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# MANAGING THE PENSION FUND TO IMPROVE PORTFOLIO PERFORMANCE: AN EMPIRICAL STUDY ON EMPLOYER PENSION FUNDS IN INDONESIA

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## ABSTRACT

*The success of the pension fund management company is determined by the ability of management to manage existing resources. This study attempts to examine the effect of market timing ability, stock selection skills, company size and portfolio turnover on the performance of the portfolio on employer pension funds in Indonesia, which amounted to 64 employer pension funds, equal to 960 observations for all variables during 2014-2016. By using multiple regression test, the results showed that independent variables of market timing ability and stock selection skills have significant positive effects on portfolio performance. By contrast, the independent variables of company size and portfolio turnover have no significant effect on the portfolio performance of employer pension funds.*

**Keywords:** Pension Fund Management, Market Timing Ability, Stock Selection Skills, Company Size, Portfolio Turnover, Portfolio Performance.

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## 1. INTRODUCTION

The pension fund is a legal entity that manages and operates a program that promises retirement benefits (the article 1 of Law No. 11 of 1992). The employer pension fund (EPF) is a pension fund established by a person or entity employing employees to provide an employee pension plan. The benefit pension plan is related to the type of employment and salary, while the contribution may vary depending on the actuary calculation outcome.

There are three levels of funding quality for pension funds that provide a defined benefit retirement program. The first level of funding quality is conducted in a state of funds that is met because the amount of wealth exceeds the actuarial obligations. The second level of financing is the wealth is less than actuarial liability but greater or equal to solvency obligations. The third level funding quality is done in a state in which the wealth is less than solvency obligation, and thus, less than actuary obligation (the article 4 KMK No. 510 / KMK/06/2002). Moreover, the quality of funding is differentiated into the quality of funding that has been fulfilled (first rate) and quality of funding that has not been fulfilled (second and third level). The 2010's Annual Report of Bureau of Pension Funds suggests that the number of employer pension funds with defined benefit program are 208 pension funds. 40 per cent of the total of pension funds have first funding level, 38 per cent in the second and 22 per cent in the third level.

Niswatin and Irianto (2009) state that company performance is a reflection of management performance. Therefore, the success of the company is determined by the ability of management in managing the existing resources. Similarly, in the pension fund, to analyse whether the pension fund managers have made sufficient efforts to manage the pension fund is evaluated or measured by the performance or achievement by using assessment indicators. Davis (1995) in Barrors (2006) showed that one of the most important issues relating to the performance of pension funds is the return earned on the assets. Distribution of portfolio, along with fund management process is a key determinant of returns of pension funds. On the other hand, the administrative costs of pension funds may reduce investment returns so as to reduce pension benefits and increase costs at EPFs' defined benefit.

Moreover, the Association of Indonesian Pension Funds (ADPI) annually holds a contest on the financial performance of pension funds and will reward pension funds with the best financial performance. This is done to encourage the board in managing the pension fund with careful and professional acts. The financial performance assessed return on investment, operational cost efficiency, investment cost efficiency, optimization of investment portfolio and fund adequacy ratio. By looking at the problems faced by investors and investment managers, this study attempts to examine the effect of market timing ability, stock selection skills, company size and portfolio turnover of the performance of the portfolio. These variables were examined to analyze the ability of EPF management in managing the existing resources of pension funds.

## 2. LITERATURE REVIEW AND HYPOTHESIS

### 2.1. Pension Fund

The definition of pension funds according to the Law No. 11 of 1992 is a legal entity that manages and runs a program that promises pension benefits for participants, widows/children, associated with the achievement of a certain age and has the status as a legal entity and start activities since its endorsement by the Minister of Finance. There are 2 kinds of pension fund namely Employer Pension Fund and Financial Institution Pension Fund (Article 2 of the Act No. 11 of 1992). EPF shall be defined as a pension fund established by a person or entity employing employees, as the foundation to provide a defined benefit pension plan or a

defined contribution pension plan for the benefit of some or all of its employees as a participant and which creates liability to the employer. According to the World Bank (2006), Employers' Pension Fund is a voluntary pension scheme for employees in the private sector. Pension Fund is formed by a bank or insurance company for defined contribution pension plans for individuals, both employees and self-employed workers who separate from EPF for employees of either the bank or related insurance company.

## **2.2. Portfolio Performance**

Sharpe (1966) proposes reward-to-variability ratio known as the Sharpe ratio. Unlike the Treynor ratio based on the security market line (SML), the technique was taken from the capital market line (CML) and measured the excess return of the portfolio relative to the total portfolio risk as measured by standard deviation. The benchmark size is based on the slope of the CML which is a market risk premium divided by the standard deviation.

Sharpe (1995), as an portfolio expert, did not use a benchmark in measuring risks. The Sharpe measurement was formulated as a ratio of risk premium to standard deviation. This is what distinguishes the measurement of Sharpe with the other models. The standard deviation is a total risk that is the result of systematic and unsystematic risk. If the portfolio is highly diversified then the total risk will be almost equal to the systematic risk, since the risk is not close to zero. Thus, Sharpe measurement is a model capable of providing better information for calculating the systematic and unsystematic risks.

## **2.3. Market Timing**

The issue regarding manager unawareness toward the optimal capital structure and investors in the capital market has become increasingly complex at the time the management should decide determinant "when" optimal capital structure is occurred. Hence, market timing is a strategy for decision making of either purchasing or selling of a financial asset, including stock, by trying to predict future market price movements. The prediction may be based on a market or economic outlook due to the technical or fundamental analysis. This is an investment strategy based on aggregate market prospects, not for certain financial assets.

Market timing ability is the ability of fund managers to take the right policy to buy or sell certain securities to establish a portfolio of assets at the right time. Market timing activity related to the realization of the future forecast of the market portfolio. If the investment managers believe that the investment can yield better than the average estimate of market return, they will adjust their portfolio risk levels as an anticipation of market changes (Kon, 1983). Market timing ability is a measure of the capability of the investment manager to manage the portfolio in terms of anticipation of market changes whereby if the market declines, managers will change the portfolio composition they manage to lower volatility securities (Dennis & Manurung, 2004).

Manurung (2006) states that market timing refers to time to make decisions either buy or sell the investment instrument by using mechanism of trading strategy, that is the decision to use one or two strategic or right indicators. Kusumawati and Danny (2006), explain that market timing theory shows more important implications and uses of debt or equity options by finding optimal leverage ratios.

H1. Market timing ability has positive and significant impact on the portfolio performance of EPFs in Indonesia.

## **2.4. Stock Selection Skill**

Muhardi (2009) states that stock selection skill is the ability of the investment managers in selecting the right stocks to be included in the portfolio as well as the potential to generate

returns expected by investors. Stock selection is the ability of portfolio managers in selecting the appropriate securities (Dennis & Manurung, 2004). The ability of managers to invest in making a portfolio in anticipation of market changes is necessary, especially for emerging markets whose primary concern is performance evaluation (Suppa Aim, 2010). Selection of appropriate stocks and being in bullish condition in the future will be able to bring a high return.

H2. Stock selection skill has positive and significant impact on the the portfolio performance of EPFs in Indonesia.

## 2.5. Company Size

The size of the company can mean a scale which companies can be classified according to the size of a variety of ways, one of which is the size of assets. The size of the company can determine the size of the assets owned by the company. It may mean that the greater the assets owned, the higher the increased amount of productivity. It will generate profits that increase and affect the rate of tax payments.

Sujoko and Soebiantoro (2012) state that the size of a large company can be an indicator that the company is experiencing growth, and the size of company can be reflected in the total value of the assets listed on the balance sheet. Companies with a large asset amount indicate that the company has reached the stage of maturity. At that stage, the company is assumed to have a positive cash flow and good prospects for a relatively long period of time. In addition, Daniati and Suhairi (in Sofyaningsih & Hardiningsih, 2011) state that firms with large total assets also reflect that the relatively more stable and more capable of generating profits.

The large size of the managed assets provides flexibility and improves bargaining power as well as facilitates the creation of economic scale that can have an impact on cost reduction that will positively affect performance (Block & Gallagher, 1988). Brigham and Houston (2012) state that the size of a company can be classified based on various ways including by size of income, total assets, and total equity. Companies with great total assets indicate the relatively more stable and capability to generate greater profits than those with have little or low total assets. Chaibi, Alioui and Xiao (2015) show that the size of the company has significant impact on portfolio performance. Duy and Phuoc (2016) reveal that there were significant and negative relationship between firm size and stock returns.

H3. Company size has a positive and significant impact on the portfolio performance of EPFs in Indonesia.

## 2.6. Portfolio Turnover

Portfolio turnover, is a measure of how aggressive investment managers in the activities of selling and buying portfolios (Reid & Millar, 2004). Furthermore, Reid and Millar (2004) explain that a high portfolio turnover indicates the active investment managers in trading activity. This means that the greater the investment manager do the trading process, the higher the returns the resulting activity.

Empirical evidence suggests that investment managers adjust portfolios dynamically based on economic information, invest in small shares and value, and capitalize on momentum strategy. Great ownership of funds will be more profitable than smaller funds. This is because of the large funds allows managers to be able to diversify their fixed costs and have more access to resources. In addition, a large fund managers will have better investment opportunities than small fund managers (Ciccotello & Grant, 1996). Wu (2014) shows that there is an interaction between the performance of the investment fund and portfolio turnover. Tehrani, Ahmadinia, and Hasbaei (2011) reveal that there is a significant relationship between the performance of the investment fund and portfolio turnover.

Droms and Walker (1994) find a positive relationship between size and performance of the fund. Chen et al. (2004) revealed a negative correlation between the size and the performance in large American mutual funds in 1962-1999. The negative relationship is accrued because of its liquidity constraints. Low (2012) shows that the funds characterized by high exposure to the broad market movement are likely to have a good return, but poor selectivity performance, indicating their specialization activity among investment managers. This suggests that large funds increase the return time of managers, and reflect the substantial financial efficiency in response to overall market movements.

H4. Portfolio turnover has a positive and significant impact on the portfolio performance of EPFs in Indonesia.

### **3. RESEARCH METHODS**

#### **3.1. Research Variable**

The independent variables in this study consists of four variables. First, market timing ability, refers to the ability of the investment managers in adjusting asset portfolios to changes and price movements that occur on time. The variable of stock selection skill is the ability of the investment managers in selecting the right stocks. The company size is total assets owned by the company. In general this measure shows a company's economic scale. The larger the company's economic scale, the larger the size of the company. The variable of portfolio turnover is a measure of how aggressive investment managers in the activities of selling and buying portfolios (Reid & Millar, 2004). In addition, the dependent variable in this study is portfolio performance, measured using Sharpe method.

#### **3.2. Sampling**

The samples are the Employer Pension Fund (EPF), which has been registered and published by the Financial Services Authority. Based on that, the data is available from a variety of websites such as [www.ojk.go.id](http://www.ojk.go.id), [www.bi.go.id](http://www.bi.go.id). All the variables used in the study is taken from January 1st 2013, to December 31, 2016. After passing these criteria, the final sample is as many as 95 EPF or 4,560 samples. This study, however, only use 64 sample of EPFs, and 5 variables. Every sample was observed in three consecutive years of 2014-2016. Thus, the overall observations used in further analysis is as many as 960 observations, obtained from the calculation of 64 EPFs x 5 variables x 3 years observation.

#### **3.3. Data Analysis Method**

The method of analysis used in this study is the multiple regression test, along with the classical assumption test (normality test, autocorrelation test, heteroscedasticity test, multicollinearity test), coefficient of determination test ( $R^2$ ),  $F_{value}$  test and t test.

### **4. RESULTS**

#### **4.1. Assumptions for Analysis of Variance (ANOVA)**

The test of assumptions for ANOVA examined in this study include normality test, autocorrelation test, heteroscedasticity test, and multicollinearity test. Normality test is a test to analyze whether the distribution of sample data came from a normal population or not ([staffnew.uny.ac.id](http://staffnew.uny.ac.id)). In this study, the normality test was conducted by Kolmogorov-Smirnov Test. The basis of his judgment is by looking at the value of Kolmogorov-Smirnov Z and the significance level.

Multicolinerity test aims to determine the level of correlation between the independent variables and the dependent variable in a multiple linear regression tests. The effect of multicollinearity is to complicate the interpretation of the contribution of an independent variable from a set of predictors in a regression model (Ghozali, 2007). The basis of the assessment of the test is indicated by the value of tolerance and variance inflation factor (VIF). The cut off values that are usually used to indicate the presence of multicoloniarity is the tolerance value  $<0.1$  or equal to  $VIF > 1$ .

Heteroscedasticity test aimed at testing the regression model occurred the inequality of variance from residual, from one observation to another. This research used Glejser Test as a proxy heteroscedasticity. The value of significance that greater than 0.05 shows that there are no heteroscedasticity.

The autocorrelation test aims to determine whether there is a correlation between variables within a particular observation period, compared with the previous period. This study uses autocorrelation test with respect to the characteristics of the data in the form of time series data. Autocorrelation in this study using a test Durbin Watson, indicated by the value of  $d$  obtained compared to  $dl$  and  $du$  in the table. If the value of  $d < dl$  or  $d > 4-dl$ , it means that there is autocorrelation, while if the value of  $d$  lies between  $4-du$  and  $4-dl$ , there is no autocorrelation.

The result of Kolmogorov-Smirnov test, as an indicator of normality, shows the value of each variable, respectively, is 3.344 (0.000 sig.), 3.969 (0.000), 0.650 (0.792), 6.433 (0.000), and 1.351 (0.052), for the variables of market timing ability (X1), stock selection skill (X2), company size (X3), portfolio turnover (X4), and portfolio performance (X5).

The Durbin Watson value as a proxy of the autocorrelation shows the value of 2.048. Furthermore, the significant value in Glejser test showed a value of 0.004, 0.016, 0.104 and 0.883, respectively for the independent variables of market timing ability (X1), stock selection skill (X2), company size (X3), and portfolio turnover (X4). Finally, the multicolonerity test shows the tolerance value less than 1, and VIF more than 1.

**Table 1** Assumptions for Analysis Of Variance (ANOVA)

Assumptions	Measures	All variables	X1	X2	X3	X4	X5
Normality (One-Sample Kolmogorov-Smirnov Test)	Kolmogorov-Smirnov Z		3.344	3.969	.650	6.433	1.351
	Asymp. Sig. (2-tailed)		.000	.000	.792	.000	.052
Autocorrelation	Durbin-Watson	2.048					
Heteroscedasticity	Glejser Test		.004	.016	.104	.883	
Multicolinerity (Collinearity Statistics)	Tolerance		.328	.329	.941	.976	
	VIF		3.051	3.036	1.063	1.024	
X1 = market timing ability, X2 = stock selection skill, X3 = company size, X4 = portfolio turnover, X5 = portfolio performance							

#### 4.2. Coefficient of Determination (R<sup>2</sup>)

The coefficient of determination aims to measure how far the ability of the model in explaining the variation of the dependent variable (Ghozali, 2005). The basis of coefficient of determination is  $0 < R^2 < 1$ . The test results show the R<sup>2</sup> value of 0.087, or equal to 8.7 per cent of explainability. It explicitly shows that the relatively small influence of independent variables studied on the capability to explain the dependent variable of portfolio performance.

**Table 2** Coefficient of Determination (R<sup>2</sup>)

<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
.325 <sup>a</sup>	.106	.087	.243
Predictors: (Constant), Market Timing Ability, Stock Selection Skill, Company Size, and Portfolio Turnover.			
Dependent Variable: portfolio Performance			

#### 4.3. The F test

The F test aims to know whether all the independent variables incorporated into the model simultaneously have an influence on the dependent variable (Ghozali, 2005). Basic assessment is by comparing the value of  $F_{table}$  and  $F_{value}$  with a confidence level of 95 per cent or a significance level of 5 per cent. If  $F_{value} > F_{table}$ , the hypothesis stating that independent variables simultaneously have a significant influence on dependent variable is accepted. The test results show that the  $F_{value}$  of 5.538 with a significance level of 0.00 or below the level of significance of 0.05. These results reveal that all the independent variables (market timing ability stock selection skill, company size, portfolio turnover) are able to simultaneously influence the independent variable of portfolio performance.

**Table 3** The testing result of F test

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	1.311	4	.328	5.538	.000 <sup>a</sup>
Residual	11.064	187	.059		
Total	12.375	191			
Predictors: (Constant), portfolio turnover, stock selection skill, company size, and market timing ability					
Dependent Variable: portfolio performance					

#### 4.4. Partial test (t test)

The t test was conducted to show how far the influence of each independent variable is able to explain the variation of dependent variable (Ghozali, 2005). This test is useful to analyze whether each of the independent variables have an influence in accordance with the proposed hypothesis. Simply put, this test is useful for testing the hypothesis.

The result of statistic test on the first hypothesis which states that there is a positive influence of market timing ability on portfolio performance shows that market timing ability has a positive and significant effect on portfolio performance. This is indicated by the value of coefficient ( $\beta$ ) of 0.077, t value (3.944), and significance level of 0.00. Thus, the first hypothesis is accepted.

**Table 4** Hypothesis Testing

Items	$\beta$ Coefficients	t	Sig.
(Constant)	-.176	-.707	.481
Timing_ability	.077	3.944	.000
Stock_selection	2.938	4,078	.000
Company_size	.011	1.129	.260
Portf_turnover	.526	.634	.527
Predictors: (Constant), Market Timing Ability, Stock Selection Skill, Company Size, and Portfolio Turnover Dependent Variable: Portfolio Performance			

The second hypothesis states that there is a positive and significant effect of stock selection skill on the portfolio performance. The test results show that this hypothesis is accepted, indicated by the positive value of  $\beta$  coefficient, t value and significance value, respectively 2.938, 4.078, and 0.000.

The result of statistical test on the third hypothesis which states that there is a positive and significant influence of firm size on portfolio performance shows the  $\beta$  coefficient value of 0.011, and the t value of 1.129. However, although the coefficient value indicates a positive value, the significance value of 0.260 is above the allowable level of significance of 0.05. As a result, the third hypothesis is rejected.

The result of statistical tests on the fourth hypothesis which suggested a positive effect of portfolio turnover on the portfolio performance indicates the value of the coefficient ( $\beta$ ) of 0.526, the value of t (0.634), and the level of significance of 0.527. Thus, the fourth hypothesis be rejected.

## 5. DISCUSSION

Measurement and evaluation of important investment portfolio performance made by investors is by determining whether the portfolio has been established already in accordance with the investment objective of achieving optimal returns at particular risk. One performance measure of the most recognized investment portfolio into investment analysis and risk management is the Sharpe Ratio (Gitman, 2009). This ratio considering the absolute risk with the assumption that the return of normal distribution has a utility function whose arguments only expected the return and variance. In fact, not all the data return will have the appropriate number of samples normal distribution requirement. An example is the pension fund investment portfolio return that is usually presented in annual form and available only a few years as suggested by Arsanto (2006), Satiti (2013) and Anjaningrum (2014).

Regarding the research results of the positive influence of stock selection skill on the portfolio performance, Murhadi (2009) and Alexadri (2014) show a positive effect on the stock selection skills on the performance of mutual funds. Moreover, Sehgal and Jain (2011) and Murhadi (2009) conducted a study on market timing performed by the investment manager, show its significant effect on the performance of mutual funds.

Reid and Millar (2004) show that a high portfolio turnover indicates the active investment managers in trading activity. The higher level of investment managers involve in the process of trading activity, the higher the generated return will increase. The high turnover rate indicates the price changes of assets owned by mutual funds. Reid and Millar's (2004) research shows a positive and significant influence of turnover portfolio on the mutual fund performance. However, different result is stated by Chin Wu (2014) demonstrating that high turnover rate which will result in increased transaction costs. The more investment managers make transactions, the higher the risks will be faced. Mutual funds have a high turnover rate



will likely affect of high transaction costs. Thus, this research result of insignificant effect of portfolio turnover on the portfolio performance of employer pension funds, is in line with Chin Wu (2014) showing a negative influence between portfolio turnover on the fund performance.

## 6. CONCLUSION

In general, this study attempts to test various antecedents in an effort to improve portfolio performance. Several choices of ways of investing funds provide a variety of options for investors to invest funds. Investors who have the courage to take a risk or so-called speculative investors can place their funds on stocks and mutual funds because of high profit opportunity. However, investors who minimize risks in investing may choose to invest their funds into low-risk and fixed-income investing instruments. Basically, portfolio theory started from the assumption that investors have the desire to get a big profit with a minimum level of risk. Portfolio theory emphasizes the effort in finding the optimal combination of investment instruments that provide the maximum level of profit with a certain level of risk.

The test results prove that the variables of market timing ability, stock selection skill statistically have significant positive effects on the portfolio performance of employer pension funds in Indonesia. By contrast, the independent variables of company size and portfolio turnover have no significant effects on the performance of the portfolio. These results indicate that the company's pension funds examined in this study have capable market timing ability. In other words, this indicates the ability of fund managers to take appropriate policies relating to pension funds to buy or sell certain securities to establish a portfolio of assets at the right time, so as to have a significant effect on the performance of the portfolio. Similarly, the ability of pension fund investment managers in selecting the right stocks for inclusion in the portfolio is considered high, so the potential to generate returns expected by investors. In the context of this study, this value is reflected by a positive and significant value variable stock selection skill on portfolio performance.

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