MUTUAL FUNDS PERFORMANCE EVALUATION BASED ON SELECTIVITY AND MARKET TIMING

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Abstract

This paper is an empirical evaluation of the performance of mutual fund managers in terms of "market timing" and "selectivity", within the framework suggested by Treynor and Mazuy (1966) and Henriksson and Merton (1981). The relevant data set is a balanced panel of 55 (fifty five) mutual funds, over a 17 (seventeen)-month period began from February 2008 until June 2009. The result found that only 4 (four) mutual funds demonstrated a good performance in market timing and 4 (four) mutual funds showed a good performance in stock selection. Both methods have a good indicator to reflect mutual funds performance.

Keywords: *Market Timing, Stock Selection, Mutual Funds*

Mutual funds have nowadays been rapidly growing due to the accelerating economic growth and capital market development of a nation. Through investments on mutual funds, people who do not have large enough capital are still able to invest on the stock market and earn benefits from the capital market development. The growth of the mutual funds is also boosted by the growing investment products, therefore not all people are able to understand the investments as well as have time to manage their investments. By relying on a professional investment manager who is expert on the securities, the mutual funds investment in Indonesia can grow in a more rapid way.

However, what becomes the issue is how investor should select the right investment manager from lots of investment managers available and earn positive return for themselves. In order to address the aforementioned issue, this paper is written by concentrating on the performance of mutual funds based on *market timing* and *security selection*. *Market timing* on this paper is defined as the ability of managers to react upon the anticipated security price changes by means of investing or withdrawing their funds from a certain investment product in a timely manner. Meanwhile, *security selection* on this paper refers to the ability of investment managers to identify and select mis-priced securities which can potentially give benefits in the future.

The study on mutual funds performance has attracted the attention of many researchers. These studies focused on the ability of managers in selecting securities on the portfolio and/or evaluated the ability of managers in entering/leaving the market (*market timing*). Several studies have shown the lack of support to the performance of superior manager (Athanassakos, Carayannopoulus and Racine, 2002), while Bello and Janjigian (1997) found a positive and significant correlation between the ability to select (selectivity) and *market timing* on 633 mutual funds. Besides, Daniel et al (1997) asserted that the mutual funds, especially the *aggressive growth fund* type supported the existence of *selectivity* ability but not the market *timing* ability. These conflicting results encouraged the study on the mutual funds performance in Indonesia by using the *market timing* and *security selection* criteria.

Some literatures that evaluate the performance have succeeded in forming the foundation of modern portfolio theory, especially related to how the assets are valued. Markowitz (1952) and Sharpe (1964) affirmed important contribution in relations to the understanding of how investors should prepare a portfolio by taking the risk and return level into consideration. The study from Sharpe (1964), Lintner (1965), and Mossin (1966) has successfully formed something that later is known as *the Capital Asset Pricing Model* which describes the two parameters that assume investors only focus on the mean and variance of the return rate of a particular asset.

In addition, the first systematic and extensive study to understand the performance of mutual funds portfolio was conducted by Friend, Brown, Herman, and Vickers since 1962. The study was conducted using 152 mutual fund samples from 1953-1958. Friend and Vickers (1965) evaluated the mutual funds performance against the randomly formed portfolio. The result showed that the mutual fund performance has not performed against the randomly formed portfolio.

Treynor (1965) found a method to measure the performance of the portfolio, called a *Reward to Volatility Measure* which is defined as the average portfolio excess return. It was then pursued by Sharpe (1966) who developed a *Reward to Variability Measure* which refers to the average portfolio excess return divided by the portfolio standard deviation. Furthermore, Treynor and Mazuy (1966) asserted a method to examine the success of past mutual funds in anticipating the capital market movements, where the eventual result showed there is no evidence that the mutual fund performance is always superior against the market. Jensen (1968) developed an absolute measure of performance based on the *Capital Asset Pricing Model* and concluded that mutual funds were not able to gain *abnormal return* when the transaction costs were included on the calculation. The Jensen study did not include the potential of *market timing* performed by the investment managers who occupy an active strategy, and thereby the model assumes that the risk is stationary over time. This assumption will have an impact on the estimated abnormal return which tends to be biased when the market timing strategy is taken into account. The portfolio measurement technique developed by Treynor (1965), Sharpe (1966), and Jensen (1968) is an extension of the modern portfolio theory and *the Capital Asset Pricing* Theory.

Fama (1972) and Jensen (1972) identified the two dimensions of investment performance evaluation, which guides an investment manager to differentiate a *security selection* and *a forecasting decision.* Yet, some literatures also pointed out the potential bias that could happen when the *market timing* ability is taken into consideration, as in fact the existing performance evaluation model does not include

the *market timing* test. As an example, the study conducted by Grinbaltt and Titman (1989) demonstrated that a successful market timing generates an upwardly biased estimate of systematic risk (β) and a downwardly biased estimate of the constant (α). Under this scenario, the model that does not include market timing may produce a wrong performance conclusion. The development of Jensen model had successfully distinguished two components on the investment performance evaluation, namely *security selection* and *market timing* (Gallagher, 2002). Treynor and Mazuy (1966) added a proposition to measure market timing with the argumentation that the linear model is not the correct approach for investment managers in forecasting changes in market condition. It is then implemented using a quadratic function for the manager who manages a large portfolio proportion (small) of risky securities in which the market movement is predicted to increase (decrease).

On the later development, Henriksson and Merton (1981) concluded that investment managers should not always rely on a particular successful investment strategy on the *return on market portfolio.* This Henriksson and Merton study has successfully developed the portfolio performance evaluation by using *security selection* and *market timing*. Whereas, Grinbalt and Titman (1989) asserted that some mutual funds consistently earn abnormal returns by systematically acquiring stocks that produce positive excess returns.

The Henrikkson study (1984) examined the performance of *market timing* upon 116 mutual funds. His study showed that there were only 3 (three) mutual funds that apply the *market timing* ability. Additionally, Chua and Woodward (1986) conducted the same study in Canada, USA, and England with the result demonstrated that the performance of mutual funds based on *market timing* was bad. Furthermore, Sinclair (1990) studied the ability of managers in market timing. The result showed that the return performance for those applying market timing was bad.

Another study in Greece by Phillipas (2002) that observed *stock selection* and *market timing* concluded that investment managers in Greece were not able to make an investment using the correct *market timing* and the use of *the total*

performance index will indeed lessen the ability of the managers in *stock selection*. Some factors that trigger the failure of *stock selection* and *market timing* by investment managers in Greece were the majority of investment managers are relatively young; the lack of experience, and they easily move from one Investment Company to other investment company.

Several empirical studies in USA proved that the active management strategy is not able to outperform the market (Jensen, 1968; Grinbalt and Titman, 1989; Elton et al, 1993; Gallagher, 2001). Some studies also showed that mutual funds were failed to "timing the market" (Treynor and Mazuy, 1966; Henriksson, 1984; and Becker et al, 1999). Besides, Sinclair (1990) who conducted the first market timing and stock selection evaluation in Australia found that being the opposite of market timing in mutual funds would reduce the profitability of stock selection. Hallahan and Faff (1999) who also investigated the market timing and the stock selection in Australia found little evidences that applying the market timing could lead to successful mutual funds.

METHODOLOGY

This study used the population of all mutual funds listed on Indonesia Capital Market Supervisory Agency (BAPEPAM), while the sample was taken from the equity mutual funds listed on BAPEPAM from February 2008 - June 2009. From the total of 68 stock mutual funds listed on June 2009, 55 of them gave the complete mutual funds data.

To measure the performance of mutual funds based on *market timing* and *security selection*, this study uses the Henriksson and Merton method (1981) as well as the Treynor and Mazuy method (1966). *Security Selection* on this paper reflects the ability of investment managers to identify *mis-priced* securities. Meanwhile, *market timing* referred on this study reflects the ability of investment managers to position their portfolio aims to take advantage of the predicted price movements.

The Henriksson and Merton model (1981) divides the performance into 2 (two) factors as shown on formula 1 and 2 below.

$$R_{pt} = \alpha_p + \beta_{p1}.X_t + \beta_{p2}.Y_t + \varepsilon_{pt} \tag{1}$$
or
$$R_i - R_f = \alpha_p + \beta_{p1}.(R_m - R_f) + \beta_{p2}. \text{ Max } (0, R_m - R_f) + \varepsilon_{pt} \tag{2}$$

Where

R_{pt}: The Portfolio return (R_i) on "t" period substracted by the *risk free return* (R_f)
α_p : The abnormal return that reflects the stock selection ability
β_{p1}: The Coefficient of *market return* (R_m) substracted by *risk free rate*
X_t : The *Market return* substracted by *risk free rate* on "t" period
β_{p2}: The Coefficient that reflects the *market timing ability*
Y_t : Max $(0, X_t)$ is a dummy factor which equal with 1, should X_t is greater than 0 and equal with 0, should X_t is less than 0.
ε_{pt} : The Random error

Moreover, the Treynor dan Mazuy model (1966) differentiates performance into 2 (two) factors as shown on formula 3 and 4 below.

$$R_{pt} = \alpha_p + \beta_p. X_t + \gamma_p. X^2_t + \varepsilon_{pt} \tag{3}$$
or
$$R_i - R_f = \alpha_p + \beta_p.(R_m - R_f) + \gamma_p. (R_m - R_f)^2 + \varepsilon_{pt} \tag{4}$$

Under the Henriksson and Merton (1981) model, the mutual funds are considered to be successful in terms of market timing when β_{p2} is positive. Should the *market return* from the mutual funds portfolio overwhelm the *risk free rate*, the β_{p2} value would be positive which indicates that the ability of investment managers in performing market timing is good, and vice versa. Furthermore, the Treynor and Mazuy model (1966) summarized that the mutual funds are considered to be successful when γ is positive. Under the stock selection perspective, the positive α_p value represents the success of the mutual funds portfolio in generating return that is equal or higher than the market return, and vice versa.

R_{pt} is calculated as below:

$$R_{pt} = \ln\left[\frac{NAV_{t+1}}{NAV_t}\right] \qquad (5)$$

Where: NAV is a Net Asset Value

The risk-free rate on this study uses an interest rate of Bank Indonesia Certificate (SBI), while R_m is determined by using an IHSG proxy as follows:

$$R_m = \ln\left[\frac{IHSG_{t+1}}{IHSG_t}\right] \qquad (6)$$

RESULT AND DISCUSSION

Almost all investment managers acclaim that the mutual funds they manage are performed well. However, the study showed that the drastic fall of IHSG occurred in the period of 2008-2009 has significantly weakened the performance of many mutual funds. The study that was conducted using both the Henriksson and Merton model (1981) and the Treynor and Mazuy model (1966) on 55 mutual funds shows the result as seen on table 1 and table 2 below.

Table 1. Summary of The Henriksson and Merton Method Calculation Result

Parameter	Reggresion Coefficient		Significance	
	Positive (%)	Negative (%)	Signifcant (%)	Not Sig.(%)
α_p	28 (51)	27 (49)		
β_{p1}	55 (100)	0 (0)	55 (100)	0 (0)
β_{p2}	41 (75)	14 (25)	5 (9)	50 (91)

Table 1 is a summary of the calculation results upon 55 stock mutual funds listed on BAPEPAM. From the table 1 result, it can be seen that all the beta parameter (β_{p1}) significantly indicates the positive results. Indeed, the constant (α_p)

that reflects the ability of investment managers in selecting the stocks (i.e. stock selection) demonstrated the positive performance from 28 mutual funds and the negative performance from 27 mutual funds. Whereas, the beta parameter (β_{p2}) that reflects the ability of investment managers in performing the market timing shows 41 mutual funds achieved beta positive and another 14 recorded beta negative. Mutual funds are said to have a positive performance when the value of the constant parameter and the β_{p2} parameter is positive. From the given 55 stock mutual funds, using the Henriksson and Merton model, it was found that only 16 of them have a positive performance in terms of stock selection and the accuracy to determine when to enter/leave an investment.

Table 2.Summary of The Treynor dan Mazuy Method Calculation Result

Parameter	Regression Coefficient		Significance	
	Positive (%)	Negative (%)	Significant (%)	Not Sig.(%)
α_p	36 (65)	19 (35)		
β_p	55 (100)	0 (0)	55 (100)	0 (0)
γ_p	32 (58)	23 (42)	20 (36)	35 (64)

From the table 2 result, it can be seen that all the beta parameter (β_{p1}) significantly shows the positive result. Additionally, the constant (α_p) that reflects the ability of investment managers in selecting the stocks (i.e. *stock selection*) demonstrates the positive performance from 36 mutual funds and the negative performance from other 19 mutual funds. Meanwhile, the gamma parameter (γp), which represents the ability of investment managers in performing the market timing shows 32 mutual funds achieved gamma positive and another 23 recorded gamma negative. Mutual funds are considered to have a positive performance when the

value of the constant parameter and the γ_p parameter is positive. From the given 55 stock mutual funds, using the Treynor dan Mazuy model, it was found that 18 of them have a positive performance in terms of stock selection and the accuracy to decide when to enter/leave an investment.

Table 3 below exhibits the name of 6 (six) mutual funds that performed well in terms of stock selection using both the Henriksson and Merton method & the Treynor and Mazuy method. Table 3 indeed shows that using both the Henriksson and Merton method & the Treynor and Mazuy method, the 4 of 6 mutual funds consistently performed well.

Table 3. The 6 Mutual Funds Ranking based on the *Stock Selection*

No.	Method	
	Henriksson dan Merton	Treynor dan Mazuy
1	Reksadana Growth to Prosper	Paramita premium
2	Panin Dana Prima	Reksadana Growth to Prosper
3	Panin Dana Maksima	Panin Dana Prima
4	Pratama Saham	Syailendra equity opportunity fund
5	First state indoequity sectoral fund	Pratama saham
6	Fortis infrastruktur plus	Panin dana maksima

The following table 4 exhibits the name of 10 (ten) mutual funds that performed well in terms of *market timing* using the Henriksson and Merton method & the Treynor and Mazuy method. Nevertheless, using the Henriksson and Merton method & the Treynor and Mazuy method, it's found that only 4 from the total of 10 mutual funds performed well in terms of *market timing*.

Table 4. The 10 Mutual Funds Ranking based on the *Market Timing*

No.	Method	
	Henriksson dan Merton	Treynor dan Mazuy
1	paramita premium	reksadana milenium equity

2	jakarta blue chip	danareksa mawar
3	si dana saham optimal	si dana saham
4	si dana saham	TRIM capital
5	makinta mantap	GMT dana ekuitas
6	lautandhana equity	schroder dana prestasi plus
7	capital equity fund	manulife saham andalan
8	manulife saham andalan	rencana cerdas
9	mahanusa dana ekuitas	jakarta blue chip
10	danareksa mawar agresif	mahanusa dana ekuitas

From the numerous facts presented on the table above, by analyzing both methods, it can be seen that during the drastic fall of IHSG occurred in the period of 2008 which was then followed by the *rebound* condition till June 2009, 4 mutual funds showed a good *stock selection* performance. Whereas, by analyzing both methods, there are also 4 companies performed well under the mutual funds performance based on *market timing* category.

CONCLUSION

From the descriptive findings above, it is concluded that the use of both the Henriksson and Merton & Treynor and Mazuy methods is capable of indicating the portfolio of mutual funds that performed well. Besides, the use of both methods is able to record a performance based on the ability of managers in selecting the investment portfolio as well as the ability of managers to decide the right time to enter/leave the market. The use of both methods improves the portfolio performance evaluation which previously relied much on the 3 portfolio performance technique tools developed by Treynor (1965), Sharpe (1966) and Jensen (1968).

REFERENCES

Athanassakos, G., P. Carayannopoulus dan M. Racine. 2002. How Effective is Aggressive Portfolio Management, *Canadian Investment Review*, Fall. p. 39-49.

Becker, C., W. Ferson, D. Myers, dan M. Schill. 1999. Conditional market timing with benchmark investors, *Journal of Financial Economics*. Vol. 52. p 119-148

Bello, Z.Y., dan V. Janjigian. 1997. A Re-examination of The Market Timing and Security Selection Performance on Mutual Funds, *Financial Analyst Journal*. Vol. 53, p.24-30

Daniel, K., M. Grinbaltt, S. Titman dan R. Wermers. 1997. Measuring Mutual Fund Performance with Characteristics Based Benchmark. *Journal of Finance*. Vol. 52(3), p.1035-1058.

Elton, E., M. Gruber, S. Das, dan M. Hlavka. 1993. Efficiency with Costly Infonnation: A Reinterpretation of Evidence from Managed Portfolios. *Review of Financial Studies*. Vol. 6(1), p.l-22

Fama, E.. 1972. Component of Investment Performance. *Journal of Finance*. Vol. 27(3), p.551-567.

Friend, I., dan D. Vickers, 1965. Portfolio Selection and Investment Performance. *The Journal of Finance*. Vol. XX, No.3, p.391-415.

Gallagher, D.R.. 2001. Attribution of Investment Performance: An Analysis of Australian Pooled Superannuation Funds. *Journal Accounting and Finance*. Vol. 41 (1&2), p. 41-62.

Gallagher, D.R. 2002. Investment Performance Evaluation, *Working Papers*, Sirca.

Grinblatt, Market & Sheridin Titman, 1989, Mutual Fund Performance: An Analysis of Quarterly Portfolio Holdings. *Journal of Business*. Vol.62, No.3, pp. 393-416.

Hallahan, T., dan R. Faff. 1999. An examination of Australian equity trusts for selectivity and market timing performance. *Journal of Multinational Financial Management* . 9, 387-402

Henriksson, R. 1984. Market timing and investment performance: An empirical investigation. *Journal of Business* 57(1). 73-96

Henriksson, Roy D., and Robert C. Merton. 1981. On Market Timing and Investment performance II: Statistical procedures for Evaluating Forecasting Skills. *Journal of Business*.

Jensen, Michael C. 1968. The Performance of Mutual Funds in the period 1945-1964. *Journal of Finance*. Vol. 23.

Jensen, M.C.. 1972. Optimal Utilization of Market Forecast and The Evaluation of Investment Performance. *Mathematical Methods in Investment and Finance*. Amsterdam, North Holland.

Lintner, J. 1965. The Valuation of Risk Assets and The Selection of Risky Investment in Stock Portfolios and Capital Budget. *Review of Economics and Statictics*. Vol. 47, p.13-37.

Mossin, J. 1966. Equilibrium in Capital Asset Market. *Econometrica*. Vol. 34(4), p.768-783.

Phillipas, N. 2002. Market Timing and Selectivity: An Empirical Investigation into the Features of Greek Mutual Funds Manager. *The Journal of Applied Business Research*. Vol.18(3), p.97-108.

Treynor, Jack L., dan Kay K. Mazuy. 1966. Can Mutual Funds Outguess the Markets. *Harvard Business Review*. Vol 44, July-August, pp.131-136.

Tripathy, N.P. 2006. Market Timing Abilities and Mutual Fund Performance: An Empirical Investigation into Equity Linked Saving Schemes. *Working Paper*. Indian Institute of Management

Sharpe, William L. 1964. Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risks. *Journal of Finance*. Vol. 19(3), p.425-442.

Sharpe, William L. 1966. Mutual Fund Performance. *Journal of Business*. Vol.39(2), p.119-138.

Sinclair, N. 1990. Market timing ability of pooled superannuation funds January 1981 to December 1987. *Journal Accounting & Finance*. Vol. 30, 511-565

William F. Sharpe. 1966. Mutual Fund Performance. *Journal of Business*. Vol. 39. No.1, Jan, pp. 119-138.