A2. Hausman test result

Test summary	Chi-sq. statistic	Chi-sq. d.f.	Prob.
Cross-section random	11.987305	6	0.0723

Note: Hausman test is the second step. The result showed that prob. is 0.0723 >0.05, which means that random effect better than fixed effect to estimate the model.

Table A3. Lagrange multiplier test

Test	Test hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	3.930297	348.6306	352.5609
	(0.0474)	(0.0000)	(0.0000)

Note: Lagrange multiplier test is the third step. The result showed that Breusch-Pagan prob. is 0.0474, which means that random effect is better than fixed effect. Random effect selected as the best to estimate panel data regression.

Table A4. Heteroskedasticity test by using Glejser test

Variables	Coefficient	Std. error	*t*-statistic	Prob.
C	−0.019362	0.599246	−0.032311	0.9743
X1_PP	0.104541	0.053136	1.967411	0.0527
X2_SSS	0.302934	1.140518	0.265611	0.7912
X3_MTA	0.000158	0.002831	0.055918	0.9556
X4_FS	−0.004834	0.011798	−0.409763	0.6831
X5_FA	0.004227	0.003407	1.240598	0.2185
X6_IDX	0.032754	0.052156	0.627997	0.5319

Note: The probability value for each independent variable is >0.05, which means that there are no symptoms of heteroscedasticity.

Table A5. Multicolinearity test

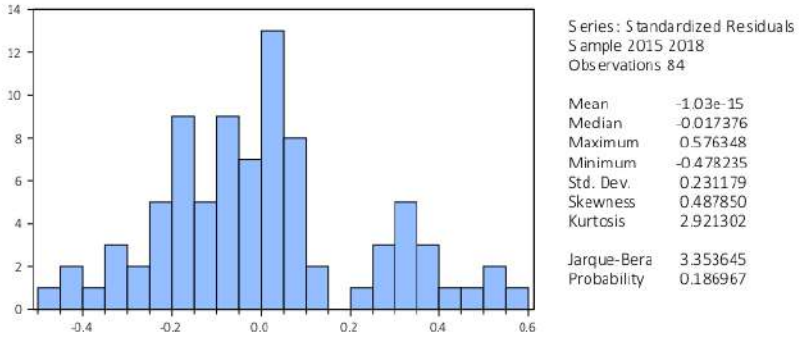
Variables	Centered VIF
C	n/a
X1_PP	2.294
X2_SSS	1.853
X3_MTA	1.698
X4_FS	1.259
X5_FA	1.372
X6_IDX	2.307

Note: The Centered VIF value for each independent variable is > 0.05. Which means, there are no symptoms of heteroscedasticity.

Table A6. Autocorrelation test

R-squared	0.47767	Mean dependent var	−0.04597
Adjusted *R*-squared	0.43697	S.D. dependent var	0.31987
S.E. of regression	0.24001	Sum squared resid	4.43582
F-statistic	11.7361	Durbin-Watson stat	2.26162
Prob(*F*-statistic)	0.00000		

Note: Durbin – Watson stat is 2.26162. DW > dU (2.26162 > 1.829), and (4 - DW) > DU, (4 – 2.2612) > 1.829. There are no symptoms of autocorrelation.



Note: Jarque-Bera Probability is 0.186967 > 0.05. The data distribution is normal.

Figure 1. Normality test

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