UNIVERSITY OF INDONESIA

ANALYSIS OF INDONESIAN EQUITY MUTUAL FUND PERFORMANCE JANUARY 2008-MARCH 2012 USING SHARPE RATIO, TREYNOR MEASURE AND MARKET TIMING

THESIS

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FACULTY OF ECONOMICS
MASTER OF MANAGEMENT STUDY PROGRAM
JAKARTA
JULY 2012

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Submitted as one of the requirement to complete Magister Management study program

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STATEMENT OF ORIGINALITY

This thesis represents my own effort,

any idea or excerpt from other writers in this final paper

have been acknowledged and referenced correctly.

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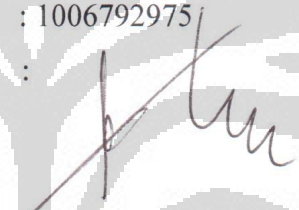

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Date : 04 July 2012

PREFACE

For every ends there is new beginning. This thesis may be my final project as one of the requirement to complete my study in Magister Management of University of Indonesia (MMUI), but for as long as I shall live; it is by no means my last contribution to the society. I believe we are created in this world for a purpose and we are part of the bigger plan of our Creator. I want to thank God for the empowerment and strength to carry out this thesis and my study.

I also realize that this thesis and my study may not be possible without the support and contribution of countless of people whom I cannot list one by one. I want to take this opportunity to thank my family; my wife Liana and my beloved daughter Kevia; for their patience and understanding. I also want to thank my parents, for without them I will not be here; thank you for the great care and guidance you have given me.

For sure, this thesis may not be possible without Mr. Eko Rizkianto, ME as my advisor of this thesis; thank you for your time, suggestion, and effort to counsel me. I also like to extend my thanks to Mr. Imo Gandakusuma, MBA and Dr Sylvia Veronica N.P. Siregar that gives invaluable suggestion to improve this thesis.

I would like to thanks all lecturers that have taught me during the study in MMUI; this thesis will not be possible without the knowledge that you taught me. I would also like to thank Prof. Rhenald Kasali, Ph.D and the management, staff and workers of University of Indonesia at large, and specifically in MMUI; thank you for dedication and support for the students of MMUI. And the hardship seems less of a burden when you have friends that stood by your side. Great things come from friendship; and I like to thank all friends and classmates in MMUI for the companionship, sharing and support.

Finally, I believe we all are investor to a certain degree, and I hope that this study can benefit anyone who read this thesis.

Jakarta 02 July 2012

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STATEMENT OF AGREEMENT OF PUBLICATION OF FINAL ASSIGNMENT FOR ACADEMIC PURPOSE

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For the purpose of the advancement of knowledge and academic, agree to give University of Indonesia a **Non-exclusive Royalty-Free** right on my final assignment with the following title:

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Statement made in : Jakarta

Date : 02 July 2012

Signature

(ANTON)

ABSTRAK

Nama : ANTON

Program Studi : Magister Manajemen

Judul : Analisis Kinerja Reksa Dana Saham Indonesia periode Januari 2008 – Maret 2012 menggunakan *Sharpe Ratio, Treynor Measure* dan *Market Timing*

Reksa dana adalah salah satu alternatif untuk investasi yang dikelola oleh perusahaan investasi. Penelitian ini mencoba untuk melihat kinerja reksa dana saham di Indonesia pada periode Januari 2008-Maret 2012 menggunakan *Sharpe Ratio*, Treynor Measure, model *Henriksson-Merton* dan model *Treynor-Mazuy* untuk *market timing*. Tujuan dari penelitian ini adalah untuk melihat hubungan antara *Sharpe Ratio*, *Treynor Measure* dan *market timing* dengan kinerja reksa dana saham, persistensi dari kinerja reksadana saham, dan untuk melihat apakah pengukuran-pengukuran tersebut dapat digunakan untuk memprediksi kinerja reksadana saham tersebut di periode selanjutnya. Dalam penelitian ini ditemukan bahwa meskipun terdapat indikasi adanya *Sharpe Ratio*, *Treynor Measure* dan *market timing* pada reksa dana dengan performa baik pada periode yang sama, pengukuran-pengukuran tersebut tidak dapat digunakan untuk melihat persistensi kinerja maupun kinerja reksadana di periode mendatang.

Kata Kunci : Reksa dana, *Henriksson-Merton, Treynor-Mazuy, market timing, Sharpe ratio, Treynor Measure*

ABSTRACT

Name : ANTON

Study Program : Master of Management

Title : Analysis of Indonesian Equity Mutual Fund Performance January 2008 - March 2012 Using Sharpe Ratio, Treynor Measure and Market Timing

Mutual fund is one of the alternatives for investment that is managed by investments companies. This study tries to see the performance of Indonesian equity mutual funds in January 2008-March 2012 using Sharpe Ratio, Treynor Measure, Henriksson-Merton model and Treynor-Mazuy model for market timing. The goal of this study is to find the relation of Sharpe Ratio, Treynor Measure, Henriksson-Merton and Treynor-Mazuy model for market timing to its performance, persistence of performance, and to see if these measures can be used to predict future performance. This study found that although there is an indication that good Sharpe Ratio, Treynor Measure and market timing in the observed period as a whole, these measurement does associate with the persistence of the mutual funds performance and cannot be used as predictor for future performance.

Keywords : mutual funds, Henriksson-Merton, Treynor-Mazuy, market timing, Sharpe ratio, Treynor Measure

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CHAPTER 1

INTRODUCTION

1.1 Background

Investing is an act of delaying present consumption in order gain better satisfaction in the future from the amount invested. These investments can be in the form of real assets like house and land, or it can be in the form of financial asset. When it comes to investment, investors would like to have investment with highest return. But the higher return, investors will have to pay a price in term of accepting higher investment risk. It can be concluded that there are risk-return trade-off in investments. (Bodie, Kane, and Marcus, 2011)

One of the methods to minimize the risk is by building a portfolio of investment. An investment portfolio is a collection of assets owned by investor. As explained by Bodie, Kane, and Marcus (2011) an investment asset could be a real asset like real estate or financial asset like bond and stock. Because almost everyone owns a set of assets, almost everyone owns a portfolio. The construction of a portfolio could be the result of haphazard or unrelated decision, or could be a result of deliberate planning, as explained by Elton, Gruber, Brown, Goetzmann (2011).

Mutual funds as portfolios managed by investment companies provide alternatives to investors. Since the mutual funds is managed by professional investment managers, investors who do not understand how to invest in various securities or do not have time and resource to research the various securities, may opt to buy mutual funds as an alternative investment.

In 2012, Indonesian mutual funds industry still experiencing significant growth. Bapepam-LK website recorded total asset of Mutual Funds in Indonesia about Rp101 billion in Feb 2001. But a decade later, in Feb 2011, Bapepam-LK recorded mutual funds total asset about Rp139 trillion. These numbers mean the mutual funds growth more than 1300 times in a decade in term of net asset. In Feb 2012, Bapepam-LK reported mutual funds total asset of about Rp167trillion. In term of number of units, there was only about 100 million unit of mutual funds reported by Bapepam-LK in February 2001, but in February 2011 there are more

than 83 billion unit of mutual funds and there are no less than 100billion unit of mutual funds in Indonesia in February 2012. Clearly, the mutual funds industry in Indonesia is still growing and provides interesting alternatives to investors.

This paper tries to study the performance of equity mutual funds in Indonesia in the period of Jan 2008-Mar 2012. This study will try to look into the equity mutual funds using two measurement; Sharpe Ratio and Henriksson-Merton market timing. This study will also try to find persistence in the return of Indonesian equity mutual funds in the period observed and to relate it with the Sharpe Ratio and Henriksson-Merton market timing.

1.2 Problem Identification

Mutual fund, just like other portfolio, could increase (gain) or decrease (loss) in value. Even when professional investment managers manage the portfolio, question still remain in investor's mind.

- How is the equity mutual fund performance compared to benchmark portfolio, its Sharpe Ratio, Treynor Measure and market timing? How are these measures using various benchmark proportions?
- Is there any persistence in the equity mutual fund in the period observed? How is the relation of market timing ability with the persistence of equity mutual funds return?
- Can Sharpe Ratio, Treynor Measures and market timing ability be used to identify mutual fund with good return?

1.3 Objectives

The objective of this study is:

- To evaluate and compare the mutual fund performance with the benchmark average return, Sharpe Ratio, Treynor Measure and market timing ability of equity mutual fund in Indonesia during January 2008-March 2012 using various benchmark.
- To evaluate the yearly performance of mutual funds to find if there is any persistence in the performance of mutual funds in the period observed and its relation with Sharpe Ratio, Treynor Measure market timing ability.

- To evaluate if Sharpe Ratio, Treynor Measure and market timing can be an indicator for mutual fund with the good performance for the next period.

1.4 Benefit of the Study

For investors: evaluating the mutual fund performance against the Sharpe Ratio, Treynor Measures, and market timing ability may provide indication whether these measures can be used to predict the mutual fund with good performance. It is believed that the outcome of this study will benefit investors in choosing the mutual fund.

For further study: this study tries to find if there is any relation of equity mutual funds performance against measures such as Sharpe Ratio, Treynor Measure, and market timing ability. The same concept could be used to analyze other type of mutual funds. This study can be extended by analyzing more factors, characteristics, or measures in relation to mutual funds performance not covered in this study.

1.5 Scope of Study

This study will evaluate only equity mutual funds that are registered in Bapepam-LK and active from January 2008 until March 2012. Because of this, this study is not free from survivorship bias, and this study does not cover the impact of survivorship bias in mutual funds.

This study only analyzes regular equity mutual funds. Islamic or Syariah equity mutual funds are not included in the analysis to ensure a fair comparison. In the following section the regular equity mutual funds will simply be referred as equity mutual funds. Due to the time limitation to submit this thesis, other type of mutual funds like bond funds, money market funds, and asset allocation funds are not included in the analysis. But it is believed that the same principle can be applied in these types of funds as well.

The mutual fund return is evaluated based on its Net Asset Value, and any dividend payout during the period is not taken into account for the calculation of the return. This study only evaluates the performance of the mutual fund based on its weighted return, standard deviation, Sharpe Ratio, Treynor Measure, Henriksson-Merton model and Treynor-Mazuy model for market timing.

1.6 Framework of Thesis

This thesis is structured with the following format:

Chapter 1: Introduction. This chapter consists of background of study, problem identification, purpose, scope, and methodology.

Chapter 2: Literature Review. This chapter will review the investment, portfolio, Sharpe Ratio, Henriksson-Merton model for Market timing theory. Some background on mutual fund in Indonesia will also be covered here.

Chapter 3: Research Methodology. This chapter will cover in more depth the method that will be used in this study.

Chapter 4: Result and Analysis. This chapter describes the result based on the method defined in the preceding chapter and provides the analysis of the result.

Chapter 5: Conclusion and Recommendation. This chapter concludes this thesis. Recommendation for future study is provided in this chapter as well.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction to Mutual Fund

According to Bodie, Kane, and Marcus (2011), mutual funds are defined as the common name for open-ended investment companies. Investment companies are financial intermediaries that collect funds from investors and invest those funds in wide range of securities and other assets. Pooling of funds is the key idea behind investment companies such as mutual funds. Investment companies perform several important functions for their investors:

- Record keeping and administration. Investments companies issue periodic status report, which requires them to keep track of capital gains distributions and dividends of the securities.
- Diversification and divisibility. Because investment companies pool the fund from their investors, each investor can own fraction of many securities. The investment managers allow the individual investors to own many different securities with relatively small funds, something that cannot be done by individual investor normally.
- Professional management. Investment companies can manage the fund professionally to achieve superior investment result for their investors.
- Lower transaction costs. Because of the large transaction blocks of securities, investment companies can achieve substantial saving on fees and commission.

Each investor has a claim to the portfolio established by the investment company in the form of shares. The value of each share is called the Net Asset Value or NAV. Net Asset Value equals to market values of assets minus liabilities expressed on per-share basis (Bodie, Kane, and Marcus, 2011).

$$NetAssetValue = \frac{MarketValueofAsset - Liabilities}{NumberOfShares} \quad (2.1)$$

The rate of return of mutual fund is measured as the increase or decrease in Net Asset Value plus income distribution such as dividends or distribution of capital gains expressed as a fraction of Net Asset Value at the beginning of the investment period. (Bodie, Kane, and Marcus, 2011). The rate of return can also be expressed using the following formula:

$$RateOfReturn = \frac{NAV_1 - NAV_0 + Income}{NAV_0} \quad (2.2)$$

Where:

NAV_0 = Net Asset Value at the beginning of the period

NAV_1 = Net Asset Value at the end of the period

In Bodie, Kane, and Marcus (2011), the mutual funds are classified into the following groups:

- Money Market Funds. These funds invest in money market securities.
- Equity Funds. These funds invest primarily in stocks. But these funds may hold small portion of fixed-income or other type of securities.
- Sector Funds. Some equity funds concentrate on a particular industry. These funds are called sector funds.
- Bond Funds. These funds invest primarily in fixed income sector.
- International Funds. These funds invest in securities worldwide.
- Balance Funds. These funds hold both equity and fixed income securities in relatively equal and stable proportion.
- Asset Allocation and Flexible Funds. These funds may hold both stocks and fixed income securities like bonds. The difference with Balance funds is that these funds may vary the proportion allocated to each market according to portfolio managers forecast of each sector.

- Index Funds. These funds try to match the performance in a particular market index. They do so by buying shares in securities included in particular index in proportion to each security representation of that index.

In Indonesia, Mutual Fund is regulated in *UU No. 8 Tahun 1995* about capital market. In chapter 1 clause 1 of this regulation, Mutual fund; or "Reksa Dana" in Indonesian term; is defined as a vehicle to gather the fund from the society of investors which in turn to be invested into securities portfolio by Investment Managers. All the information related to mutual funds in Indonesia is available from *Badan Pengawas Pasar Modal dan Lembaga Keuangan* or Bapepam-LK in short. As of 2010, there are 145 active mutual funds in Indonesia (Bapepam-LK, 2011). The mutual funds in Indonesia are divided into 2 big groups based on the form of the mutual funds:

- Company Funds. These funds are formed as a company that manages various securities. Investors who are interested in investing in this type of funds may buy the stock of the company.
- Collective-Investment-Contract Funds. Just as the name implies, these funds are formed based on a contract between Investment Manager and Custodian Bank. Unlike the company funds, the investors who are interested in investing to this type of fund should buy the share of the fund instead of the company stock.

Based on the liability of Investment Management related to its fund share, there are 2 type of mutual fund:

- Close-End Funds. These funds issues the shares and sell it to investors, but does not have liability to buy back the shares it sold to investors. Investors can only sell or pass these shares to other investors that interested in owning the fund.
- Open-End Funds. These funds issues and sell the shares to investors, and have liability to buy back the shares it sold to investors if the investor decided to sell them.

In the following passage, unless otherwise stated, when mutual fund in Indonesia is referred, a close-end and collective-investment-contract fund is assumed.

Based on the securities or investment portfolio the fund holds, the mutual funds are classified into the following groups:

- Equity Funds. These funds must invest at least 80% of its asset into stocks.
- Bond Funds. These funds must invest at least 80% of its asset into bonds or fixed income securities.
- Money Market Funds. These funds must invest its asset in short term debt instrument with less than 1 year maturity. These funds are not allowed to invest in equity and considered a low risk investment, positioned as alternatives for short term investment.
- Asset Allocation Funds. These funds invest in equity, bonds, and money market in a proportion that is difference than equity funds, bond funds, and money market funds.

Looking at one of the prospectus for mutual fund (Panin, 2007), the fee can be classified into the following:

- Cost borne by the fund. These costs are treated as cost of managing the fund and will reduce the Net Asset Value of the fund. These fees includes investment manager fee, custodian bank fee, securities transaction fee, accountant and legal fee, renewal of prospectus, mailing cost for confirmation letter, and tax that occurs with the fee and cost incurred above.
- Cost borne by investment managers. These are cost that are absorbed by investment managers and should not be charged to investors and should not reduce the Net Asset Value. These costs includes cost of creation of mutual funds, initial prospectus, initial accountant and legal fee, administration cost, marketing and distribution cost, and all the cost related to liquidation or closure of the mutual funds.
- Cost borne by investors. These costs are related to the purchase, selling, and holding of the mutual fund's share, including the purchase fee, selling fee, wire transfer fee and tax for investors.

2.2 Portfolio Return and Risk

Investment involves delaying the present consumption so that investor can gain better satisfaction for the future consumption (Bodie, Kane, and Marcus, 2011). This implies that investors are expecting greater relative return on the value of the investment in the future. Looking from the financial perspective, the return can be expressed in Holding Period Return (HPR) with the following formula (Bodie, Kane, and Marcus, 2011):

$$HPR = \frac{EndingPrice - BeginningPrice + Payout}{BeginningPrice} \tag{2.3}$$

Investors try to increase the value of their investment so that it would worth more in the future. But investment also involved risk. The definition of risk is always a bit controversial in financial world. The idea is to be able to measure risk. One simple definition of risk is the probability of loss. But probability alone does not measure the magnitude of the loss. The preferred unit of measure for risk is standard deviation (McDonnell, 2008). In considering risk, the concern is with the variability (or dispersion) of return from the average or mean return. Standard deviation is one of the measures used to calculate variability. The standard deviation can be expressed in the following formula:

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n}(r_i - \bar{r})^2}{n}} \tag{2.4}$$

Where:

σ = Standard Deviation

n = number of data

r_i = ith data

$\bar{r}$ = mean of the data

When measuring reward or return, expected HPR of the investment is compared with the risk-free rate. Risk-free rate is the rate of return that can be earned by leaving the money in risk-free assets like the T-bills, money market

funds, or the bank. The difference between the expected HPR and risk-free rate is called risk premium, while the difference between actual HPR and risk-free rate is called excess return. In other word, the risk premium is the expected value of the excess return and the standard deviation of the excess return is a measure of its risk. Financial analysts generally assume that investors are risk averse in the sense that people expect higher risk premium from investment with higher risk (Bodie, Kane, and Marcus, 2011).

Another measurement of risk is using Beta (β). Beta is calculated using the following formula (Bodie, Kane, and Marcus, 2011).

$$\beta_i = \frac{Cov(R_i, R_M)}{\sigma_M^2} \quad (2.5)$$

Where:

β_i = Beta of asset *i*

$Cov(R_i, R_M)$ = Covariance of Return of asset *i* with the return of market

σ_M^2 = Variance of market return

2.3 Mutual Fund Performance Measurement

Mutual fund performance as a portfolio should be measured by measuring return that has been adjusted for risk before they can be compared meaningfully. Some of the possible risk-adjusted performance measures for portfolio are listed below. Each measure has some appeal, but does not necessarily provide consistent assessment of performance. The reason of this is because the risk measures used to adjust the return differ substantially (Bodie, Kane, and Marcus, 2011).

- Sharpe Ratio. Sharpe ratio named after William Sharpe (1966) divides average portfolio excess return over the sample period by the standard deviation of return over that period. Sharpe ratio measures the reward to total volatility trade-off. Investors are risk averse. Given the same return they would prefer the portfolio with less risk or less variability. In order to evaluate portfolio with different returns and level of risk, Sharpe ratio could be used. The higher the Sharpe ratio indicates better combination of

risk and return. Sharpe ratio could be used to rank the portfolio in order of preference; however the magnitude of relative performance cannot be judged by using this ratio. Sharpe Ratio is calculated as the equation 2.6.

$$SharpeRatio = \frac{\overline{r_p} - \overline{r_f}}{\sigma_p} \quad (2.6)$$

Where:

$\overline{r_p}$ = average return of portfolio

$\overline{r_f}$ = average of risk free rate

σ_p = standard deviation of portfolio

- Treynor Measure. This measure similar to Sharpe Ratio, in a sense that it gives excess return per unit risk. The difference is, Treynor measure uses systematic risk instead of total risk.

$$TreynorMeasure = \frac{\overline{r_p} - \overline{r_f}}{\beta_p} \quad (2.7)$$

Where:

$\overline{r_p}$ = average return of portfolio

$\overline{r_f}$ = average of risk free rate

β_p = Beta of portfolio

- Jensen Measure. This measure is the average return on the portfolio over and above that predicted by CAPM, given the portfolio's beta and the average market return. Jensen's measure is the portfolio alpha value.

$$\alpha_p = \overline{r_p} - [\overline{r_f} + \beta_p(\overline{r_M} - \overline{r_f})] \quad (2.8)$$

Where:

α_p = Jensen's Alpha

$\overline{r_p}$ = average return of portfolio

$\overline{r_f}$ = average of risk free rate

β_p = Beta of portfolio

$\overline{r_M}$ = average return of market or benchmark

- Information Ratio. This measure divides alpha of the portfolio by the nonsystematic risk of the portfolio. It measures the abnormal return per unit risk.

$$InformationRatio = \frac{\alpha_p}{\sigma(e_p)} \tag{2.9}$$

Where:

α_p = Jensen's Alpha

$\sigma(e_p)$ = Non-systematic return of portfolio

Alpha of the portfolio does not appear to be a good predictor of future risk adjusted behavior of the investment (McDonnell, 2008), thus the Jensen's measure and information ratio is not used in this study. Since the mutual fund may not be fully differsified, Sharper Ratio is used to see the total risk to adjust the return. In addition, Treynor measure is also used in measuring the risk adjusted return with using beta as a measure of systematic risk.

In a study evaluating historical returns of various portfolios, it was shown that there is no serious deviation from normality in these historical returns. When asset returns are normally distributed, investors may assess performance using Sharpe Ratio (Bodie, Kane, and Marcus, 2011).

2.4 Market Timing

In its pure form, market timing involves shifting funds between a portfolio and a safe or risk-free asset. If bull and bear market can be predicted, the investor

will shift more into the market when before the market about to go up, and shift to risk-free asset when the market about to go down. The idea of estimating the existence of market timing was first proposed by Treynor and Mazuy (1966) by adding a squared term to the usual linear index model using a regression analysis.

$$r_p - r_f = a + b(r_M - r_f) + c(r_M - r_f)^2 + e_p \quad (2.10)$$

Where:

$\overline{r_p}$	= average return of portfolio
$\overline{r_f}$	= average of risk free rate
$\overline{r_M}$	= average return of market or benchmark
a , b , c	= coefficient of regression
e_p	= error

A similar but simpler methodology was proposed by Henriksson and Merton (1981). This study will evaluate the market timing ability using this Henriksson-Merton model. The regression formula proposed by Henriksson-Merton appears in the form expressed below (Bodie, Kane, and Marcus, 2011).

$$r_p - r_f = a + b(r_M - r_f) + c(r_M - r_f)D + e_P \quad (2.11)$$

Where:

$\overline{r_p}$	= average return of portfolio
$\overline{r_f}$	= average of risk free rate
$\overline{r_M}$	= average return of market or benchmark
a , b , c	= coefficient of regression
D	= Dummy, 1 for $r_M > r_f$, zero otherwise
e_p	= error

2.5 Benchmark Criteria

When evaluating the performance return and risk appropriate benchmark need to be chosen. Bacon (2008) defines the criteria of a good benchmark:

- Appropriate. The chosen benchmark must be relevant to the appropriate strategy.
- Investible. The portfolio manager should be able to invest in all the securities included in the benchmark.
- Accessible. It is essential that there is access not only to the return of the benchmark, but to the element that form the benchmark and their weight or proportion.
- Independent. An independent party should calculate all benchmark return to ensure fair comparison.
- Unambiguous. The chosen benchmark should be clear and unambiguous.

2.6 Previous Studies

Mutual funds have become a topic most evaluated by academics than any other group of investment vehicle (Elton, Gruber, Brown, Goetzmann, 2011). This section tries to present some of the previous study related to mutual funds performance.

Sharpe (1966) was the first to find persistence in reward-to-risk ratio in equity mutual funds (Elton, Gruber, Brown, Goetzmann, 2011). In Chang and Lewellen (1984) study, monthly return of 67 mutual funds was evaluated and little evidence of market timing was found. A recent study by Raju and Rao (2004) on mutual funds in India shows that the mutual funds manager relies on securities selection, but not much on market timing strategy. An interesting result is reported by a more recent research on market timing by Kaushik, Pennathur, and Barnhart (2010). They shows that when index like S&P 500 is used as benchmark, the sectors fund shows positive market timing ability, but not so when sector specific index is used. Their research shows that the benchmark selection may impact the outcome of the study.

More study has been done closer to home in Indonesia. A study done by Sihombing (2009) to use Sharpe Ratio, Treynor Measure, Jensen's Measure and

Appraisal Ratio to rank and choose the top 3 mutual funds to define 5 best performing mutual funds. The study done by Tjahyadi (2009) on fixed income mutual fund during 2004-2008 also shows little evidence on market timing. A study done by Christian (2009) on equity mutual funds also shows little evidence on market timing.

An interesting study done by Gunawan (2010) using Sharpe Ratio, Treynor Measure, Henriksson-Merton, and Snail Trail method shows that most of equity mutual funds in the market perform better than the benchmark chosen, but the performance of equity mutual funds are different during normal market and abnormal market. Another interesting study done by Indiastuti (2008) to form optimal portfolio out of equity mutual funds shows that not all of the mutual funds that outperform market forms the optimal portfolio. The more recent study done by Putri (2012) shows that most of equity mutual funds in Indonesia does not shows market timing ability.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Data and Sampling

This thesis uses secondary data collected for this study comes in part from the following sources:

- Mutual fund prices from www.bloomberg.com (courtesy of www.portalreksadana.com)
- Information about Indonesian mutual fund from Bapepam-LK website (www.bapepam.go.id)
- Bank Indonesia interest rate (BI rate) from Bank Indonesia website (www.bi.go.id)
- Information about Indonesia Stock Exhange (IDX) Composite Index from Yahoo! Finance (finance.yahoo.com)

Mutual funds prices from Bloomberg are the Net Asset Value (NAV) per unit of mutual fund share. Using the announcement date from Bank Indonesia for BI rate, the sample is taken from Bloomberg mutual fund daily NAV per unit and Indonesia Stock Exchange Composite Index that match the announcement date from Bank Indonesia. When the data on the exact date is not available, the nearest date after the announcement date is taken. The data is then processed and analyzed as described in the next sections.

Since the announcement from Bank Indonesia is made once a month, there is one sample every month in the period observed. According to Bacon (2008), the daily information is too noisy for long term investment portfolio and should be ignored, and monthly value for at least 36 month; as commonly used in the industry; should be used. In this study, there are 50 samples of NAV return from January 2008 until March 2012.

The BI Rate as interest rate per annum is divided by twelve to obtain the interest rate for a month. The mutual funds selected are based on the equity mutual fund available from Bloomberg, and the equity mutual funds that are active and still operational during the period observed as indicated from Bapepam-LK website.

Equity mutual fund requires 80% or more of the fund to be invested in stocks, and the remaining fund to be invested in other assets such as money market and fixed income securities. For fair comparison, the benchmark used in this study will use 3 different compositions between composite index and risk free rate. Risk-free rate is based on BI rate for a month.

- Benchmark-A. Composed based on 80% of composite index return and 20% of risk-free rate return.
- Benchmark-B. Composed based on 90% of composite index return and 10% risk-free rate.
- Benchmark-C. Composed entirely on 100% of composite index return.

3.2 Data Processing

The processing of the information is done in the following manner:

a. The data for daily equity mutual fund NAV from Bloomberg and Indonesia Stock Exchange Composite Index is collected and sampled according to the BI rate announcement date. The equity mutual that is not active for the whole period observed is excluded from analysis. The list of equity mutual fund is then cross-checked with Bapepam-LK website, as Bloomberg equity mutual funds also include unit link investment.
b. The BI rate for a month is calculated as risk free rate. The benchmark is then calculated based on this monthly BI rate and IDX Composite Index with composition stated in section 3.1 for various benchmark. The average return of monthly BI rate and benchmark is then calculated for the whole period (4 years), for the first 3 years, first 2 years, last 2 years, and for each year (12 months) starting January 2008.
c. For each equities mutual fund in the point (a) above, the following will be calculated: average return, standard deviation, Sharpe Ratio and Henriksson-Merton and Treynor Mazuy regression for the periods mentioned in point (b) above, except for yearly period. For yearly data, only the average return is computed.

3.3 Method of Analysis

After the data processing stated in previous section, the analysis in this study will be done in few steps as follows:

- First analysis will be done on the mutual funds returns, Sharpe Ratio, Treynor Measure and Market Timing for the full period observed. The market timing ability is determined by using both Henriksson-Merton and Treynor-Mazuy model at α=5%. A mutual fund is considered having market timing ability if both models give positive and significant result for market timing ability. The average return of mutual fund will be compared with average return of the benchmark to measure to see the performance of the mutual funds against the market. The mutual funds return will then be compared with the Sharpe Ratio, Treynor Measure and the market timing to see the link between them, if any. The analysis is done on various periods. First, it is done for the whole period of 4 years starting from January 2008 until March 2012. Second, analysis is done for 3 years since January 2008 until January 2011. Next, the analysis is done for the first 2 years on January 2008 until January 2010, and last 2 years on January 2010-March 2012.
- Second analysis will look into the performance of equity mutual fund every year. Since the return of mutual fund is calculated based on Net Asset Value from 2 period; the current month and previous month; the calculation of the yearly return start from the return from February on that year to the return of January the following year. For the first year, the measurement will be done for the return from February 2008 until January 2009. The average return on each mutual fund will be compared with the benchmark and risk-free rate (monthly BI rate) to see if there is any consistency in the performance of the mutual funds. The consistency of the performance will then be compared with the Sharpe Ratio, Treynor Measure, and market timing for the whole 4 years period calculated in the first analysis to see the link between them.

- The third analysis will try to evaluate the performance of mutual funds for the first 3 years by evaluating the average return, Sharpe Ratio, Treynor-Mazuy, and market timing. These measurements will be compared with the average return of the mutual fund in the fourth year to find the link between the Sharpe Ratio, Treynor Measure and market timing of the previous 3 years. This analysis is intended to find the link between the mutual funds performance with the previous years performance. The 3 years period is chosen based on industry standard of minimum 3 years (Bacon, 2008).

CHAPTER 4

RESULT AND ANALYSIS

4.1 Mutual Fund Performance Analysis

Based on the mutual fund filtering criteria, 36 mutual funds have been identified in this study. The performance analysis is made for different period in order to know the relation with Sharpe Ratio, Treynor Measures, and market timing ability:

- Full 4 years period from January 2008 until March 2012.
- Three years period is analyzed starting from January 2008 until January 2011.
- First 2 years period starting from January 2008 until January 2010.
- Last 2 years period starting from January 2010 until March 2012 is analyzed.

4.1.1 Four Years Funds Performance Analysis

The following table shows the market timing ability of the mutual funds with Benchmark-A as the comparison. The Henriksson-Merton and Treynor-Mazuy market timing regression result are shown here.

Table 4.1 Market Timing 4 Years with Benchmark-A

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8567	0.6080	0.0091	0.8624	2.1596	0.0032
Batavia Dana Saham*	0.9243	0.4346	0.0077	0.9252	1.4298	0.0056
GMT Dana Ekuitas*	0.9269	0.4453	0.0082	0.9277	1.4593	0.0062
Panin Dana Prima*	0.8981	0.4383	0.0240	0.8959	1.2573	0.0427
Mega Dana Saham	0.8304	-0.5889	0.0426	0.8293	-1.8040	0.0509
Pratama Saham	0.8940	0.4010	0.1090	0.8939	1.2651	0.1116
Pratama Ekuitas	0.8566	0.4670	0.0939	0.8553	1.3703	0.1227
Dana Ekuitas Andalan	0.9735	0.1517	0.1096	0.9732	0.4339	0.1510
NISP Indeks Saham Progresif	0.9652	0.1951	0.0484	0.9638	0.4477	0.1582
Schroder Dana Prestasi Plus	0.9699	0.1656	0.0622	0.9689	0.3947	0.1652

Table 4.1 Market Timing 4 Years with Benchmark-A (continued)

BNP Paribas Infrastruktur Plus	0.9738	0.1614	0.1107	0.9732	0.4078	0.2068
Bahana TCW Dana Prima	0.9727	0.1403	0.1632	0.9722	0.3437	0.2844
Lautandhana Equity	0.9294	0.1017	0.5049	0.9301	0.4668	0.3340
Jisawi Saham	0.9407	-0.1082	0.4479	0.9410	-0.4080	0.3671
Syailendra Equity Opportunity Fund	0.8781	0.1767	0.4406	0.8787	0.6507	0.3708
MANULIFE SAHAM ANDALAN	0.9727	0.1010	0.2933	0.9725	0.2645	0.3870
AAA BLUE CHIP VALUE FUND	0.9336	-0.1468	0.3349	0.9332	-0.4013	0.4071
Mega Dana Ekuitas	0.8371	0.2168	0.3880	0.8367	0.6361	0.4255
Portfolio Panin Dana Maksima	0.8359	0.1515	0.4914	0.8359	0.4871	0.4861
CIMB-Principal Equity Aggressive	0.9347	0.1452	0.3456	0.9340	0.3131	0.5232
Emco Mantap	0.7366	0.2004	0.5979	0.7373	0.7638	0.5267
Schroder Dana Istimewa	0.9562	0.1079	0.3091	0.9555	0.1863	0.5821
BNI Berkembang	0.8551	0.0911	0.7318	0.8556	0.4592	0.5861
Batavia Dana Saham Optimal	0.8853	0.1256	0.5771	0.8851	0.3542	0.6208
Dana Ekuitas Prima	0.9691	0.0807	0.4553	0.9689	0.1686	0.6240
Mandiri Investa Atraktif	0.9543	-0.0533	0.6966	0.9543	-0.1911	0.6596
First State IndoEquity Sectoral Fund	0.9551	-0.0311	0.7982	0.9553	-0.1680	0.6639
BNP Paribas Ekuitas	0.9759	0.0589	0.5351	0.9758	0.1221	0.6861
Manulife Dana Saham	0.9794	0.0716	0.3475	0.9790	0.0883	0.7166
Manulife Phinisi Dana Saham	0.9747	-0.0022	0.9792	0.9748	-0.0961	0.7216
Reksa Dana Danareksa Mawar Agresif	0.8629	-0.0348	0.8912	0.8631	-0.2007	0.8040
First State IndoEquity Dividend Yield Fund	0.9172	0.0354	0.8267	0.9172	-0.1272	0.8042
Reksadana Danareksa Mawar	0.9518	0.0771	0.5342	0.9515	0.0919	0.8160
Rencana Cerdas	0.9487	0.0344	0.7911	0.9487	0.0913	0.8247
Axa Citradinamis	0.9373	0.0090	0.9511	0.9374	0.0888	0.8483
Trimegah - Trim Kapital	0.9408	0.0109	0.9441	0.9408	0.0697	0.8883

*) denotes mutual funds have market timing with both method

(Source: processed data)

Using Benchmark-A as the result and at α=5%, it can be seen that only 4 mutual funds has been shown to have market timing ability by both Henriksson-Merton and Treynor-Mazuy regression. These mutual funds are: *Corfina Capital - Grow 2 Prosper*, *Batavia Dana Saham*, *GMT Dana Ekuitas*, and *Panin Dana Prima*. Using Henriksson-Merton method shows that *NISP Indeks Saham Progresif* have market timing ability, but not when using Treynor-Mazuy method. This mutual fund is not considered having market timing ability as only mutual funds that have market timing ability using both Henriksson-Merton and Treynor-Mazuy method are considered.

Based on the market timing ability regression result on Table 4.1, the mutual funds performance when compared to Benchmark-A for the whole 4 years period can be summarized in the following table.

Table 4.2 Summary of Funds in 4 Years with Benchmark-A

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	2.7778%	8.6600%	0.2520	1.1614	0.0188	No
Panin Dana Prima*	2.3348%	9.4653%	0.1838	1.3074	0.0133	Yes
Corfina Capital - Grow 2 Prosper*	1.7267%	9.4927%	0.1192	1.2738	0.0089	Yes
GMT Dana Ekuitas*	1.6838%	9.5863%	0.1136	1.3445	0.0081	Yes
Syailendra Equity Opportunity Fund*	1.5630%	10.4606%	0.0925	1.4371	0.0067	No
Pratama Saham*	1.4751%	12.1239%	0.0726	1.6764	0.0052	No
Schroder Dana Istimewa*	1.4313%	8.0547%	0.1038	1.1529	0.0073	No
Batavia Dana Saham*	1.3351%	9.1112%	0.0812	1.2756	0.0058	Yes
Schroder Dana Prestasi Plus*	1.2737%	8.0219%	0.0846	1.1554	0.0059	No
NISP Indeks Saham Progresif*	1.2686%	8.2935%	0.0812	1.1914	0.0057	No
MANULIFE SAHAM ANDALAN*	1.2313%	9.2336%	0.0689	1.3330	0.0048	No
Rencana Cerdas*	1.2166%	9.1466%	0.0679	1.3050	0.0048	No
Trimegah - Trim Kapital*	1.1682%	10.2531%	0.0559	1.4570	0.0039	No
BNP Paribas Ekuitas*	1.1665%	9.7545%	0.0586	1.4107	0.0040	No
Emco Mantap*	1.1113%	11.8186%	0.0437	1.4919	0.0035	No
Pratama Ekuitas*	1.1055%	11.5988%	0.0440	1.5684	0.0033	No

Table 4.2 Summary of Funds in 4 Years with Benchmark-A (continued)

Dana Ekuitas Prima*	1.0973%	9.8032%	0.0512	1.4130	0.0036	No
Manulife Phinisi Dana Saham*	1.0435%	8.5330%	0.0525	1.2334	0.0036	No
First State IndoEquity Sectoral Fund*	1.0108%	9.1806%	0.0453	1.3140	0.0032	No
Bahana TCW Dana Prima*	0.9925%	9.6321%	0.0412	1.3903	0.0029	No
Dana Ekuitas Andalan*	0.9834%	9.1834%	0.0423	1.3258	0.0029	No
Manulife Dana Saham*	0.9791%	8.4364%	0.0455	1.2219	0.0031	No
BNP Paribas Infrastruktur Plus	0.9326%	9.8456%	0.0343	1.4216	0.0024	No
Reksadana Danareksa Mawar	0.9319%	9.0093%	0.0374	1.2871	0.0026	No
First State IndoEquity Dividend Yield Fund	0.8537%	8.9617%	0.0288	1.2578	0.0021	No
Mandiri Investa Atraktif	0.7854%	10.2002%	0.0186	1.4594	0.0013	No
Batavia Dana Saham Optimal	0.7647%	10.6132%	0.0160	1.4640	0.0012	No
Jisawi Saham	0.6860%	9.3254%	0.0097	1.3246	0.0007	No
CIMB-Principal Equity Aggressive	0.6702%	9.5854%	0.0078	1.3571	0.0006	No
Axa Citradinamis	0.6258%	9.3257%	0.0033	1.3229	0.0002	No
AAA BLUE CHIP VALUE FUND	0.5900%	9.3858%	-0.0006	1.3278	0.0000	No
Lautandhana Equity	0.3279%	9.1463%	-0.0292	1.2916	-0.0021	No
Mega Dana Saham	0.3146%	11.0255%	-0.0254	1.4622	-0.0019	No
Reksa Dana Danareksa Mawar Agresif	0.1630%	10.9937%	-0.0393	1.4987	-0.0029	No
BNI Berkembang	0.0671%	11.1469%	-0.0474	1.5122	-0.0035	No
Mega Dana Ekuitas	-0.0039%	9.9050%	-0.0605	1.3289	-0.0045	No
Average (Rf)	0.5952%					
Average (Rm)	0.9675%					
Std Dev (Rm)	6.6974%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

It was shown in Table 4.2 that the mutual funds with higher return than benchmark also shown higher Sharpe Ratio and Treynor Measures. It can also be seen that all the mutual funds that show market timing ability are among the top

mutual funds that can beat the benchmark. But there are other mutual funds that do not have market timing ability, but perform as well or even better.

With the same method, the following Table 4.3, Table 4.4 shows the result of four years period comparing to Benchmark-B, while Table 4.5 and Table 4.6 shows the result of the four years period using Benchmark-C.

Table 4.3 Market Timing in 4 Years with Benchmark-B

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8567	0.5405	0.0091	0.8624	1.7064	0.0032
Batavia Dana Saham*	0.9243	0.3863	0.0077	0.9252	1.1297	0.0056
GMT Dana Ekuitas*	0.9269	0.3958	0.0082	0.9277	1.1530	0.0062
Panin Dana Prima*	0.8981	0.3896	0.0240	0.8959	0.9934	0.0427
Mega Dana Saham	0.8304	-0.5234	0.0426	0.8293	-1.4254	0.0509
Pratama Saham	0.8940	0.3565	0.1090	0.8939	0.9995	0.1116
Pratama Ekuitas	0.8566	0.4151	0.0939	0.8553	1.0827	0.1227
Dana Ekuitas Andalan	0.9735	0.1349	0.1096	0.9732	0.3428	0.1510
NISP Indeks Saham Progresif	0.9652	0.1735	0.0484	0.9638	0.3538	0.1582
Schroder Dana Prestasi Plus	0.9699	0.1472	0.0622	0.9689	0.3118	0.1652
BNP Paribas Infrastruktur Plus	0.9738	0.1434	0.1107	0.9732	0.3222	0.2068
Bahana TCW Dana Prima	0.9727	0.1247	0.1632	0.9722	0.2716	0.2844
Lautandhana Equity	0.9294	0.0904	0.5049	0.9301	0.3688	0.3340
Jisawi Saham	0.9407	-0.0962	0.4479	0.9410	-0.3223	0.3671
Syailendra Equity Opportunity Fund	0.8781	0.1571	0.4406	0.8787	0.5141	0.3708
MANULIFE SAHAM ANDALAN	0.9727	0.0897	0.2933	0.9725	0.2090	0.3870
AAA BLUE CHIP VALUE FUND	0.9336	-0.1304	0.3349	0.9332	-0.3171	0.4071
Mega Dana Ekuitas	0.8371	0.1927	0.3880	0.8367	0.5026	0.4255
Portfolio Panin Dana Maksima	0.8359	0.1347	0.4914	0.8359	0.3848	0.4861
CIMB-Principal Equity Aggressive	0.9347	0.1291	0.3456	0.9340	0.2474	0.5232
Emco Mantap	0.7366	0.1782	0.5979	0.7373	0.6035	0.5267
Schroder Dana Istimewa	0.9562	0.0959	0.3091	0.9555	0.1472	0.5821
BNI Berkembang	0.8551	0.0810	0.7318	0.8556	0.3628	0.5861
Batavia Dana Saham Optimal	0.8853	0.1117	0.5771	0.8851	0.2799	0.6208

Table 4.3 Market Timing in 4 Years with Benchmark-B (continued)

Dana Ekuitas Prima	0.9691	0.0717	0.4553	0.9689	0.1332	0.6240
Mandiri Investa Atraktif	0.9543	-0.0474	0.6966	0.9543	-0.1510	0.6596
First State IndoEquity Sectoral Fund	0.9551	-0.0277	0.7982	0.9553	-0.1327	0.6639
BNP Paribas Ekuitas	0.9759	0.0524	0.5351	0.9758	0.0964	0.6861
Manulife Dana Saham	0.9794	0.0637	0.3475	0.9790	0.0698	0.7166
Manulife Phinisi Dana Saham	0.9747	-0.0020	0.9792	0.9748	-0.0759	0.7216
Reksa Dana Danareksa Mawar Agresif	0.8629	-0.0310	0.8912	0.8631	-0.1585	0.8040
First State IndoEquity Dividend Yield Fund	0.9172	0.0314	0.8267	0.9172	-0.1005	0.8042
Reksadana Danareksa Mawar	0.9518	0.0686	0.5342	0.9515	0.0726	0.8160
Rencana Cerdas	0.9487	0.0305	0.7911	0.9487	0.0721	0.8247
Axa Citradinamis	0.9373	0.0080	0.9511	0.9374	0.0701	0.8483
Trimegah - Trim Kapital	0.9408	0.0097	0.9441	0.9408	0.0551	0.8883

*) denotes mutual funds have market timing with both method

(Source: processed data)

Table 4.4 Summary of Funds 4 Years with Benchmark-B

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	2.7778%	8.6600%	0.2520	1.0317	0.0212	No
Panin Dana Prima*	2.3348%	9.4653%	0.1838	1.1612	0.0150	Yes
Corfina Capital - Grow 2 Prosper*	1.7267%	9.4927%	0.1192	1.1314	0.0100	Yes
GMT Dana Ekuitas*	1.6838%	9.5863%	0.1136	1.1942	0.0091	Yes
Syailendra Equity Opportunity Fund*	1.5630%	10.4606%	0.0925	1.2765	0.0076	No
Pratama Saham*	1.4751%	12.1239%	0.0726	1.4891	0.0059	No
Schroder Dana Istimewa*	1.4313%	8.0547%	0.1038	1.0242	0.0082	No
Batavia Dana Saham*	1.3351%	9.1112%	0.0812	1.1331	0.0065	Yes
Schroder Dana Prestasi Plus*	1.2737%	8.0219%	0.0846	1.0263	0.0066	No
NISP Indeks Saham Progresif*	1.2686%	8.2935%	0.0812	1.0583	0.0064	No
MANULIFE SAHAM ANDALAN*	1.2313%	9.2336%	0.0689	1.1841	0.0054	No

Table 4.4 Summary of Funds 4 Years with Benchmark-B (continued)

Rencana Cerdas*	1.2166%	9.1466%	0.0679	1.1592	0.0054	No
Trimegah - Trim Kapital*	1.1682%	10.2531%	0.0559	1.2943	0.0044	No
BNP Paribas Ekuitas*	1.1665%	9.7545%	0.0586	1.2531	0.0046	No
Emco Mantap*	1.1113%	11.8186%	0.0437	1.3254	0.0039	No
Pratama Ekuitas*	1.1055%	11.5988%	0.0440	1.3932	0.0037	No
Dana Ekuitas Prima*	1.0973%	9.8032%	0.0512	1.2552	0.0040	No
Manulife Phinisi Dana Saham*	1.0435%	8.5330%	0.0525	1.0956	0.0041	No
First State IndoEquity Sectoral Fund	1.0108%	9.1806%	0.0453	1.1673	0.0036	No
Bahana TCW Dana Prima	0.9925%	9.6321%	0.0412	1.2350	0.0032	No
Dana Ekuitas Andalan	0.9834%	9.1834%	0.0423	1.1777	0.0033	No
Manulife Dana Saham	0.9791%	8.4364%	0.0455	1.0855	0.0035	No
BNP Paribas Infrastruktur Plus	0.9326%	9.8456%	0.0343	1.2628	0.0027	No
Reksadana Danareksa Mawar	0.9319%	9.0093%	0.0374	1.1433	0.0029	No
First State IndoEquity Dividend Yield Fund	0.8537%	8.9617%	0.0288	1.1173	0.0023	No
Mandiri Investa Atraktif	0.7854%	10.2002%	0.0186	1.2964	0.0015	No
Batavia Dana Saham Optimal	0.7647%	10.6132%	0.0160	1.3006	0.0013	No
Jisawi Saham	0.6860%	9.3254%	0.0097	1.1767	0.0008	No
CIMB-Principal Equity Aggressive	0.6702%	9.5854%	0.0078	1.2055	0.0006	No
Axa Citradinamis	0.6258%	9.3257%	0.0033	1.1751	0.0003	No
AAA BLUE CHIP VALUE FUND	0.5900%	9.3858%	-0.0006	1.1796	0.0000	No
Lautandhana Equity	0.3279%	9.1463%	-0.0292	1.1473	-0.0023	No
Mega Dana Saham	0.3146%	11.0255%	-0.0254	1.2989	-0.0022	No
Reksa Dana Danareksa Mawar Agresif	0.1630%	10.9937%	-0.0393	1.3314	-0.0032	No
BNI Berkembang	0.0671%	11.1469%	-0.0474	1.3435	-0.0039	No
Mega Dana Ekuitas	-0.0039%	9.9050%	-0.0605	1.1804	-0.0051	No
Average (Rf)	0.5952%					
Average (Rm)	1.0142%					
Std Dev (Rm)	7.5390%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Table 4.5 Market Timing in 4 Years with Benchmark-C

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8567	0.4864	0.0091	0.8624	1.3822	0.0032
Batavia Dana Saham*	0.9243	0.3477	0.0077	0.9252	0.9151	0.0056
GMT Dana Ekuitas*	0.9269	0.3563	0.0082	0.9277	0.9340	0.0062
Panin Dana Prima*	0.8981	0.3507	0.0240	0.8959	0.8047	0.0427
Mega Dana Saham	0.8304	-0.4711	0.0426	0.8293	-1.1546	0.0509
Pratama Saham	0.8940	0.3208	0.1090	0.8939	0.8096	0.1116
Pratama Ekuitas	0.8566	0.3736	0.0939	0.8553	0.8770	0.1227
Dana Ekuitas Andalan	0.9735	0.1214	0.1096	0.9732	0.2777	0.1510
NISP Indeks Saham Progresif	0.9652	0.1561	0.0484	0.9638	0.2865	0.1582
Schroder Dana Prestasi Plus	0.9699	0.1324	0.0622	0.9689	0.2526	0.1652
BNP Paribas Infrastruktur Plus	0.9738	0.1291	0.1107	0.9732	0.2610	0.2068
Bahana TCW Dana Prima	0.9727	0.1123	0.1632	0.9722	0.2200	0.2844
Lautandhana Equity	0.9294	0.0814	0.5049	0.9301	0.2987	0.3340
Jisawi Saham	0.9407	-0.0866	0.4479	0.9410	-0.2611	0.3671
Syailendra Equity Opportunity Fund	0.8781	0.1414	0.4406	0.8787	0.4165	0.3708
MANULIFE SAHAM ANDALAN	0.9727	0.0808	0.2933	0.9725	0.1693	0.3870
AAA BLUE CHIP VALUE FUND	0.9336	-0.1174	0.3349	0.9332	-0.2568	0.4071
Mega Dana Ekuitas	0.8371	0.1734	0.3880	0.8367	0.4071	0.4255
Portfolio Panin Dana Maksima	0.8359	0.1212	0.4914	0.8359	0.3117	0.4861
CIMB-Principal Equity Aggressive	0.9347	0.1162	0.3456	0.9340	0.2004	0.5232
Emco Mantap	0.7366	0.1604	0.5979	0.7373	0.4888	0.5267
Schroder Dana Istimewa	0.9562	0.0863	0.3091	0.9555	0.1192	0.5821
BNI Berkembang	0.8551	0.0729	0.7318	0.8556	0.2939	0.5861
Batavia Dana Saham Optimal	0.8853	0.1005	0.5771	0.8851	0.2267	0.6208
Dana Ekuitas Prima	0.9691	0.0646	0.4553	0.9689	0.1079	0.6240
Mandiri Investa Atraktif	0.9543	-0.0426	0.6966	0.9543	-0.1223	0.6596
First State IndoEquity Sectoral Fund	0.9551	-0.0249	0.7982	0.9553	-0.1075	0.6639

Table 4.5 Market Timing in 4 Years with Benchmark-C (continued)

BNP Paribas Ekuitas	0.9759	0.0471	0.5351	0.9758	0.0781	0.6861
Manulife Dana Saham	0.9794	0.0573	0.3475	0.9790	0.0565	0.7166
Manulife Phinisi Dana Saham	0.9747	-0.0018	0.9792	0.9748	-0.0615	0.7216
Reksa Dana Danareksa Mawar Agresif	0.8629	-0.0279	0.8912	0.8631	-0.1284	0.8040
First State IndoEquity Dividend Yield Fund	0.9172	0.0283	0.8267	0.9172	-0.0814	0.8042
Reksadana Danareksa Mawar	0.9518	0.0617	0.5342	0.9515	0.0588	0.8160
Rencana Cerdas	0.9487	0.0275	0.7911	0.9487	0.0584	0.8247
Axa Citradinamis	0.9373	0.0072	0.9511	0.9374	0.0568	0.8483
Trimegah - Trim Kapital	0.9408	0.0088	0.9441	0.9408	0.0446	0.8883

*) denotes mutual funds have market timing with both method

(Source: processed data)

Table 4.6 Summary of Funds 4 Years with Benchmark-C

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	2.7778%	8.6600%	0.2520	0.9280	0.0235	No
Panin Dana Prima*	2.3348%	9.4653%	0.1838	1.0445	0.0167	Yes
Corfina Capital - Grow 2 Prosper*	1.7267%	9.4927%	0.1192	1.0176	0.0111	Yes
GMT Dana Ekuitas*	1.6838%	9.5863%	0.1136	1.0742	0.0101	Yes
Syailendra Equity Opportunity Fund*	1.5630%	10.4606%	0.0925	1.1483	0.0084	No
Pratama Saham*	1.4751%	12.1239%	0.0726	1.3394	0.0066	No
Schroder Dana Istimewa*	1.4313%	8.0547%	0.1038	0.9213	0.0091	No
Batavia Dana Saham*	1.3351%	9.1112%	0.0812	1.0192	0.0073	Yes
Schroder Dana Prestasi Plus*	1.2737%	8.0219%	0.0846	0.9232	0.0073	No
NISP Indeks Saham Progresif*	1.2686%	8.2935%	0.0812	0.9519	0.0071	No
MANULIFE SAHAM ANDALAN*	1.2313%	9.2336%	0.0689	1.0651	0.0060	No
Rencana Cerdas*	1.2166%	9.1466%	0.0679	1.0427	0.0060	No
Trimegah - Trim Kapital*	1.1682%	10.2531%	0.0559	1.1643	0.0049	No
BNP Paribas Ekuitas*	1.1665%	9.7545%	0.0586	1.1273	0.0051	No

Table 4.6 Summary of Funds 4 Years with Benchmark-C (continued)

Emco Mantap*	1.1113%	11.8186%	0.0437	1.1923	0.0043	No
Pratama Ekuitas*	1.1055%	11.5988%	0.0440	1.2531	0.0041	No
Dana Ekuitas Prima*	1.0973%	9.8032%	0.0512	1.1290	0.0044	No
Manulife Phinisi Dana Saham	1.0435%	8.5330%	0.0525	0.9856	0.0045	No
First State IndoEquity Sectoral Fund	1.0108%	9.1806%	0.0453	1.0500	0.0040	No
Bahana TCW Dana Prima	0.9925%	9.6321%	0.0412	1.1109	0.0036	No
Dana Ekuitas Andalan	0.9834%	9.1834%	0.0423	1.0593	0.0037	No
Manulife Dana Saham	0.9791%	8.4364%	0.0455	0.9764	0.0039	No
BNP Paribas Infrastruktur Plus	0.9326%	9.8456%	0.0343	1.1359	0.0030	No
Reksadana Danareksa Mawar	0.9319%	9.0093%	0.0374	1.0285	0.0033	No
First State IndoEquity Dividend Yield Fund	0.8537%	8.9617%	0.0288	1.0051	0.0026	No
Mandiri Investa Atraktif	0.7854%	10.2002%	0.0186	1.1662	0.0016	No
Batavia Dana Saham Optimal	0.7647%	10.6132%	0.0160	1.1699	0.0014	No
Jisawi Saham	0.6860%	9.3254%	0.0097	1.0584	0.0009	No
CIMB-Principal Equity Aggressive	0.6702%	9.5854%	0.0078	1.0844	0.0007	No
Axa Citradinamis	0.6258%	9.3257%	0.0033	1.0570	0.0003	No
AAA BLUE CHIP VALUE FUND	0.5900%	9.3858%	-0.0006	1.0611	0.0000	No
Lautandhana Equity	0.3279%	9.1463%	-0.0292	1.0321	-0.0026	No
Mega Dana Saham	0.3146%	11.0255%	-0.0254	1.1685	-0.0024	No
Reksa Dana Danareksa Mawar Agresif	0.1630%	10.9937%	-0.0393	1.1976	-0.0036	No
BNI Berkembang	0.0671%	11.1469%	-0.0474	1.2086	-0.0044	No
Mega Dana Ekuitas	-0.0039%	9.9050%	-0.0605	1.0618	-0.0056	No
Average (Rf)	0.5952%					
Average (Rm)	1.0609%					
Std Dev (Rm)	8.3806%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Comparing the four years result using different benchmark, similar trend can be seen that the mutual funds that perform better tends to have higher Sharpe Ratio and Treynor Measures, regardless of the benchmark used. Looking at

market timing ability using different benchmark also shows similar result, with four mutual funds showing market timing ability: *Corfina Capital - Grow 2 Prosper*, *Batavia Dana Saham*, *GMT Dana Ekuitas*, and *Panin Dana Prima*.

However, different benchmark means different level of returns of the benchmark. As a result, some mutual funds can be considered higher-than-benchmark in term of return using one benchmark, but not on another benchmark. For example, *Manulife Phinisi Dana Saham* performance are shown to have higher than benchmark result when using Benchmark-A and Benchmark-B, but this mutual funds shows lower return if compared to Benchmark-C which consist of 100% of composite index return. Using Benchmark-A, there are 22 mutual funds that have higher return than benchmark, while using Benchmark-B and Benchmark-C; there are 18 and 17 mutual funds that have higher return than benchmark respectively.

4.1.2 First 3 Years Funds Performance Analysis

The following table shows the market timing ability of the mutual funds with Benchmark-A as the comparison. The Henriksson-Merton and Treynor-Mazuy market timing regression result are shown here.

Table 4.7 Market Timing in 3 Years with Benchmark-A

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8548	0.6564	0.0219	0.8584	2.1443	0.0139
GMT Dana Ekuitas*	0.9252	0.5104	0.0149	0.9252	1.5603	0.0151
Batavia Dana Saham*	0.9193	0.4438	0.0296	0.9191	1.3482	0.0310
Panin Dana Prima	0.9113	0.4463	0.0452	0.9091	1.2293	0.0732
Mega Dana Saham	0.8280	-0.6426	0.0779	0.8255	-1.8154	0.1049
Pratama Ekuitas	0.8519	0.4722	0.1710	0.8502	1.2997	0.2196
Pratama Saham	0.8955	0.3757	0.2103	0.8953	1.1211	0.2223
Emco Mantap	0.7612	0.4684	0.2881	0.7619	1.4913	0.2688
Schroder Dana Prestasi Plus	0.9711	0.1757	0.0937	0.9696	0.3449	0.2886
Dana Ekuitas Andalan	0.9733	0.1308	0.2551	0.9729	0.3274	0.3537
Jisawi Saham	0.9359	-0.1451	0.4206	0.9363	-0.5017	0.3621

Table 4.7 Market Timing in 3 Years with Benchmark-A (continued)

Lautandhana Equity	0.9273	0.1157	0.5421	0.9281	0.4920	0.3958
BNP Paribas Infrastruktur Plus	0.9731	0.1404	0.2534	0.9726	0.2993	0.4287
NISP Indeks Saham Progresif	0.9649	0.1638	0.1688	0.9635	0.2905	0.4297
Bahana TCW Dana Prima	0.9740	0.1194	0.3201	0.9736	0.2734	0.4585
AAA BLUE CHIP VALUE FUND	0.9312	-0.1638	0.3768	0.9307	-0.4185	0.4616
Mega Dana Ekuitas	0.8288	0.2574	0.4095	0.8277	0.6659	0.4864
Syailendra Equity Opportunity Fund	0.8687	0.1712	0.5545	0.8692	0.6119	0.4897
Schroder Dana Istimewa	0.9648	0.1558	0.1742	0.9631	0.2235	0.5289
BNI Berkembang	0.8516	0.1247	0.7076	0.8526	0.6141	0.5456
Mandiri Investa Atraktif	0.9551	-0.1168	0.4857	0.9548	-0.2974	0.5624
MANULIFE SAHAM ANDALAN	0.9720	0.0902	0.4433	0.9718	0.1848	0.6089
Manulife Phinisi Dana Saham	0.9749	-0.0049	0.9616	0.9751	-0.1427	0.6448
CIMB-Principal Equity Aggressive	0.9290	0.1226	0.5330	0.9285	0.2604	0.6660
Batavia Dana Saham Optimal	0.8763	0.1278	0.6572	0.8761	0.3564	0.6861
Portfolio Panin Dana Maksima	0.8464	0.0947	0.7119	0.8465	0.3121	0.6907
Dana Ekuitas Prima	0.9717	0.0834	0.5095	0.9714	0.1506	0.6978
First State IndoEquity Sectoral Fund	0.9523	-0.0350	0.8194	0.9524	-0.1761	0.7073
Reksa Dana Danareksa Mawar Agresif	0.8675	-0.1091	0.7289	0.8673	-0.2756	0.7748
Trimegah - Trim Kapital	0.9400	0.0327	0.8645	0.9401	0.1623	0.7816
BNP Paribas Ekuitas	0.9739	0.0542	0.6507	0.9738	0.0863	0.8141
Manulife Dana Saham	0.9795	0.0705	0.4432	0.9792	0.0403	0.8866
Axa Citradinamis	0.9317	-0.0035	0.9852	0.9317	0.0659	0.9083
First State IndoEquity Dividend Yield Fund	0.9250	0.0363	0.8481	0.9249	-0.0434	0.9404
Rencana Cerdas	0.9469	0.0069	0.9654	0.9469	0.0237	0.9611
Reksadana Danareksa Mawar	0.9553	0.0297	0.8397	0.9552	-0.0162	0.9714

*) denotes mutual funds have market timing with both method

(Source: processed data)

Using Benchmark-A as the result and at α=5%, it can be seen that only 3 mutual funds has been shown to have market timing ability by both Henriksson-Merton and Treynor-Mazuy regression. These mutual funds are: *Corfina Capital - Grow 2 Prosper*, *Batavia Dana Saham*, and *GMT Dana Ekuitas*. Using Henriksson-Merton method shows that *Panin Dana Prima* have market timing ability, but not when using Treynor-Mazuy method. This mutual fund is not considered to have market timing ability as mutual funds that have market timing ability using both Henriksson-Merton and Treynor-Mazuy method is considered.

Based on the market timing ability regression result on Table 4.7, the mutual funds performance can be summarized when compared to Benchmark-A for the whole 3 years period with the following table.

Table 4.8 Summary of Funds in 3 Years with Benchmark-A

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	3.5132%	9.5877%	0.3021	1.1540	0.0251	No
Panin Dana Prima*	2.9037%	10.6540%	0.2147	1.3209	0.0173	No
Corfina Capital - Grow 2 Prosper*	2.4489%	10.6115%	0.1727	1.2665	0.0145	Yes
Pratama Saham*	2.2217%	13.4818%	0.1191	1.6638	0.0096	No
GMT Dana Ekuitas*	2.0489%	10.7587%	0.1332	1.3414	0.0107	Yes
Syailendra Equity Opportunity Fund*	1.9832%	11.7195%	0.1166	1.4282	0.0096	No
Batavia Dana Saham*	1.8652%	10.1749%	0.1227	1.2661	0.0099	Yes
NISP Indeks Saham Progresif*	1.8025%	9.1915%	0.1291	1.1765	0.0101	No
Schroder Dana Istimewa*	1.7260%	8.8354%	0.1256	1.1308	0.0098	No
Pratama Ekuitas*	1.7239%	12.9918%	0.0852	1.5627	0.0071	No
Schroder Dana Prestasi Plus*	1.6648%	8.8566%	0.1184	1.1368	0.0092	No
MANULIFE SAHAM ANDALAN*	1.6616%	10.2905%	0.1016	1.3229	0.0079	No
Rencana Cerdas*	1.5634%	10.1435%	0.0934	1.2882	0.0074	No
BNP Paribas Ekuitas*	1.4845%	10.8670%	0.0799	1.3985	0.0062	No
Dana Ekuitas Andalan*	1.4496%	10.2282%	0.0815	1.3154	0.0063	No
BNP Paribas Infrastruktur Plus*	1.4117%	10.9041%	0.0729	1.4022	0.0057	No
Dana Ekuitas Prima*	1.4111%	11.0056%	0.0722	1.4148	0.0056	No

Table 4.8 Summary of Funds in 3 Years with Benchmark-A (continued)

Manulife Phinisi Dana Saham*	1.3673%	9.3925%	0.0800	1.2093	0.0062	No
Bahana TCW Dana Prima*	1.3328%	10.8505%	0.0660	1.3961	0.0051	No
Manulife Dana Saham*	1.3131%	9.3861%	0.0742	1.2110	0.0058	No
Trimegah - Trim Kapital*	1.2277%	11.4777%	0.0533	1.4528	0.0042	No
First State IndoEquity Sectoral Fund*	1.2075%	10.2980%	0.0574	1.3113	0.0045	No
Reksadana Danareksa Mawar*	1.1743%	10.2106%	0.0547	1.3020	0.0043	No
Mandiri Investa Atraktif	1.0867%	11.5666%	0.0407	1.4746	0.0032	No
Jisawi Saham	1.0784%	10.3970%	0.0444	1.3122	0.0035	No
Batavia Dana Saham Optimal	0.9869%	12.0158%	0.0308	1.4706	0.0025	No
CIMB-Principal Equity Aggressive	0.9407%	10.8139%	0.0300	1.3606	0.0024	No
Axa Citradinamis	0.8736%	10.5022%	0.0245	1.3236	0.0019	No
AAA BLUE CHIP VALUE FUND	0.8260%	10.3138%	0.0203	1.2983	0.0016	No
First State IndoEquity Dividend Yield Fund	0.8184%	10.1691%	0.0199	1.2772	0.0016	No
Emco Mantap	0.5988%	13.1491%	-0.0013	1.4993	-0.0001	No
Lautandhana Equity	0.5513%	10.3063%	-0.0063	1.2954	-0.0005	No
Mega Dana Saham	0.3535%	12.6123%	-0.0208	1.4891	-0.0018	No
Mega Dana Ekuitas	0.3342%	11.0268%	-0.0256	1.3127	-0.0021	No
Reksa Dana Danareksa Mawar Agresif	0.2601%	12.6929%	-0.0281	1.5466	-0.0023	No
BNI Berkembang	0.0251%	12.6702%	-0.0467	1.5299	-0.0039	No
Average (Rf)	0.6163%					
Average (Rm)	1.1525%					
Std Dev (Rm)	7.4611%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

It was shown in table 4.8 that the mutual funds with higher return than benchmark also shown higher Sharpe Ratio and Treynor Measures. Again, all the mutual funds that show market timing ability are among the top mutual funds that can beat the benchmark. But there are other mutual funds that do not have market timing ability, but perform as well or even better.

With the same method, the following Table 4.9, Table 4.10 shows the result of four years period comparing to Benchmark-B, while Table 4.11 and Table 4.12 shows the result of the four years period using Benchmark-C.

Table 4.9 Market Timing in 3 Years with Benchmark-B

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8548	0.5835	0.0219	0.8584	1.6942	0.0139
GMT Dana Ekuitas*	0.9252	0.4536	0.0149	0.9252	1.2328	0.0151
Batavia Dana Saham*	0.9193	0.3945	0.0296	0.9191	1.0653	0.0310
Panin Dana Prima	0.9113	0.3967	0.0452	0.9091	0.9713	0.0732
Mega Dana Saham	0.8280	-0.5712	0.0779	0.8255	-1.4344	0.1049
Pratama Ekuitas	0.8519	0.4197	0.1710	0.8502	1.0269	0.2196
Pratama Saham	0.8955	0.3340	0.2103	0.8953	0.8858	0.2223
Emco Mantap	0.7612	0.4164	0.2881	0.7619	1.1783	0.2688
Schroder Dana Prestasi Plus	0.9711	0.1562	0.0937	0.9696	0.2725	0.2886
Dana Ekuitas Andalan	0.9733	0.1163	0.2551	0.9729	0.2586	0.3537
Jisawi Saham	0.9359	-0.1289	0.4206	0.9363	-0.3964	0.3621
Lautandhana Equity	0.9273	0.1029	0.5421	0.9281	0.3887	0.3958
BNP Paribas Infrastruktur Plus	0.9731	0.1248	0.2534	0.9726	0.2365	0.4287
NISP Indeks Saham Progresif	0.9649	0.1456	0.1688	0.9635	0.2296	0.4297
Bahana TCW Dana Prima	0.9740	0.1062	0.3201	0.9736	0.2161	0.4585
AAA BLUE CHIP VALUE FUND	0.9312	-0.1456	0.3768	0.9307	-0.3307	0.4616
Mega Dana Ekuitas	0.8288	0.2288	0.4095	0.8277	0.5262	0.4864
Syailendra Equity Opportunity Fund	0.8687	0.1522	0.5545	0.8692	0.4834	0.4897
Schroder Dana Istimewa	0.9648	0.1385	0.1742	0.9631	0.1766	0.5289
BNI Berkembang	0.8516	0.1109	0.7076	0.8526	0.4852	0.5456
Mandiri Investa Atraktif	0.9551	-0.1038	0.4857	0.9548	-0.2350	0.5624
MANULIFE SAHAM ANDALAN	0.9720	0.0802	0.4433	0.9718	0.1460	0.6089
Manulife Phinisi Dana Saham	0.9749	-0.0043	0.9616	0.9751	-0.1128	0.6448
CIMB-Principal Equity Aggressive	0.9290	0.1090	0.5330	0.9285	0.2057	0.6660
Batavia Dana Saham Optimal	0.8763	0.1136	0.6572	0.8761	0.2816	0.6861

Table 4.9 Market Timing in 3 Years with Benchmark-B (continued)

Portfolio Panin Dana Maksima	0.8464	0.0842	0.7119	0.8465	0.2466	0.6907
Dana Ekuitas Prima	0.9717	0.0741	0.5095	0.9714	0.1190	0.6978
First State IndoEquity Sectoral Fund	0.9523	-0.0311	0.8194	0.9524	-0.1391	0.7073
Reksa Dana Danareksa Mawar Agresif	0.8675	-0.0969	0.7289	0.8673	-0.2178	0.7748
Trimegah - Trim Kapital	0.9400	0.0290	0.8645	0.9401	0.1283	0.7816
BNP Paribas Ekuitas	0.9739	0.0482	0.6507	0.9738	0.0682	0.8141
Manulife Dana Saham	0.9795	0.0627	0.4432	0.9792	0.0318	0.8866
Axa Citradinamis	0.9317	-0.0031	0.9852	0.9317	0.0520	0.9083
First State IndoEquity Dividend Yield Fund	0.9250	0.0323	0.8481	0.9249	-0.0343	0.9404
Rencana Cerdas	0.9469	0.0061	0.9654	0.9469	0.0188	0.9611
Reksadana Danareksa Mawar	0.9553	0.0264	0.8397	0.9552	-0.0128	0.9714

*) denotes mutual funds have market timing with both method

(Source: processed data)

Table 4.10 Summary of Funds 3 Years with Benchmark-B

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	3.5132%	9.5877%	0.3021	1.0251	0.0283	No
Panin Dana Prima*	2.9037%	10.6540%	0.2147	1.1732	0.0195	No
Corfina Capital - Grow 2 Prosper*	2.4489%	10.6115%	0.1727	1.1248	0.0163	Yes
Pratama Saham*	2.2217%	13.4818%	0.1191	1.4777	0.0109	No
GMT Dana Ekuitas*	2.0489%	10.7587%	0.1332	1.1914	0.0120	Yes
Syailendra Equity Opportunity Fund*	1.9832%	11.7195%	0.1166	1.2685	0.0108	No
Batavia Dana Saham*	1.8652%	10.1749%	0.1227	1.1245	0.0111	Yes
NISP Indeks Saham Progresif*	1.8025%	9.1915%	0.1291	1.0450	0.0114	No
Schroder Dana Istimewa*	1.7260%	8.8354%	0.1256	1.0044	0.0110	No
Pratama Ekuitas*	1.7239%	12.9918%	0.0852	1.3880	0.0080	No
Schroder Dana Prestasi Plus*	1.6648%	8.8566%	0.1184	1.0097	0.0104	No
MANULIFE SAHAM ANDALAN*	1.6616%	10.2905%	0.1016	1.1750	0.0089	No

Table 4.10 Summary of Funds 3 Years with Benchmark-B (continued)

Rencana Cerdas*	1.5634%	10.1435%	0.0934	1.1442	0.0083	No
BNP Paribas Ekuitas*	1.4845%	10.8670%	0.0799	1.2422	0.0070	No
Dana Ekuitas Andalan*	1.4496%	10.2282%	0.0815	1.1684	0.0071	No
BNP Paribas Infrastruktur Plus*	1.4117%	10.9041%	0.0729	1.2455	0.0064	No
Dana Ekuitas Prima*	1.4111%	11.0056%	0.0722	1.2567	0.0063	No
Manulife Phinisi Dana Saham*	1.3673%	9.3925%	0.0800	1.0742	0.0070	No
Bahana TCW Dana Prima*	1.3328%	10.8505%	0.0660	1.2401	0.0058	No
Manulife Dana Saham*	1.3131%	9.3861%	0.0742	1.0757	0.0065	No
Trimegah - Trim Kapital*	1.2277%	11.4777%	0.0533	1.2904	0.0047	No
First State IndoEquity Sectoral Fund	1.2075%	10.2980%	0.0574	1.1647	0.0051	No
Reksadana Danareksa Mawar	1.1743%	10.2106%	0.0547	1.1565	0.0048	No
Mandiri Investa Atraktif	1.0867%	11.5666%	0.0407	1.3098	0.0036	No
Jisawi Saham	1.0784%	10.3970%	0.0444	1.1656	0.0040	No
Batavia Dana Saham Optimal	0.9869%	12.0158%	0.0308	1.3062	0.0028	No
CIMB-Principal Equity Aggressive	0.9407%	10.8139%	0.0300	1.2085	0.0027	No
Axa Citradinamis	0.8736%	10.5022%	0.0245	1.1756	0.0022	No
AAA BLUE CHIP VALUE FUND	0.8260%	10.3138%	0.0203	1.1532	0.0018	No
First State IndoEquity Dividend Yield Fund	0.8184%	10.1691%	0.0199	1.1344	0.0018	No
Emco Mantap	0.5988%	13.1491%	-0.0013	1.3318	-0.0001	No
Lautandhana Equity	0.5513%	10.3063%	-0.0063	1.1506	-0.0006	No
Mega Dana Saham	0.3535%	12.6123%	-0.0208	1.3226	-0.0020	No
Mega Dana Ekuitas	0.3342%	11.0268%	-0.0256	1.1659	-0.0024	No
Reksa Dana Danareksa Mawar Agresif	0.2601%	12.6929%	-0.0281	1.3737	-0.0026	No
BNI Berkembang	0.0251%	12.6702%	-0.0467	1.3590	-0.0044	No
Average (Rf)	0.6163%					
Average (Rm)	1.2195%					
Std Dev (Rm)	8.3993%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Table 4.11 Market Timing 3 years with Benchmark-C

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8548	0.5251	0.0219	0.8584	1.3723	0.0139
GMT Dana Ekuitas*	0.9252	0.4083	0.0149	0.9252	0.9986	0.0151
Batavia Dana Saham*	0.9193	0.3551	0.0296	0.9191	0.8629	0.0310
Panin Dana Prima	0.9113	0.3570	0.0452	0.9091	0.7867	0.0732
Mega Dana Saham	0.8280	-0.5141	0.0779	0.8255	-1.1618	0.1049
Pratama Ekuitas	0.8519	0.3778	0.1710	0.8502	0.8318	0.2196
Pratama Saham	0.8955	0.3006	0.2103	0.8953	0.7175	0.2223
Emco Mantap	0.7612	0.3747	0.2881	0.7619	0.9545	0.2688
Schroder Dana Prestasi Plus	0.9711	0.1406	0.0937	0.9696	0.2207	0.2886
Dana Ekuitas Andalan	0.9733	0.1046	0.2551	0.9729	0.2095	0.3537
Jisawi Saham	0.9359	-0.1160	0.4206	0.9363	-0.3211	0.3621
Lautandhana Equity	0.9273	0.0926	0.5421	0.9281	0.3149	0.3958
BNP Paribas Infrastruktur Plus	0.9731	0.1123	0.2534	0.9726	0.1915	0.4287
NISP Indeks Saham Progresif	0.9649	0.1310	0.1688	0.9635	0.1859	0.4297
Bahana TCW Dana Prima	0.9740	0.0955	0.3201	0.9736	0.1750	0.4585
AAA BLUE CHIP VALUE FUND	0.9312	-0.1311	0.3768	0.9307	-0.2679	0.4616
Mega Dana Ekuitas	0.8288	0.2059	0.4095	0.8277	0.4262	0.4864
Syailendra Equity Opportunity Fund	0.8687	0.1370	0.5545	0.8692	0.3916	0.4897
Schroder Dana Istimewa	0.9648	0.1247	0.1742	0.9631	0.1430	0.5289
BNI Berkembang	0.8516	0.0998	0.7076	0.8526	0.3930	0.5456
Mandiri Investa Atraktif	0.9551	-0.0934	0.4857	0.9548	-0.1903	0.5624
MANULIFE SAHAM ANDALAN	0.9720	0.0722	0.4433	0.9718	0.1183	0.6089
Manulife Phinisi Dana Saham	0.9749	-0.0039	0.9616	0.9751	-0.0914	0.6448
CIMB-Principal Equity Aggressive	0.9290	0.0981	0.5330	0.9285	0.1666	0.6660
Batavia Dana Saham Optimal	0.8763	0.1023	0.6572	0.8761	0.2281	0.6861
Portfolio Panin Dana Maksima	0.8464	0.0757	0.7119	0.8465	0.1997	0.6907
Dana Ekuitas Prima	0.9717	0.0667	0.5095	0.9714	0.0964	0.6978
First State IndoEquity Sectoral Fund	0.9523	-0.0280	0.8194	0.9524	-0.1127	0.7073

Table 4.11 Market Timing 3 years with Benchmark-C (continued)

Reksa Dana Danareksa Mawar Agresif	0.8675	-0.0872	0.7289	0.8673	-0.1764	0.7748
Trimegah - Trim Kapital	0.9400	0.0261	0.8645	0.9401	0.1039	0.7816
BNP Paribas Ekuitas	0.9739	0.0434	0.6507	0.9738	0.0552	0.8141
Manulife Dana Saham	0.9795	0.0564	0.4432	0.9792	0.0258	0.8866
Axa Citradinamis	0.9317	-0.0028	0.9852	0.9317	0.0422	0.9083
First State IndoEquity Dividend Yield Fund	0.9250	0.0291	0.8481	0.9249	-0.0278	0.9404
Rencana Cerdas	0.9469	0.0055	0.9654	0.9469	0.0152	0.9611
Reksadana Danareksa Mawar	0.9553	0.0238	0.8397	0.9552	-0.0103	0.9714

*) denotes mutual funds have market timing with both method

(Source: processed data)

Table 4.12 Summary of Funds 3 Years with Benchmark-C

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	3.5132%	9.5877%	0.3021	0.9221	0.0314	No
Panin Dana Prima*	2.9037%	10.6540%	0.2147	1.0552	0.0217	No
Corfina Capital - Grow 2 Prosper*	2.4489%	10.6115%	0.1727	1.0116	0.0181	Yes
Pratama Saham*	2.2217%	13.4818%	0.1191	1.3291	0.0121	No
GMT Dana Ekuitas*	2.0489%	10.7587%	0.1332	1.0715	0.0134	Yes
Syailendra Equity Opportunity Fund*	1.9832%	11.7195%	0.1166	1.1410	0.0120	No
Batavia Dana Saham*	1.8652%	10.1749%	0.1227	1.0114	0.0123	Yes
NISP Indeks Saham Progresif*	1.8025%	9.1915%	0.1291	0.9399	0.0126	No
Schroder Dana Istimewa*	1.7260%	8.8354%	0.1256	0.9034	0.0123	No
Pratama Ekuitas*	1.7239%	12.9918%	0.0852	1.2484	0.0089	No
Schroder Dana Prestasi Plus*	1.6648%	8.8566%	0.1184	0.9082	0.0115	No
MANULIFE SAHAM ANDALAN*	1.6616%	10.2905%	0.1016	1.0569	0.0099	No
Rencana Cerdas*	1.5634%	10.1435%	0.0934	1.0292	0.0092	No
BNP Paribas Ekuitas*	1.4845%	10.8670%	0.0799	1.1173	0.0078	No
Dana Ekuitas Andalan*	1.4496%	10.2282%	0.0815	1.0509	0.0079	No
BNP Paribas Infrastruktur Plus*	1.4117%	10.9041%	0.0729	1.1202	0.0071	No

Table 4.12 Summary of Funds 3 Years with Benchmark-C (continued)

Dana Ekuitas Prima*	1.4111%	11.0056%	0.0722	1.1303	0.0070	No
Manulife Phinisi Dana Saham*	1.3673%	9.3925%	0.0800	0.9662	0.0078	No
Bahana TCW Dana Prima*	1.3328%	10.8505%	0.0660	1.1154	0.0064	No
Manulife Dana Saham*	1.3131%	9.3861%	0.0742	0.9675	0.0072	No
Trimegah - Trim Kapital	1.2277%	11.4777%	0.0533	1.1606	0.0053	No
First State IndoEquity Sectoral Fund	1.2075%	10.2980%	0.0574	1.0476	0.0056	No
Reksadana Danareksa Mawar	1.1743%	10.2106%	0.0547	1.0403	0.0054	No
Mandiri Investa Atraktif	1.0867%	11.5666%	0.0407	1.1781	0.0040	No
Jisawi Saham	1.0784%	10.3970%	0.0444	1.0484	0.0044	No
Batavia Dana Saham Optimal	0.9869%	12.0158%	0.0308	1.1749	0.0032	No
CIMB-Principal Equity Aggressive	0.9407%	10.8139%	0.0300	1.0869	0.0030	No
Axa Citradinamis	0.8736%	10.5022%	0.0245	1.0574	0.0024	No
AAA BLUE CHIP VALUE FUND	0.8260%	10.3138%	0.0203	1.0373	0.0020	No
First State IndoEquity Dividend Yield Fund	0.8184%	10.1691%	0.0199	1.0204	0.0020	No
Emco Mantap	0.5988%	13.1491%	-0.0013	1.1979	-0.0001	No
Lautandhana Equity	0.5513%	10.3063%	-0.0063	1.0349	-0.0006	No
Mega Dana Saham	0.3535%	12.6123%	-0.0208	1.1897	-0.0022	No
Mega Dana Ekuitas	0.3342%	11.0268%	-0.0256	1.0486	-0.0027	No
Reksa Dana Danareksa Mawar Agresif	0.2601%	12.6929%	-0.0281	1.2356	-0.0029	No
BNI Berkembang	0.0251%	12.6702%	-0.0467	1.2224	-0.0048	No
Average (Rf)	0.6163%					
Average (Rm)	1.2865%					
Std Dev (Rm)	9.3376%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Comparing the four years and three years results using different benchmark, it can be observed that the mutual funds that perform better tends to have higher Sharpe Ratio and Treynor Measures, regardless of the benchmark used. Similar result of market timing ability using different benchmark can also be seen, with four mutual funds showing market timing ability: *Corfina Capital* -

Grow 2 Prosper, *Batavia Dana Saham*, and *GMT Dana Ekuitas*. *Panin Dana* Prima that shows market timing ability in 4 years measurement, are not considered having market timing using Treynor-Mazuy model. Even though the result from Henriksson-Merton model shows market timing ability, this mutual fund is not considered to have market timing ability due to result from Treynor-Mazuy method.

Like the previous analysis for 4 years period, It can be seen that different benchmark have different level of returns of the benchmark. As a result, some mutual funds can be considered higher-than-benchmark in term of return using one benchmark, but not on another benchmark. For example, *Trimegah - Trim Kapital* performance are shown to have higher than benchmark result when using Benchmark-A and Benchmark-B, but this mutual funds shows lower return if compared to Benchmark-C which consist of 100% of composite index return. In the first 3 years period, using Benchmark-A, there are 23 mutual funds that have higher return than benchmark, while using Benchmark-B and Benchmark-C; there are 21 and 20 mutual funds that have higher return than benchmark respectively.

4.1.3 First 2 Years Funds Performance Analysis

So far, the result of the first 4 years and first 3 years has been shown. Next the result of the first 2 years will be shown. Various durations are used see the result of the mutual funds in different duration using Sharpe Ratio, Treynor Measure, and Market Timing. By breaking the measurement period of 4 years into 2 periods of 2 years each, further analysis can be made over the whole 4 years period.

The following table shows the market timing ability of the mutual funds with Benchmark-A as the comparison. The Henriksson-Merton and Treynor-Mazuy market timing regression result are shown here.

Table 4.13 Market Timing in First 2 Years with Benchmark-A

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8515	0.7208	0.0737	0.8543	2.1723	0.0578
GMT Dana Ekuitas*	0.9345	0.4979	0.0663	0.9343	1.4040	0.0699
Batavia Dana Saham*	0.9278	0.4914	0.0716	0.9270	1.3568	0.0823
Panin Dana Prima	0.9262	0.4861	0.0849	0.9241	1.2560	0.1215
Mega Dana Saham	0.8328	-0.6954	0.1745	0.8304	-1.8319	0.2117
BNI Berkembang	0.8761	0.4861	0.2661	0.8756	1.3389	0.2838
Syailendra Equity Opportunity Fund	0.8842	0.4457	0.2553	0.8830	1.1661	0.2984
Emco Mantap	0.7838	0.6591	0.2570	0.7813	1.7038	0.3061
Pratama Ekuitas	0.8621	0.5844	0.2153	0.8585	1.3596	0.3157
Pratama Saham	0.9137	0.4260	0.2693	0.9126	1.0792	0.3285
Manulife Phinisi Dana Saham	0.9859	-0.0516	0.6294	0.9862	-0.2670	0.3789
Lautandhana Equity	0.9315	0.1360	0.6001	0.9325	0.5524	0.4540
Jisawi Saham	0.9384	-0.1514	0.5411	0.9389	-0.5147	0.4660
AAA BLUE CHIP VALUE FUND	0.9415	-0.1821	0.4514	0.9410	-0.4498	0.5153
BNP Paribas Infrastruktur Plus	0.9823	0.1521	0.2781	0.9816	0.2579	0.5233
Trimegah - Trim Kapital	0.9617	0.1497	0.4848	0.9615	0.3765	0.5387
First State IndoEquity Sectoral Fund	0.9587	-0.1083	0.5885	0.9589	-0.3490	0.5409
Dana Ekuitas Andalan	0.9856	0.0967	0.4102	0.9854	0.2056	0.5412
Portfolio Panin Dana Maksima	0.8556	0.2016	0.5501	0.8557	0.5845	0.5438
Batavia Dana Saham Optimal	0.8789	0.3016	0.4582	0.8777	0.6795	0.5592
Schroder Dana Prestasi Plus	0.9771	0.1346	0.2972	0.9761	0.1950	0.6005
First State IndoEquity Dividend Yield Fund	0.9493	-0.0800	0.7133	0.9497	-0.3237	0.6016
Mega Dana Ekuitas	0.8400	0.2428	0.5693	0.8392	0.5725	0.6387
Bahana TCW Dana Prima	0.9844	0.0981	0.4523	0.9841	0.1668	0.6558
Reksa Dana Danareksa Mawar Agresif	0.8618	-0.2317	0.6057	0.8613	-0.5646	0.6598
MANULIFE SAHAM ANDALAN	0.9848	0.1016	0.4069	0.9844	0.1535	0.6628

Table 4.13 Market Timing in First 2 Years with Benchmark-A (continued)

BNP Paribas Ekuitas	0.9822	0.0961	0.4919	0.9819	0.1350	0.7362
CIMB-Principal Equity Aggressive	0.9440	0.1243	0.6133	0.9436	0.2178	0.7569
Mandiri Investa Atraktif	0.9705	-0.0631	0.7424	0.9705	-0.1642	0.7643
Reksadana Danareksa Mawar	0.9574	-0.0114	0.9543	0.9576	-0.1574	0.7822
Manulife Dana Saham	0.9856	0.0395	0.7123	0.9856	-0.0710	0.8166
NISP Indeks Saham Progresif	0.9767	0.1061	0.4316	0.9760	0.0832	0.8301
Dana Ekuitas Prima	0.9838	0.0729	0.5858	0.9836	0.0552	0.8854
Axa Citradinamis	0.9361	-0.0690	0.7855	0.9359	-0.0569	0.9374
Schroder Dana Istimewa	0.9683	0.0825	0.5763	0.9678	0.0173	0.9675
Rencana Cerdas	0.9492	0.0058	0.9786	0.9492	0.0042	0.9946

*) denotes mutual funds have market timing with both method at α=10%

(Source: processed data)

Using Benchmark-A as the result and at α=5%, there are no mutual funds that shows market timing ability. Interestingly, at α=10% it can be seen that only 3 mutual funds has been shown to have market timing ability by both Henriksson-Merton and Treynor-Mazuy regression. These mutual funds are: *Corfina Capital - Grow 2 Prosper*, *Batavia Dana Saham*, and *GMT Dana Ekuitas*. Using Henriksson-Merton method shows that *Panin Dana Prima* have market timing ability, but not when using Treynor-Mazuy method. But since α=5% is used as the criteria, all of the mutual funds in this period are not considered to have market timing ability.

Based on the market timing ability regression result on Table 4.13, we can summarize the mutual funds performance when compared to Benchmark-A for the whole 3 years period.

Table 4.14 Summary of Funds in First 2 Years with Benchmark A

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Panin Dana Prima*	2.3256%	12.4387%	0.1344	1.3208	0.0127	No
Portfolio Panin Dana Maksima*	2.2544%	10.9642%	0.1460	1.1274	0.0142	No
Corfina Capital - Grow 2 Prosper*	2.1263%	12.4886%	0.1179	1.2665	0.0116	No
Pratama Saham*	1.8832%	16.0749%	0.0765	1.7016	0.0072	No
GMT Dana Ekuitas*	1.7940%	12.6208%	0.0904	1.3454	0.0085	No
Batavia Dana Saham*	1.5604%	12.1072%	0.0749	1.2858	0.0071	No
NISP Indeks Saham Progresif*	1.4703%	10.8825%	0.0750	1.1901	0.0069	No
Pratama Ekuitas*	1.2948%	15.4904%	0.0414	1.5923	0.0040	No
Schroder Dana Prestasi Plus*	1.2348%	10.4334%	0.0557	1.1408	0.0051	No
Schroder Dana Istimewa*	1.1429%	10.2479%	0.0477	1.1163	0.0044	No
MANULIFE SAHAM ANDALAN*	1.0887%	12.2250%	0.0356	1.3421	0.0032	No
Syailendra Equity Opportunity Fund*	1.0824%	14.0839%	0.0304	1.4671	0.0029	No
Dana Ekuitas Andalan*	0.9367%	12.0641%	0.0235	1.3250	0.0021	No
Rencana Cerdas*	0.8593%	11.9917%	0.0171	1.2948	0.0016	No
Manulife Phinisi Dana Saham*	0.8329%	11.1294%	0.0161	1.2225	0.0015	No
Dana Ekuitas Prima*	0.8098%	13.0028%	0.0120	1.4272	0.0011	No
Bahana TCW Dana Prima*	0.7999%	12.8770%	0.0114	1.4136	0.0010	No
BNP Paribas Ekuitas*	0.7850%	12.9462%	0.0101	1.4196	0.0009	No
BNP Paribas Infrastruktur Plus*	0.7643%	12.9018%	0.0086	1.4145	0.0008	No
Manulife Dana Saham*	0.7096%	11.0712%	0.0051	1.2160	0.0005	No
First State IndoEquity Sectoral Fund*	0.6056%	12.1859%	-0.0039	1.3214	-0.0004	No
Reksadana Danareksa Mawar*	0.4595%	12.0033%	-0.0162	1.3011	-0.0015	No
CIMB-Principal Equity Aggressive*	0.4118%	12.8733%	-0.0188	1.3862	-0.0017	No
First State IndoEquity Dividend Yield Fund*	0.4066%	11.9781%	-0.0206	1.2931	-0.0019	No
Trimegah - Trim Kapital*	0.3776%	13.5170%	-0.0204	1.4678	-0.0019	No
Mandiri Investa Atraktif	0.3410%	13.8492%	-0.0226	1.5107	-0.0021	No

Table 4.14 Summary of Funds in First 2 Years with Benchmark A (continued)

Axa Citradinamis	0.2982%	12.4438%	-0.0286	1.3349	-0.0027	No
Jisawi Saham	0.2778%	12.3374%	-0.0305	1.3245	-0.0028	No
AAA BLUE CHIP VALUE FUND	0.1842%	12.3179%	-0.0381	1.3240	-0.0035	No
Batavia Dana Saham Optimal	0.0930%	14.4158%	-0.0389	1.5005	-0.0037	No
Mega Dana Ekuitas	0.0498%	13.1952%	-0.0458	1.3460	-0.0045	No
Lautandhana Equity	-0.0252%	12.2608%	-0.0554	1.3118	-0.0052	No
Emco Mantap	-0.2829%	15.2961%	-0.0612	1.5021	-0.0062	No
Mega Dana Saham	-0.5396%	15.2130%	-0.0784	1.5348	-0.0078	No
Reksa Dana Danareksa Mawar Agresif	-0.5446%	14.9560%	-0.0801	1.5442	-0.0078	No
BNI Berkembang	-1.0265%	15.1956%	-0.1106	1.5756	-0.0107	No
Average (Rf)	0.6536%					
Average (Rm)	0.3656%					
Std Dev (Rm)	8.6667%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

It was shown in table 4.14 that the mutual funds with higher return than benchmark also shown higher Sharpe Ratio and Treynor Measures. As there is no mutual fund that shows market timing ability by observing this period, nothing can be concluded regarding the market timing ability.

With the same method, the following Table 4.15, Table 4.16 shows the result of four years period comparing to Benchmark-B, while Table 4.17 and Table 4.18 shows the result of the four years period using Benchmark-C.

Table 4.15 Market Timing in First 2 Years with Benchmark-B

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8515	0.6407	0.0737	0.8543	1.7164	0.0578
GMT Dana Ekuitas*	0.9345	0.4426	0.0663	0.9343	1.1093	0.0699
Batavia Dana Saham*	0.9278	0.4368	0.0716	0.9270	1.0720	0.0823
Panin Dana Prima	0.9262	0.4321	0.0849	0.9241	0.9924	0.1215
Mega Dana Saham	0.8328	-0.6181	0.1745	0.8304	-1.4474	0.2117
BNI Berkembang	0.8761	0.4321	0.2661	0.8756	1.0579	0.2838
Syailendra Equity Opportunity Fund	0.8842	0.3962	0.2553	0.8830	0.9214	0.2984
Emco Mantap	0.7838	0.5859	0.2570	0.7813	1.3462	0.3061
Pratama Ekuitas	0.8621	0.5195	0.2153	0.8585	1.0742	0.3157

Table 4.15 Market Timing in First 2 Years with Benchmark-B (continued)

Pratama Saham	0.9137	0.3786	0.2693	0.9126	0.8527	0.3285
Manulife Phinisi Dana Saham	0.9859	-0.0459	0.6294	0.9862	-0.2110	0.3789
Lautandhana Equity	0.9315	0.1209	0.6001	0.9325	0.4365	0.4540
Jisawi Saham	0.9384	-0.1346	0.5411	0.9389	-0.4067	0.4660
AAA BLUE CHIP VALUE FUND	0.9415	-0.1618	0.4514	0.9410	-0.3554	0.5153
BNP Paribas Infrastruktur Plus	0.9823	0.1352	0.2781	0.9816	0.2038	0.5233
Trimegah - Trim Kapital	0.9617	0.1330	0.4848	0.9615	0.2975	0.5387
First State IndoEquity Sectoral Fund	0.9587	-0.0962	0.5885	0.9589	-0.2758	0.5409
Dana Ekuitas Andalan	0.9856	0.0860	0.4102	0.9854	0.1624	0.5412
Portfolio Panin Dana Maksima	0.8556	0.1792	0.5501	0.8557	0.4618	0.5438
Batavia Dana Saham Optimal	0.8789	0.2681	0.4582	0.8777	0.5369	0.5592
Schroder Dana Prestasi Plus	0.9771	0.1196	0.2972	0.9761	0.1540	0.6005
First State IndoEquity Dividend Yield Fund	0.9493	-0.0711	0.7133	0.9497	-0.2558	0.6016
Mega Dana Ekuitas	0.8400	0.2158	0.5693	0.8392	0.4523	0.6387
Bahana TCW Dana Prima	0.9844	0.0872	0.4523	0.9841	0.1318	0.6558
Reksa Dana Danareksa Mawar Agresif	0.8618	-0.2060	0.6057	0.8613	-0.4461	0.6598
MANULIFE SAHAM ANDALAN	0.9848	0.0903	0.4069	0.9844	0.1213	0.6628
BNP Paribas Ekuitas	0.9822	0.0854	0.4919	0.9819	0.1067	0.7362
CIMB-Principal Equity Aggressive	0.9440	0.1105	0.6133	0.9436	0.1721	0.7569
Mandiri Investa Atraktif	0.9705	-0.0561	0.7424	0.9705	-0.1298	0.7643
Reksadana Danareksa Mawar	0.9574	-0.0102	0.9543	0.9576	-0.1243	0.7822
Manulife Dana Saham	0.9856	0.0351	0.7123	0.9856	-0.0561	0.8166
NISP Indeks Saham Progresif	0.9767	0.0943	0.4316	0.9760	0.0657	0.8301
Dana Ekuitas Prima	0.9838	0.0648	0.5858	0.9836	0.0436	0.8854
Axa Citradinamis	0.9361	-0.0614	0.7855	0.9359	-0.0449	0.9374
Schroder Dana Istimewa	0.9683	0.0733	0.5763	0.9678	0.0136	0.9675
Rencana Cerdas	0.9492	0.0052	0.9786	0.9492	0.0034	0.9946

*) denotes mutual funds have market timing with both method at α=10%
(Source: processed data)

Table 4.16 Summary of Funds in First 2 Years with Benchmark-B

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	2.2544%	10.9642%	0.1460	1.0015	0.0160	No
Panin Dana Prima*	2.3256%	12.4387%	0.1344	1.1732	0.0143	No
Corfina Capital - Grow 2 Prosper*	2.1263%	12.4886%	0.1179	1.1249	0.0131	No
GMT Dana Ekuitas*	1.7940%	12.6208%	0.0904	1.1951	0.0095	No
Pratama Saham*	1.8832%	16.0749%	0.0765	1.5115	0.0081	No
NISP Indeks Saham Progresif*	1.4703%	10.8825%	0.0750	1.0571	0.0077	No
Batavia Dana Saham*	1.5604%	12.1072%	0.0749	1.1422	0.0079	No
Schroder Dana Prestasi Plus*	1.2348%	10.4334%	0.0557	1.0134	0.0057	No
Schroder Dana Istimewa*	1.1429%	10.2479%	0.0477	0.9916	0.0049	No
Pratama Ekuitas*	1.2948%	15.4904%	0.0414	1.4143	0.0045	No
MANULIFE SAHAM ANDALAN*	1.0887%	12.2250%	0.0356	1.1922	0.0036	No
Syailendra Equity Opportunity Fund*	1.0824%	14.0839%	0.0304	1.3031	0.0033	No
Dana Ekuitas Andalan*	0.9367%	12.0641%	0.0235	1.1770	0.0024	No
Rencana Cerdas*	0.8593%	11.9917%	0.0171	1.1502	0.0018	No
Manulife Phinisi Dana Saham*	0.8329%	11.1294%	0.0161	1.0860	0.0017	No
Dana Ekuitas Prima*	0.8098%	13.0028%	0.0120	1.2677	0.0012	No
Bahana TCW Dana Prima*	0.7999%	12.8770%	0.0114	1.2557	0.0012	No
BNP Paribas Ekuitas*	0.7850%	12.9462%	0.0101	1.2611	0.0010	No
BNP Paribas Infrastruktur Plus*	0.7643%	12.9018%	0.0086	1.2565	0.0009	No
Manulife Dana Saham*	0.7096%	11.0712%	0.0051	1.0803	0.0005	No
First State IndoEquity Sectoral Fund*	0.6056%	12.1859%	-0.0039	1.1738	-0.0004	No
Reksadana Danareksa Mawar*	0.4595%	12.0033%	-0.0162	1.1558	-0.0017	No
CIMB-Principal Equity Aggressive*	0.4118%	12.8733%	-0.0188	1.2313	-0.0020	No
Trimegah - Trim Kapital*	0.3776%	13.5170%	-0.0204	1.3038	-0.0021	No
First State IndoEquity Dividend Yield Fund*	0.4066%	11.9781%	-0.0206	1.1487	-0.0022	No
Mandiri Investa Atraktif*	0.3410%	13.8492%	-0.0226	1.3419	-0.0023	No

Table 4.16 Summary of Funds in First 2 Years with Benchmark-B (continued)

Axa Citradinamis	0.2982%	12.4438%	-0.0286	1.1858	-0.0030	No
Jisawi Saham	0.2778%	12.3374%	-0.0305	1.1765	-0.0032	No
AAA BLUE CHIP VALUE FUND	0.1842%	12.3179%	-0.0381	1.1761	-0.0040	No
Batavia Dana Saham Optimal	0.0930%	14.4158%	-0.0389	1.3329	-0.0042	No
Mega Dana Ekuitas	0.0498%	13.1952%	-0.0458	1.1956	-0.0051	No
Lautandhana Equity	-0.0252%	12.2608%	-0.0554	1.1653	-0.0058	No
Emco Mantap	-0.2829%	15.2961%	-0.0612	1.3344	-0.0070	No
Mega Dana Saham	-0.5396%	15.2130%	-0.0784	1.3634	-0.0088	No
Reksa Dana Danareksa Mawar Agresif	-0.5446%	14.9560%	-0.0801	1.3716	-0.0087	No
BNI Berkembang	-1.0265%	15.1956%	-0.1106	1.3996	-0.0120	No
Average (Rf)	0.6536%					
Average (Rm)	0.3295%					
Std Dev (Rm)	9.7561%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Table 4.17 Market Timing in First 2 Years with Benchmark-C

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Corfina Capital - Grow 2 Prosper*	0.8515	0.5766	0.0737	0.8543	1.3903	0.0578
GMT Dana Ekuitas*	0.9345	0.3983	0.0663	0.9343	0.8985	0.0699
Batavia Dana Saham*	0.9278	0.3931	0.0716	0.9270	0.8684	0.0823
Panin Dana Prima	0.9262	0.3889	0.0849	0.9241	0.8038	0.1215
Mega Dana Saham	0.8328	-0.5563	0.1745	0.8304	-1.1724	0.2117
BNI Berkembang	0.8761	0.3889	0.2661	0.8756	0.8569	0.2838
Syailendra Equity Opportunity Fund	0.8842	0.3566	0.2553	0.8830	0.7463	0.2984
Emco Mantap	0.7838	0.5273	0.2570	0.7813	1.0905	0.3061
Pratama Ekuitas	0.8621	0.4675	0.2153	0.8585	0.8701	0.3157
Pratama Saham	0.9137	0.3408	0.2693	0.9126	0.6907	0.3285
Manulife Phinisi Dana Saham	0.9859	-0.0413	0.6294	0.9862	-0.1709	0.3789
Lautandhana Equity	0.9315	0.1088	0.6001	0.9325	0.3535	0.4540
Jisawi Saham	0.9384	-0.1212	0.5411	0.9389	-0.3294	0.4660
AAA BLUE CHIP VALUE FUND	0.9415	-0.1457	0.4514	0.9410	-0.2878	0.5153
BNP Paribas Infrastruktur Plus	0.9823	0.1217	0.2781	0.9816	0.1650	0.5233

Table 4.17 Market Timing in First 2 Years with Benchmark-C (continued)

Trimegah - Trim Kapital	0.9617	0.1197	0.4848	0.9615	0.2410	0.5387
First State IndoEquity Sectoral Fund	0.9587	-0.0866	0.5885	0.9589	-0.2234	0.5409
Dana Ekuitas Andalan	0.9856	0.0774	0.4102	0.9854	0.1316	0.5412
Portfolio Panin Dana Maksima	0.8556	0.1613	0.5501	0.8557	0.3741	0.5438
Batavia Dana Saham Optimal	0.8789	0.2412	0.4582	0.8777	0.4349	0.5592
Schroder Dana Prestasi Plus	0.9771	0.1077	0.2972	0.9761	0.1248	0.6005
First State IndoEquity Dividend Yield Fund	0.9493	-0.0640	0.7133	0.9497	-0.2072	0.6016
Mega Dana Ekuitas	0.8400	0.1942	0.5693	0.8392	0.3664	0.6387
Bahana TCW Dana Prima	0.9844	0.0785	0.4523	0.9841	0.1067	0.6558
Reksa Dana Danareksa Mawar Agresif	0.8618	-0.1854	0.6057	0.8613	-0.3614	0.6598
MANULIFE SAHAM ANDALAN	0.9848	0.0813	0.4069	0.9844	0.0982	0.6628
BNP Paribas Ekuitas	0.9822	0.0769	0.4919	0.9819	0.0864	0.7362
CIMB-Principal Equity Aggressive	0.9440	0.0995	0.6133	0.9436	0.1394	0.7569
Mandiri Investa Atraktif	0.9705	-0.0504	0.7424	0.9705	-0.1051	0.7643
Reksadana Danareksa Mawar	0.9574	-0.0091	0.9543	0.9576	-0.1007	0.7822
Manulife Dana Saham	0.9856	0.0316	0.7123	0.9856	-0.0454	0.8166
NISP Indeks Saham Progresif	0.9767	0.0848	0.4316	0.9760	0.0533	0.8301
Dana Ekuitas Prima	0.9838	0.0583	0.5858	0.9836	0.0353	0.8854
Axa Citradinamis	0.9361	-0.0552	0.7855	0.9359	-0.0364	0.9374
Schroder Dana Istimewa	0.9683	0.0660	0.5763	0.9678	0.0110	0.9675
Rencana Cerdas	0.9492	0.0047	0.9786	0.9492	0.0027	0.9946

*) denotes mutual funds have market timing with both method at α=10%

(Source: processed data)

Table 4.18 Summary of Funds in First 2 Years with Benchmark-C

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Panin Dana Prima*	2.3256%	12.4387%	0.1344	1.0552	0.0158	No
Portfolio Panin Dana Maksima*	2.2544%	10.9642%	0.1460	0.9009	0.0178	No
Corfina Capital - Grow 2 Prosper*	2.1263%	12.4886%	0.1179	1.0118	0.0146	No
Pratama Saham*	1.8832%	16.0749%	0.0765	1.3596	0.0090	No
GMT Dana Ekuitas*	1.7940%	12.6208%	0.0904	1.0750	0.0106	No
Batavia Dana Saham*	1.5604%	12.1072%	0.0749	1.0274	0.0088	No
NISP Indeks Saham Progresif*	1.4703%	10.8825%	0.0750	0.9509	0.0086	No
Pratama Ekuitas*	1.2948%	15.4904%	0.0414	1.2722	0.0050	No
Schroder Dana Prestasi Plus*	1.2348%	10.4334%	0.0557	0.9116	0.0064	No
Schroder Dana Istimewa*	1.1429%	10.2479%	0.0477	0.8920	0.0055	No
MANULIFE SAHAM ANDALAN*	1.0887%	12.2250%	0.0356	1.0724	0.0041	No
Syailendra Equity Opportunity Fund*	1.0824%	14.0839%	0.0304	1.1721	0.0037	No
Dana Ekuitas Andalan*	0.9367%	12.0641%	0.0235	1.0587	0.0027	No
Rencana Cerdas*	0.8593%	11.9917%	0.0171	1.0346	0.0020	No
Manulife Phinisi Dana Saham*	0.8329%	11.1294%	0.0161	0.9769	0.0018	No
Dana Ekuitas Prima*	0.8098%	13.0028%	0.0120	1.1403	0.0014	No
Bahana TCW Dana Prima*	0.7999%	12.8770%	0.0114	1.1295	0.0013	No
BNP Paribas Ekuitas*	0.7850%	12.9462%	0.0101	1.1344	0.0012	No
BNP Paribas Infrastruktur Plus*	0.7643%	12.9018%	0.0086	1.1302	0.0010	No
Manulife Dana Saham*	0.7096%	11.0712%	0.0051	0.9717	0.0006	No
First State IndoEquity Sectoral Fund*	0.6056%	12.1859%	-0.0039	1.0559	-0.0005	No
Reksadana Danareksa Mawar*	0.4595%	12.0033%	-0.0162	1.0397	-0.0019	No
CIMB-Principal Equity Aggressive*	0.4118%	12.8733%	-0.0188	1.1076	-0.0022	No
First State IndoEquity Dividend Yield Fund*	0.4066%	11.9781%	-0.0206	1.0333	-0.0024	No

Table 4.18 Summary of Funds in First 2 Years with Benchmark-C (continued)

Trimegah - Trim Kapital*	0.3776%	13.5170%	-0.0204	1.1728	-0.0024	No
Mandiri Investa Atraktif*	0.3410%	13.8492%	-0.0226	1.2071	-0.0026	No
Axa Citradinamis*	0.2982%	12.4438%	-0.0286	1.0667	-0.0033	No
Jisawi Saham	0.2778%	12.3374%	-0.0305	1.0583	-0.0036	No
AAA BLUE CHIP VALUE FUND	0.1842%	12.3179%	-0.0381	1.0579	-0.0044	No
Batavia Dana Saham Optimal	0.0930%	14.4158%	-0.0389	1.1989	-0.0047	No
Mega Dana Ekuitas	0.0498%	13.1952%	-0.0458	1.0754	-0.0056	No
Lautandhana Equity	-0.0252%	12.2608%	-0.0554	1.0483	-0.0065	No
Emco Mantap	-0.2829%	15.2961%	-0.0612	1.2003	-0.0078	No
Mega Dana Saham	-0.5396%	15.2130%	-0.0784	1.2263	-0.0097	No
Reksa Dana Danareksa Mawar Agresif	-0.5446%	14.9560%	-0.0801	1.2338	-0.0097	No
BNI Berkembang	-1.0265%	15.1956%	-0.1106	1.2590	-0.0133	No
Average (Rf)	0.6536%					
Average (Rm)	0.2935%					
Std Dev (Rm)	10.8455%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Comparing the four years and 3 years results using various benchmarks, we see similar trend that the mutual funds that perform better tends to have higher Sharpe Ratio and Treynor Measures, regardless of the benchmark used. We do not see any mutual fund have market timing with α=5%, but when we reduce the criteria to α=10%, we see that the result is similar to 3 years result with α=5%.

Like the previous analysis for 4 years and 3 years periods, It can be seen that different benchmark have different level of returns of the benchmark. As a result, some mutual funds can be considered higher-than-benchmark in term of return using one benchmark, but not on another benchmark. But unlike the previous period, we can see that Benchmark-A shows the highest average return, followed by Benchmark-B and Benchmark-C. For example, *Mandiri Investa Atraktif* performance are shown to have higher than benchmark result when using Benchmark-B and Benchmark-C, but this mutual funds shows lower return if compared to Benchmark-A which consist of 80% of composite index return and 20% risk free return. In the first 2 years period, using Benchmark-A, there are 25

mutual funds that have higher return than benchmark, while using Benchmark-A and Benchmark-C; there are 26 and 27 mutual funds that have higher return than benchmark respectively.

4.1.4 Last 2 Years Funds Performance Analysis

The following table shows the market timing ability of the mutual funds with Benchmark-A as the comparison. The Henriksson-Merton and Treynor-Mazuy market timing regression result are shown here.

Table 4.19 Market Timing in Last 2 Years with Benchmark-A

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Reksa Dana Danareksa Mawar Agresif*	0.9262	0.5496	0.0116	0.9343	3.0603	0.0028
Syailendra Equity Opportunity Fund	0.9116	-0.6111	0.0121	0.9206	-3.3801	0.0032
BNP Paribas Ekuitas	0.9759	-0.2972	0.0192	0.9781	-1.6476	0.0059
Jisawi Saham	0.9634	-0.3349	0.0263	0.9663	-1.8549	0.0093
AAA BLUE CHIP VALUE FUND	0.9122	-0.4435	0.0641	0.9164	-2.4336	0.0330
Batavia Dana Saham Optimal	0.9646	-0.2696	0.0587	0.9661	-1.4459	0.0337
Manulife Phinisi Dana Saham	0.9549	-0.2791	0.0808	0.9576	-1.5993	0.0352
Mega Dana Saham	0.8916	-0.4894	0.0338	0.8895	-2.2557	0.0435
BNI Berkembang	0.8380	-0.5456	0.0733	0.8416	-2.8157	0.0540
MANULIFE SAHAM ANDALAN	0.9586	-0.2770	0.0753	0.9588	-1.3493	0.0722
Reksadana Danareksa Mawar	0.9417	0.2496	0.1458	0.9444	1.4589	0.0746
Mandiri Investa Atraktif	0.9383	-0.2020	0.2570	0.9413	-1.3175	0.1207
BNP Paribas Infrastruktur Plus	0.9625	-0.2128	0.1908	0.9636	-1.2073	0.1209
Rencana Cerdas	0.9509	-0.1829	0.2847	0.9529	-1.1852	0.1463
Schroder Dana Prestasi Plus	0.9661	-0.1438	0.2657	0.9673	-0.8870	0.1510
Trimegah - Trim Kapital	0.8580	-0.3508	0.2652	0.8611	-1.9931	0.1869
Manulife Dana Saham	0.9688	-0.1237	0.3229	0.9694	-0.7198	0.2306
Pratama Saham	0.8688	-0.3786	0.2830	0.8696	-1.9256	0.2569

Table 4.19 Market Timing in Last 2 Years with Benchmark-A (continued)

Mega Dana Ekuitas	0.8411	-0.2766	0.3720	0.8443	-1.6644	0.2629
Lautandhana Equity	0.9421	-0.1398	0.4001	0.9430	-0.8302	0.2983
Pratama Ekuitas	0.8707	-0.2924	0.3651	0.8716	-1.5386	0.3222
Dana Ekuitas Prima	0.9317	-0.1916	0.3499	0.9315	-0.8978	0.3639
Dana Ekuitas Andalan	0.9543	-0.1330	0.4170	0.9546	-0.7104	0.3678
NISP Indeks Saham Progresif	0.9677	-0.0996	0.4249	0.9679	-0.5356	0.3727
Schroder Dana Istimewa	0.9228	-0.1257	0.5473	0.9239	-0.8278	0.4095
Batavia Dana Saham	0.9558	-0.1065	0.4815	0.9556	-0.4682	0.5216
Emco Mantap	0.5483	-0.4382	0.5190	0.5482	-2.0909	0.5235
First State IndoEquity Dividend Yield Fund	0.7947	0.3120	0.3163	0.7891	0.9441	0.5324
Corfina Capital - Grow 2 Prosper	0.9136	-0.1530	0.5058	0.9134	-0.6804	0.5397
Axa Citradinamis	0.9613	-0.0493	0.7267	0.9616	-0.3761	0.5797
First State IndoEquity Sectoral Fund	0.9533	-0.0708	0.6510	0.9534	-0.4121	0.5848
Portfolio Panin Dana Maksima	0.7440	-0.0617	0.8809	0.7458	-0.8555	0.6659
GMT Dana Ekuitas	0.9180	-0.0425	0.8505	0.9182	-0.3455	0.7505
CIMB-Principal Equity Aggressive	0.9208	0.0145	0.9425	0.9211	-0.2735	0.7770
Bahana TCW Dana Prima	0.9581	-0.0229	0.8789	0.9582	-0.1469	0.8394
Panin Dana Prima	0.7888	0.1167	0.7459	0.7879	-0.2087	0.9045

*) denotes mutual funds have market timing with both method

(Source: processed data)

Using Benchmark-A as the result and at α=5%, there is only one mutual fund showing market timing ability: *Reksa Dana Danareksa Mawar Agresif*. The result of the last 2 years period is significantly different in term of market timing, because it has different period with the previous measurements.

Based on the market timing ability regression result on Table 4.19, we can summarize the mutual funds performance when compared to Benchmark-A for the whole 3 years period.

Table 4.20 Summary of Funds in Last 2 Years with Benchmark-A

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	3.2610%	5.9908%	0.4544	1.1824	0.0230	No
Emco Mantap*	2.3984%	7.4113%	0.2510	1.2704	0.0146	No
Panin Dana Prima*	2.3433%	5.7668%	0.3130	1.1678	0.0155	No
Syailendra Equity Opportunity Fund*	2.0066%	5.6175%	0.2613	1.1977	0.0123	No
Trimegah - Trim Kapital*	1.8980%	6.0666%	0.2241	1.2712	0.0107	No
Schroder Dana Istimewa*	1.6976%	5.5128%	0.2103	1.1986	0.0097	No
GMT Dana Ekuitas*	1.5821%	5.7926%	0.1802	1.2571	0.0083	No
Rencana Cerdas*	1.5464%	5.6072%	0.1798	1.2352	0.0082	No
BNP Paribas Ekuitas	1.5186%	5.6595%	0.1732	1.2592	0.0078	No
First State IndoEquity Sectoral Fund	1.3849%	5.3174%	0.1592	1.1739	0.0072	No
Batavia Dana Saham Optimal	1.3847%	5.3618%	0.1578	1.1869	0.0071	No
Reksadana Danareksa Mawar	1.3680%	5.1111%	0.1623	1.1192	0.0074	No
MANULIFE SAHAM ANDALAN	1.3630%	5.4383%	0.1516	1.2003	0.0069	No
Dana Ekuitas Prima	1.3628%	5.7152%	0.1442	1.2471	0.0066	No
Corfina Capital - Grow 2 Prosper	1.3578%	5.7300%	0.1430	1.2398	0.0066	No
Schroder Dana Prestasi Plus	1.3097%	5.0967%	0.1513	1.1314	0.0068	No
First State IndoEquity Dividend Yield Fund	1.2664%	5.0046%	0.1455	1.0120	0.0072	No
Manulife Phinisi Dana Saham	1.2378%	5.3549%	0.1306	1.1796	0.0059	No
Manulife Dana Saham	1.2278%	5.1574%	0.1337	1.1465	0.0060	No
Mandiri Investa Atraktif	1.1956%	5.2062%	0.1262	1.1393	0.0058	No
Bahana TCW Dana Prima	1.1703%	5.4058%	0.1169	1.1965	0.0053	No
Batavia Dana Saham	1.1272%	5.2684%	0.1117	1.1642	0.0051	No
Mega Dana Saham	1.1032%	4.8981%	0.1153	1.0359	0.0055	No
Pratama Saham	1.0984%	7.0755%	0.0791	1.4917	0.0038	No
BNP Paribas Infrastruktur Plus	1.0880%	6.0665%	0.0906	1.3435	0.0041	No

Table 4.20 Summary of Funds in Last 2 Years with Benchmark-A (continued)

NISP Indeks Saham Progresif	1.0825%	5.0777%	0.1071	1.1285	0.0048	No
BNI Berkembang	1.0765%	5.3756%	0.1001	1.1040	0.0049	No
Jisawi Saham	1.0628%	5.4869%	0.0956	1.2122	0.0043	No
Dana Ekuitas Andalan	1.0264%	5.6029%	0.0871	1.2371	0.0039	No
AAA BLUE CHIP VALUE FUND	0.9645%	5.7240%	0.0744	1.2296	0.0035	No
Pratama Ekuitas	0.9308%	6.5469%	0.0599	1.3833	0.0028	No
Axa Citradinamis	0.9283%	5.2727%	0.0739	1.1687	0.0033	No
CIMB-Principal Equity Aggressive	0.9087%	5.2437%	0.0706	1.1397	0.0032	No
Reksa Dana Danareksa Mawar Agresif	0.8161%	5.4932%	0.0505	1.1827	0.0023	Yes
Lautandhana Equity	0.6538%	5.0430%	0.0229	1.1065	0.0010	No
Mega Dana Ekuitas	-0.0535%	5.6662%	-0.1045	1.1776	-0.0050	No
Average (Rf)	0.5385%					
Average (Rm)	1.5231%					
Std Dev (Rm)	4.2596%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

It was shown in table 4.20 that the mutual funds with higher return than benchmark also shown higher Sharpe Ratio and Treynor Measures. It is interesting to see here that *Reksa Dana Danareksa Mawar Agresif* mutual fund that shows market timing ability, are actually perform worst than benchmark, and is among the worst performer of the mutual funds observed. It can be seen that mutual fund with market timing does not necessarily have good performance that can beat the market.

With the same method, the following Table 4.21, Table 4.22 shows the result of four years period comparing to Benchmark-B, while Table 4.23 and Table 4.24 shows the result of the four years period using Benchmark-C.

Table 4.21 Market Timing in Last 2 Years with Benchmark-B

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Reksa Dana Danareksa Mawar Agresif*	0.9262	0.4885	0.0116	0.9343	2.4181	0.0028
Syailendra Equity Opportunity Fund	0.9116	-0.5432	0.0121	0.9206	-2.6707	0.0032
BNP Paribas Ekuitas	0.9759	-0.2642	0.0192	0.9781	-1.3018	0.0059
Jisawi Saham	0.9634	-0.2977	0.0263	0.9663	-1.4656	0.0093
AAA BLUE CHIP VALUE FUND	0.9122	-0.3943	0.0641	0.9164	-1.9228	0.0330
Batavia Dana Saham Optimal	0.9646	-0.2396	0.0587	0.9661	-1.1425	0.0337
Manulife Phinisi Dana Saham	0.9549	-0.2481	0.0808	0.9576	-1.2637	0.0352
Mega Dana Saham	0.8916	-0.4350	0.0338	0.8895	-1.7823	0.0435
BNI Berkembang	0.8380	-0.4850	0.0733	0.8416	-2.2247	0.0540
MANULIFE SAHAM ANDALAN	0.9586	-0.2462	0.0753	0.9588	-1.0661	0.0722
Reksadana Danareksa Mawar	0.9417	0.2219	0.1458	0.9444	1.1527	0.0746
Mandiri Investa Atraktif	0.9383	-0.1796	0.2570	0.9413	-1.0410	0.1207
BNP Paribas Infrastruktur Plus	0.9625	-0.1891	0.1908	0.9636	-0.9539	0.1209
Rencana Cerdas	0.9509	-0.1626	0.2847	0.9529	-0.9365	0.1463
Schroder Dana Prestasi Plus	0.9661	-0.1279	0.2657	0.9673	-0.7009	0.1510
Trimegah - Trim Kapital	0.8580	-0.3118	0.2652	0.8611	-1.5748	0.1869
Manulife Dana Saham	0.9688	-0.1100	0.3229	0.9694	-0.5687	0.2306
Pratama Saham	0.8688	-0.3365	0.2830	0.8696	-1.5215	0.2569
Mega Dana Ekuitas	0.8411	-0.2458	0.3720	0.8443	-1.3151	0.2629
Lautandhana Equity	0.9421	-0.1243	0.4001	0.9430	-0.6560	0.2983
Pratama Ekuitas	0.8707	-0.2599	0.3651	0.8716	-1.2157	0.3222
Dana Ekuitas Prima	0.9317	-0.1703	0.3499	0.9315	-0.7094	0.3639
Dana Ekuitas Andalan	0.9543	-0.1182	0.4170	0.9546	-0.5613	0.3678
NISP Indeks Saham Progresif	0.9677	-0.0885	0.4249	0.9679	-0.4232	0.3727
Schroder Dana Istimewa	0.9228	-0.1117	0.5473	0.9239	-0.6541	0.4095
Batavia Dana Saham	0.9558	-0.0947	0.4815	0.9556	-0.3700	0.5216
Emco Mantap	0.5483	-0.3895	0.5190	0.5482	-1.6520	0.5235

Table 4.21 Market Timing in Last 2 Years with Benchmark-B (continued)

First State IndoEquity Dividend Yield Fund	0.7947	0.2774	0.3163	0.7891	0.7460	0.5324
Corfina Capital - Grow 2 Prosper	0.9136	-0.1360	0.5058	0.9134	-0.5376	0.5397
Axa Citradinamis	0.9613	-0.0438	0.7267	0.9616	-0.2971	0.5797
First State IndoEquity Sectoral Fund	0.9533	-0.0629	0.6510	0.9534	-0.3256	0.5848
Portfolio Panin Dana Maksima	0.7440	-0.0548	0.8809	0.7458	-0.6760	0.6659
GMT Dana Ekuitas	0.9180	-0.0378	0.8505	0.9182	-0.2730	0.7505
CIMB-Principal Equity Aggressive	0.9208	0.0129	0.9425	0.9211	-0.2161	0.7770
Bahana TCW Dana Prima	0.9581	-0.0204	0.8789	0.9582	-0.1161	0.8394
Panin Dana Prima	0.7888	0.1038	0.7459	0.7879	-0.1649	0.9045

*) denotes mutual funds have market timing with both method

(Source: processed data)

Table 4.22 Summary of funds in Last 2 Years with Benchmark-B

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	3.2610%	5.9908%	0.4544	1.0509	0.0259	No
Emco Mantap*	2.3984%	7.4113%	0.2510	1.1292	0.0165	No
Panin Dana Prima*	2.3433%	5.7668%	0.3130	1.0380	0.0174	No
Syailendra Equity Opportunity Fund*	2.0066%	5.6175%	0.2613	1.0647	0.0138	No
Trimegah - Trim Kapital*	1.8980%	6.0666%	0.2241	1.1300	0.0120	No
Schroder Dana Istimewa*	1.6976%	5.5128%	0.2103	1.0654	0.0109	No
GMT Dana Ekuitas	1.5821%	5.7926%	0.1802	1.1174	0.0093	No
Rencana Cerdas	1.5464%	5.6072%	0.1798	1.0979	0.0092	No
BNP Paribas Ekuitas	1.5186%	5.6595%	0.1732	1.1193	0.0088	No
First State IndoEquity Sectoral Fund	1.3849%	5.3174%	0.1592	1.0434	0.0081	No
Batavia Dana Saham Optimal	1.3847%	5.3618%	0.1578	1.0550	0.0080	No
Reksadana Danareksa Mawar	1.3680%	5.1111%	0.1623	0.9948	0.0083	No
MANULIFE SAHAM ANDALAN	1.3630%	5.4383%	0.1516	1.0669	0.0077	No
Dana Ekuitas Prima	1.3628%	5.7152%	0.1442	1.1085	0.0074	No
Corfina Capital - Grow 2 Prosper	1.3578%	5.7300%	0.1430	1.1020	0.0074	No

Table 4.22 Summary of funds in Last 2 Years with Benchmark-B (continued)

Schroder Dana Prestasi Plus	1.3097%	5.0967%	0.1513	1.0056	0.0077	No
First State IndoEquity Dividend Yield Fund	1.2664%	5.0046%	0.1455	0.8995	0.0081	No
Manulife Phinisi Dana Saham	1.2378%	5.3549%	0.1306	1.0485	0.0067	No
Manulife Dana Saham	1.2278%	5.1574%	0.1337	1.0191	0.0068	No
Mandiri Investa Atraktif	1.1956%	5.2062%	0.1262	1.0126	0.0065	No
Bahana TCW Dana Prima	1.1703%	5.4058%	0.1169	1.0635	0.0059	No
Batavia Dana Saham	1.1272%	5.2684%	0.1117	1.0348	0.0057	No
Mega Dana Saham	1.1032%	4.8981%	0.1153	0.9209	0.0061	No
Pratama Saham	1.0984%	7.0755%	0.0791	1.3260	0.0042	No
BNP Paribas Infrastruktur Plus	1.0880%	6.0665%	0.0906	1.1942	0.0046	No
NISP Indeks Saham Progresif	1.0825%	5.0777%	0.1071	1.0031	0.0054	No
BNI Berkembang	1.0765%	5.3756%	0.1001	0.9814	0.0055	No
Jisawi Saham	1.0628%	5.4869%	0.0956	1.0775	0.0049	No
Dana Ekuitas Andalan	1.0264%	5.6029%	0.0871	1.0996	0.0044	No
AAA BLUE CHIP VALUE FUND	0.9645%	5.7240%	0.0744	1.0930	0.0039	No
Pratama Ekuitas	0.9308%	6.5469%	0.0599	1.2296	0.0032	No
Axa Citradinamis	0.9283%	5.2727%	0.0739	1.0388	0.0038	No
CIMB-Principal Equity Aggressive	0.9087%	5.2437%	0.0706	1.0130	0.0037	No
Reksa Dana Danareksa Mawar Agresif	0.8161%	5.4932%	0.0505	1.0513	0.0026	Yes
Lautandhana Equity	0.6538%	5.0430%	0.0229	0.9836	0.0012	No
Mega Dana Ekuitas	-0.0535%	5.6662%	-0.1045	1.0469	-0.0057	No
Average (Rf)	0.5385%					
Average (Rm)	1.6462%					
Std Dev (Rm)	4.7923%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Table 4.23 Market Timing in Last 2 Years with Benchmark-C

	Henriksson-Merton			Treynor-Mazuy		
Mutual Fund Name	**Adj. R-Square**	**(Rm-Rf)*D coefficient**	**P-value**	**Adj. R-Square**	**(Rm-Rf)^2 coefficient**	**P-value**
Reksa Dana Danareksa Mawar Agresif*	0.9262	0.4397	0.0116	0.9343	1.9586	0.0028
Syailendra Equity Opportunity Fund	0.9116	-0.4889	0.0121	0.9206	-2.1633	0.0032
BNP Paribas Ekuitas	0.9759	-0.2378	0.0192	0.9781	-1.0545	0.0059
Jisawi Saham	0.9634	-0.2679	0.0263	0.9663	-1.1872	0.0093
AAA BLUE CHIP VALUE FUND	0.9122	-0.3548	0.0641	0.9164	-1.5575	0.0330
Batavia Dana Saham Optimal	0.9646	-0.2157	0.0587	0.9661	-0.9254	0.0337
Manulife Phinisi Dana Saham	0.9549	-0.2233	0.0808	0.9576	-1.0236	0.0352
Mega Dana Saham	0.8916	-0.3915	0.0338	0.8895	-1.4437	0.0435
BNI Berkembang	0.8380	-0.4365	0.0733	0.8416	-1.8020	0.0540
MANULIFE SAHAM ANDALAN	0.9586	-0.2216	0.0753	0.9588	-0.8635	0.0722
Reksadana Danareksa Mawar	0.9417	0.1997	0.1458	0.9444	0.9337	0.0746
Mandiri Investa Atraktif	0.9383	-0.1616	0.2570	0.9413	-0.8432	0.1207
BNP Paribas Infrastruktur Plus	0.9625	-0.1702	0.1908	0.9636	-0.7727	0.1209
Rencana Cerdas	0.9509	-0.1463	0.2847	0.9529	-0.7585	0.1463
Schroder Dana Prestasi Plus	0.9661	-0.1151	0.2657	0.9673	-0.5677	0.1510
Trimegah - Trim Kapital	0.8580	-0.2806	0.2652	0.8611	-1.2756	0.1869
Manulife Dana Saham	0.9688	-0.0990	0.3229	0.9694	-0.4607	0.2306
Pratama Saham	0.8688	-0.3029	0.2830	0.8696	-1.2324	0.2569
Mega Dana Ekuitas	0.8411	-0.2213	0.3720	0.8443	-1.0652	0.2629
Lautandhana Equity	0.9421	-0.1119	0.4001	0.9430	-0.5313	0.2983
Pratama Ekuitas	0.8707	-0.2339	0.3651	0.8716	-0.9847	0.3222
Dana Ekuitas Prima	0.9317	-0.1533	0.3499	0.9315	-0.5746	0.3639
Dana Ekuitas Andalan	0.9543	-0.1064	0.4170	0.9546	-0.4547	0.3678
NISP Indeks Saham Progresif	0.9677	-0.0797	0.4249	0.9679	-0.3428	0.3727
Schroder Dana Istimewa	0.9228	-0.1005	0.5473	0.9239	-0.5298	0.4095
Batavia Dana Saham	0.9558	-0.0852	0.4815	0.9556	-0.2997	0.5216
Emco Mantap	0.5483	-0.3506	0.5190	0.5482	-1.3381	0.5235

Table 4.23 Market Timing in Last 2 Years with Benchmark-C (continued)

First State IndoEquity Dividend Yield Fund	0.7947	0.2496	0.3163	0.7891	0.6043	0.5324
Corfina Capital - Grow 2 Prosper	0.9136	-0.1224	0.5058	0.9134	-0.4354	0.5397
Axa Citradinamis	0.9613	-0.0395	0.7267	0.9616	-0.2407	0.5797
First State IndoEquity Sectoral Fund	0.9533	-0.0566	0.6510	0.9534	-0.2637	0.5848
Portfolio Panin Dana Maksima	0.7440	-0.0493	0.8809	0.7458	-0.5475	0.6659
GMT Dana Ekuitas	0.9180	-0.0340	0.8505	0.9182	-0.2211	0.7505
CIMB-Principal Equity Aggressive	0.9208	0.0116	0.9425	0.9211	-0.1750	0.7770
Bahana TCW Dana Prima	0.9581	-0.0183	0.8789	0.9582	-0.0940	0.8394
Panin Dana Prima	0.7888	0.0934	0.7459	0.7879	-0.1336	0.9045

*) denotes mutual funds have market timing with both method

(Source: processed data)

Table 4.24 Summary of Funds in Last 2 Years with Benchmark-C

Mutual Fund Name	Average (Ri)	StDev(Ri)	Sharpe Ratio	Beta	Treynor Ratio	Market Timing
Portfolio Panin Dana Maksima*	3.2610%	5.9908%	0.4544	0.9457	0.0288	No
Emco Mantap*	2.3984%	7.4113%	0.2510	1.0162	0.0183	No
Panin Dana Prima*	2.3433%	5.7668%	0.3130	0.9341	0.0193	No
Syailendra Equity Opportunity Fund*	2.0066%	5.6175%	0.2613	0.9582	0.0153	No
Trimegah - Trim Kapital*	1.8980%	6.0666%	0.2241	1.0169	0.0134	No
Schroder Dana Istimewa	1.6976%	5.5128%	0.2103	0.9588	0.0121	No
GMT Dana Ekuitas	1.5821%	5.7926%	0.1802	1.0056	0.0104	No
Rencana Cerdas	1.5464%	5.6072%	0.1798	0.9881	0.0102	No
BNP Paribas Ekuitas	1.5186%	5.6595%	0.1732	1.0074	0.0097	No
First State IndoEquity Sectoral Fund	1.3849%	5.3174%	0.1592	0.9391	0.0090	No
Batavia Dana Saham Optimal	1.3847%	5.3618%	0.1578	0.9495	0.0089	No
Reksadana Danareksa Mawar	1.3680%	5.1111%	0.1623	0.8953	0.0093	No
MANULIFE SAHAM ANDALAN	1.3630%	5.4383%	0.1516	0.9602	0.0086	No
Dana Ekuitas Prima	1.3628%	5.7152%	0.1442	0.9976	0.0083	No
Corfina Capital - Grow 2 Prosper	1.3578%	5.7300%	0.1430	0.9918	0.0083	No

Table 4.24 Summary of Funds in Last 2 Years with Benchmark-C (continued)

Schroder Dana Prestasi Plus	1.3097%	5.0967%	0.1513	0.9050	0.0085	No
First State IndoEquity Dividend Yield Fund	1.2664%	5.0046%	0.1455	0.8095	0.0090	No
Manulife Phinisi Dana Saham	1.2378%	5.3549%	0.1306	0.9437	0.0074	No
Manulife Dana Saham	1.2278%	5.1574%	0.1337	0.9172	0.0075	No
Mandiri Investa Atraktif	1.1956%	5.2062%	0.1262	0.9114	0.0072	No
Bahana TCW Dana Prima	1.1703%	5.4058%	0.1169	0.9571	0.0066	No
Batavia Dana Saham	1.1272%	5.2684%	0.1117	0.9313	0.0063	No
Mega Dana Saham	1.1032%	4.8981%	0.1153	0.8288	0.0068	No
Pratama Saham	1.0984%	7.0755%	0.0791	1.1935	0.0047	No
BNP Paribas Infrastruktur Plus	1.0880%	6.0665%	0.0906	1.0748	0.0051	No
NISP Indeks Saham Progresif	1.0825%	5.0777%	0.1071	0.9028	0.0060	No
BNI Berkembang	1.0765%	5.3756%	0.1001	0.8832	0.0061	No
Jisawi Saham	1.0628%	5.4869%	0.0956	0.9698	0.0054	No
Dana Ekuitas Andalan	1.0264%	5.6029%	0.0871	0.9896	0.0049	No
AAA BLUE CHIP VALUE FUND	0.9645%	5.7240%	0.0744	0.9837	0.0043	No
Pratama Ekuitas	0.9308%	6.5469%	0.0599	1.1067	0.0035	No
Axa Citradinamis	0.9283%	5.2727%	0.0739	0.9349	0.0042	No
CIMB-Principal Equity Aggressive	0.9087%	5.2437%	0.0706	0.9117	0.0041	No
Reksa Dana Danareksa Mawar Agresif	0.8161%	5.4932%	0.0505	0.9462	0.0029	Yes
Lautandhana Equity	0.6538%	5.0430%	0.0229	0.8852	0.0013	No
Mega Dana Ekuitas	-0.0535%	5.6662%	-0.1045	0.9423	-0.0063	No
Average (Rf)	0.5385%					
Average (Rm)	1.7692%					
Std Dev (Rm)	5.3250%					

*) denotes mutual funds that perform better than benchmark

(Source: processed data)

Similar with different period measurement, we see similar trend that the mutual funds that perform better tends to have higher Sharpe Ratio and Treynor Measures, regardless of the benchmark used. We also see consistent result of market timing ability using different benchmark, with only one mutual fund

showing market timing ability: *Reksa Dana Danareksa Mawar Agresif*. But we can see that this mutual fund actually perform poorly despite of having market timing ability.

Like the previous analysis for 4 years period, it can be seen that different benchmark have different level of returns of the benchmark. As a result, some mutual funds can be considered higher-than-benchmark in term of return using one benchmark, but not on another benchmark. We can see that Benchmark-C shows the highest average return, followed by Benchmark-A and Benchmark-B. For example, *Schroder Dana Istimewa* performance are shown to have higher than benchmark result when using Benchmark-A and Benchmark-B, but this mutual funds shows lower return if compared to Benchmark-C which consist of 100% of composite index return. In the last 2 years period, using Benchmark-A, there are 8 mutual funds that have higher return than benchmark, while using Benchmark-B and Benchmark-C; there are 6 and 5 mutual funds that have higher return than benchmark respectively.

4.1.5 Concluding Remark about Mutual Funds Performance

Looking at the result of equity mutual funds measurement in different period, we can see that the mutual funds that perform better tend to have higher Sharpe Ratio and Treynor Measures. Although there is indication in the beginning of the period measured that some mutual funds with market timing ability are among the top performer, they are not the only one and some of the mutual funds that does not shows market timing ability actually shows similar or better return. On the last 2 years period, the mutual fund that shows market timing ability are actually among the worst performer and perform worst than the benchmark. It means there is no association between market timing ability and mutual fund performance.

It can also be seen the consistencies of Sharpe Ratio, Treynor Measures, and market timing ability result using different benchmark with different proportion between index return and risk free. Although the proportions that compose the benchmark affect which mutual funds that performs higher than benchmark, it does not affect the conclusion of this study.

4.2 Yearly Mutual Fund Performance

The following table shows the yearly mutual fund return, sorted based on fourth year return.

Table 4.25 Yearly Returns of Mutual Funds

Mutual Fund Name	Return Year 1	Return Year 2	Return Year 3	Return Year 4
Emco Mantap	-7.7595%	7.1937%	2.3622%	2.2934%
First State IndoEquity Dividend Yield Fund	-4.6129%	5.4261%	1.6419%	0.9964%
Portfolio Panin Dana Maksima*	-2.6328%	7.1417%	6.0307%	0.9819%
Panin Dana Prima*	-2.9417%	7.5930%	4.0598%	0.8238%
Trimegah - Trim Kapital	-5.4414%	6.1966%	2.9279%	0.8070%
Schroder Dana Istimewa	-3.7474%	6.0331%	2.8924%	0.5562%
GMT Dana Ekuitas	-3.6228%	7.2109%	2.5586%	0.5118%
First State IndoEquity Sectoral Fund	-4.6172%	5.8283%	2.4115%	0.4676%
Reksadana Danareksa Mawar	-4.9888%	5.9079%	2.6040%	0.4006%
Schroder Dana Prestasi Plus	-3.6146%	6.0841%	2.5249%	0.2415%
Rencana Cerdas	-3.9853%	5.7038%	2.9718%	0.2152%
Syailendra Equity Opportunity Fund	-4.0655%	6.2303%	3.7847%	0.1974%
BNP Paribas Ekuitas	-5.0662%	6.6361%	2.8835%	0.1743%
Manulife Phinisi Dana Saham	-4.3180%	5.9839%	2.4361%	0.1300%
Batavia Dana Saham Optimal	-6.2822%	6.4682%	2.7747%	0.0836%
Bahana TCW Dana Prima	-4.7720%	6.3717%	2.3986%	0.0742%
CIMB-Principal Equity Aggressive	-5.1140%	5.9375%	1.9986%	0.0600%
Mandiri Investa Atraktif	-5.3743%	6.0562%	2.5780%	-0.0003%
Dana Ekuitas Prima	-4.6993%	6.3188%	2.6138%	-0.0127%
Axa Citradinamis	-4.9934%	5.5897%	2.0244%	-0.0341%
Manulife Dana Saham	-4.6902%	6.1094%	2.5201%	-0.0372%
MANULIFE SAHAM ANDALAN	-4.4814%	6.6588%	2.8074%	-0.0430%
Batavia Dana Saham	-3.8222%	6.9429%	2.4749%	-0.0893%
AAA BLUE CHIP VALUE FUND	-4.7678%	5.1361%	2.1095%	-0.0987%
Mega Dana Saham	-6.1156%	5.0363%	2.1399%	-0.1149%
NISP Indeks Saham Progresif	-3.1932%	6.1339%	2.4670%	-0.1220%
Reksa Dana Danareksa Mawar Agresif	-6.8076%	5.7183%	1.8696%	-0.1612%
BNI Berkembang	-8.4243%	6.3714%	2.1282%	-0.1890%
Dana Ekuitas Andalan	-4.2313%	6.1047%	2.4754%	-0.1932%
Lautandhana Equity	-6.1305%	6.0801%	1.7042%	-0.2926%

Table 4.25 Yearly Returns of Mutual Funds (continued)

Corfina Capital - Grow 2 Prosper	-3.3199%	7.5726%	3.0940%	-0.4385%
Jisawi Saham	-4.9559%	5.5114%	2.6795%	-0.4605%
BNP Paribas Infrastruktur Plus	-4.8184%	6.3470%	2.7065%	-0.5056%
Pratama Saham	-5.4799%	9.2463%	2.8987%	-0.6426%
Pratama Ekuitas	-5.6040%	8.1937%	2.5819%	-0.6437%
Mega Dana Ekuitas	-5.3794%	5.4789%	0.9031%	-1.4893%
Risk Free Average	**0.7274%**	**0.5799%**	**0.5417%**	**0.5451%**
Benchmark-B Average Return	**-4.3141%**	**4.9731%**	**2.9995%**	**0.4473%**

*) denotes mutual funds that consistently better than benchmark

(Source: processed data)

Table 4.26 and table 4.27 shows the statistics of the yearly average return of the mutual funds and its comparison to benchmark respectively.

Table 4.26 Statistics of Yearly Returns of Mutual Funds

	Average (Ri)	Min(Ri)	Max(Ri)	StDev(Ri)	Average (Rf)
Year 1	-4.8575%	-8.4243%	-2.6328%	1.2385%	0.7274%
Year 2	6.3487%	5.0363%	9.2463%	0.8563%	0.5799%
Year 3	2.6122%	0.9031%	6.0307%	0.8082%	0.5417%
Year 4	0.0957%	-1.4893%	2.2934%	0.6168%	0.5451%

(Source: processed data)

Table 4.27 Yearly Returns of Mutual Funds Compared to Benchmark

		Benchmark Average Return		
	Average (Ri)	Benchmark-A (80% Index)	Benchmark-B (90% Index)	Benchmark-C (100% Index)
Year 1	-4.8575%	-3.7539%	-4.3141%	-4.8742%
Year 2	6.3487%	4.4850%	4.9731%	5.4613%
Year 3	2.6122%	2.7264%	2.9995%	3.2726%
Year 4	0.0957%	0.4581%	0.4473%	0.4364%

(Source: processed data)

The statistics shows that in the first year, the average return of mutual funds is negative and much lower than the risk-free rate. The average return of the

mutual funds for the first year is also lower than Benchmark-A and Benchmark-B, and only marginally better than Benchmark-C. Given the market condition in 2008, the investors would want to switch the fund to invest in risk-free rate, but given the limitation of equity mutual funds, they still have to invest 80% of the fund in stocks. It means that on the first year, the most appropriate benchmark to compare the return would be Benchmark-A, and the average return is lower than benchmark. Using Benchmark-B as comparison, 11 mutual funds records smaller loss compared to benchmark in the first year.

Interestingly, only in the second year that the average mutual fund return higher than benchmark. In the third and fourth year, the average mutual fund return is lower than any of the benchmark. It shows that on yearly basis, the mutual funds tend to perform worst than worst than benchmark.

It is also interesting to note that the average return of the benchmark is lower than the average risk free rate in the fist and fourth year. During this period, majority of the mutual funds have lower return than the market. In the second and third year, the average benchmark return is higher than the average risk free return. In the same period, all mutual funds observed record higher than benchmark average return.

The result shows that only 2 mutual funds consistently have higher average return than benchmark each year: Portfolio *Panin Dana Maksima* and *Panin Dana Prima*. Comparing to the market timing result above, only one of these mutual funds have market timing: *Panin Dana Prima*. The other 1 mutual funds; *Portfolio Panin Dana Maksima*; does not show any market timing ability even though it consistently outperform the benchmark. Three mutual funds that shows market timing ability in the period observed; *Corfina Capital - Grow 2 Prosper*, *GMT Dana Ekuitas* and *Batavia Dana Saham*; fail to consistently outdone the market. This result shows that market timing ability may not be a good indicator of consistent performance, and there might be other factors that contribute to this persistence in mutual funds performance. Further study is recommended to find the possible factors of this persistence.

4.3 First 3 Years versus Fourth Year Performance

This section tries to compare the first 3 year Sharpe Ratio and Market timing, and comparing to the fourth year performance. The summary of the result is shown in the following table, sorted based on fourth year return.

Table 4.28 First 3 Year Sharpe and Market versus Fourth Year Return

	Fourth Year	First 3 years				
Mutual Fund Name	**Return**	**Return**	**Sharpe Ratio**	**Beta**	**Treynor Ratio**	**Market Timing**
Emco Mantap*	2.2934%	0.5988%	-0.0013	1.3318	-0.0001	No
First State IndoEquity Dividend Yield Fund*	0.9964%	0.8184%	0.0199	1.1344	0.0018	No
Portfolio Panin Dana Maksima*	0.9819%	3.5132%	0.3021	1.0251	0.0283	No
Panin Dana Prima*	0.8238%	2.9037%	0.2147	1.1732	0.0195	No
Trimegah - Trim Kapital*	0.8070%	1.2277%	0.0533	1.2904	0.0047	No
Schroder Dana Istimewa*	0.5562%	1.7260%	0.1256	1.0044	0.0110	No
GMT Dana Ekuitas*	0.5118%	2.0489%	0.1332	1.1914	0.0120	Yes
First State IndoEquity Sectoral Fund*	0.4676%	1.2075%	0.0574	1.1647	0.0051	No
Reksadana Danareksa Mawar	0.4006%	1.1743%	0.0547	1.1565	0.0048	No
Schroder Dana Prestasi Plus*	0.2415%	1.6648%	0.1184	1.0097	0.0104	No
Rencana Cerdas*	0.2152%	1.5634%	0.0934	1.1442	0.0083	No
Syailendra Equity Opportunity Fund*	0.1974%	1.9832%	0.1166	1.2685	0.0108	No
BNP Paribas Ekuitas*	0.1743%	1.4845%	0.0799	1.2422	0.0070	No
Manulife Phinisi Dana Saham*	0.1300%	1.3673%	0.0800	1.0742	0.0070	No
Batavia Dana Saham Optimal	0.0836%	0.9869%	0.0308	1.3062	0.0028	No
Bahana TCW Dana Prima*	0.0742%	1.3328%	0.0660	1.2401	0.0058	No
CIMB-Principal Equity Aggressive	0.0600%	0.9407%	0.0300	1.2085	0.0027	No
Mandiri Investa Atraktif	-0.0003%	1.0867%	0.0407	1.3098	0.0036	No
Dana Ekuitas Prima*	-0.0127%	1.4111%	0.0722	1.2567	0.0063	No
Axa Citradinamis	-0.0341%	0.8736%	0.0245	1.1756	0.0022	No
Manulife Dana Saham*	-0.0372%	1.3131%	0.0742	1.0757	0.0065	No

Table 4.28 First 3 Year Sharpe and Market versus Fourth Year Return (continued)

MANULIFE SAHAM ANDALAN*	-0.0430%	1.6616%	0.1016	1.1750	0.0089	No
Batavia Dana Saham*	-0.0893%	1.8652%	0.1227	1.1245	0.0111	Yes
AAA BLUE CHIP VALUE FUND	-0.0987%	0.8260%	0.0203	1.1532	0.0018	No
Mega Dana Saham	-0.1149%	0.3535%	-0.0208	1.3226	-0.0020	No
NISP Indeks Saham Progresif*	-0.1220%	1.8025%	0.1291	1.0450	0.0114	No
Reksa Dana Danareksa Mawar Agresif	-0.1612%	0.2601%	-0.0281	1.3737	-0.0026	No
BNI Berkembang	-0.1890%	0.0251%	-0.0467	1.3590	-0.0044	No
Dana Ekuitas Andalan*	-0.1932%	1.4496%	0.0815	1.1684	0.0071	No
Lautandhana Equity	-0.2926%	0.5513%	-0.0063	1.1506	-0.0006	No
Corfina Capital - Grow 2 Prosper*	-0.4385%	2.4489%	0.1727	1.1248	0.0163	Yes
Jisawi Saham	-0.4605%	1.0784%	0.0444	1.1656	0.0040	No
BNP Paribas Infrastruktur Plus*	-0.5056%	1.4117%	0.0729	1.2455	0.0064	No
Pratama Saham*	-0.6426%	2.2217%	0.1191	1.4777	0.0109	No
Pratama Ekuitas*	-0.6437%	1.7239%	0.0852	1.3880	0.0080	No
Mega Dana Ekuitas	-1.4893%	0.3342%	-0.0256	1.1659	-0.0024	No
Average (Rf)	0.5451%	0.6163%				
Average (Rm)-Benchmark-B	0.4473%	1.2195%				

*) denotes the mutual funds that perform better than benchmark in the first 3 years.

(Source: processed data)

From the result, it can be shown that in the fourth year, only 8 mutual funds achieve higher than Benchmark-B average return. From these 8 mutual funds, only four have previously good Sharpe Ratio and Treynor Ratio in the first 3 years as shown by higher-than-benchmark Sharpe Ratio. These mutual funds are: *Portfolio Panin Dana Maksima, Panin Dana Prima, Schroder Dana Istimewa,* and *GMT Dana Ekuitas.* Most of the mutual funds with good Sharpe Ratio in the first 3 years actually have lower average return than benchmark. Some of the mutual funds which is in the top 10 in term of Sharpe Ratio and

Treynor Measures in the first 3 years are actually one of the worst performer and in the bottom 10 in term of average return in the fourth year.

Looking at the result of market timing for the first 3 years, we can see that only four mutual funds shows market timing ability with positive c coefficient and significant at α=5%. These mutual funds are: *GMT Dana Ekuitas, Batavia Dana Saham,* and *Corfina Capital - Grow 2 Prosper*. *Panin Dana Prima,* which shown market timing ability in the 4 year analysis, does not shown market timing ability in the 3 years analysis.

The result shows that only one mutual fund with market timing ability in the first 3 years can beat the benchmark in term of average return in the fourth year. Result for the first 3 years also shows that most of the mutual funds with good Sharpe Ratio and Treynor Measures in the first 3 years are performing worst than benchmark in the fourth year in term of average return. From these results it can be concluded that Sharpe Ratio, Treynor Measures and Market Timing cannot be a good predictor for future performance. Investor should not use Sharpe Ratio, Treynor Measures and market timing to predict future performance of mutual funds

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

Based on analysis on chapter 4, the following conclusion can be drawn:

- Looking at the result of equity mutual funds measurement in different period, there is an indication that the mutual funds that perform better tend to have higher Sharpe Ratio and Treynor Measures. But in terms of market timing, there is no strong association between market timing ability and mutual fund performance. It can also be seen that the consistencies of Sharpe Ratio, Treynor Measures, and market timing ability result using different benchmark with different proportion between index return and risk free. Although the proportions that compose the benchmark affect which mutual funds that performs higher than benchmark, it does not affect the conclusion of this study.
- This study shows that only 4 mutual funds consistently have higher average return than benchmark each year: *Portfolio Panin Dana Maksima*, *Panin Dana Prima*, *Schroder Dana Istimewa*, and *GMT Dana Ekuitas*. But only one of the mutual funds has market timing: *Panin Dana Prima*. This result shows that market timing ability may not be a good indicator of consistent performance for mutual funds.
- The result shows that only one mutual fund with market timing ability in the first 3 years can beat the benchmark in term of average return in the fourth year. Result for the first 3 years also shows that most of the mutual funds with good Sharpe Ratio and Treynor Measures in the first 3 years are performing worst than benchmark in the fourth year in term of average return. From these results it can be concluded that Sharpe Ratio, Treynor Measures and Market Timing cannot be a good predictor for future performance.

5.2. Limitation of Study

This thesis is far from perfect, and there are a several limitations in this study:

- This thesis only analyzes the mutual funds using Sharpe Ratio, Treynor Measure, and market timing in order to find the characteristic of good mutual funds. But there might be other factor or characteristic that can be analyzed out of the mutual funds.
- Due to time constraint for submission of the thesis, this study only analyzes the regular equity mutual funds.

5.3. Recommendation

Considering the process, method, and outcome of this study there are a few recommendation for future study and improvement:

- For Investors: this study shows that although mutual funds with higher performance in the same period have higher Sharpe Ratio and Treynor Measures, investor should not rely on Sharpe Ratio, Treynor Measures and market timing to predict future performance of mutual funds.
- For further study: this study shows that only one mutual fund that shows market timing ability can consistently perform better than market; the other mutual funds with persistent performance do not have market timing ability. There might be other factors that contribute to this persistence in mutual funds performance and further study is recommended to find the possible factors for this performance persistence. Considering the limitation of this study, further study for other type of mutual funds is recommended.

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Yahoo! Finance (finance.yahoo.com)

APPENDIX

Appendix 1. BI Rate January 2008 to March 2012

Date	BI Rate
8-Jan-2008	8.00%
6-Feb-2008	8.00%
6-Mar-2008	8.00%
3-Apr-2008	8.00%
6-May-2008	8.25%
5-Jun-2008	8.50%
3-Jul-2008	8.75%
5-Aug-2008	9.00%
4-Sep-2008	9.25%
7-Oct-2008	9.50%
6-Nov-2008	9.50%
4-Dec-2008	9.25%
7-Jan-2009	8.75%
4-Feb-2009	8.25%
4-Mar-2009	7.75%
3-Apr-2009	7.50%
5-May-2009	7.25%
3-Jun-2009	7.00%
3-Jul-2009	6.75%
5-Aug-2009	6.50%
3-Sep-2009	6.50%
5-Oct-2009	6.50%
4-Nov-2009	6.50%
3-Dec-2009	6.50%
6-Jan-2010	6.50%
4-Feb-2010	6.50%
4-Mar-2010	6.50%
6-Apr-2010	6.50%
5-May-2010	6.50%
3-Jun-2010	6.50%
5-Jul-2010	6.50%
4-Aug-2010	6.50%
3-Sep-2010	6.50%
5-Oct-2010	6.50%
4-Nov-2010	6.50%
3-Dec-2010	6.50%
5-Jan-2011	6.50%
4-Feb-2011	6.75%
4-Mar-2011	6.75%
12-Apr-2011	6.75%
12-May-2011	6.75%
9-Jun-2011	6.75%
12-Jul-2011	6.75%
9-Aug-2011	6.75%
8-Sep-2011	6.75%
11-Oct-2011	6.50%
10-Nov-2011	6.00%
8-Dec-2011	6.00%
12-Jan-2012	6.00%
9-Feb-2012	5.75%
8-Mar-2012	5.75%

(Source: www.bi.go.id, editted)