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PERFORMANCE RANKING FOR EQUITY TYPE OF MUTUAL FUNDS IN INDONESIA FOR THE PERIOD OF 2005 – 2010 USING SHARPE, TREYNOR, AND JENSEN ALPHA RATIOS

THESIS

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0906585686

FACULTY OF ECONOMICS
MASTER OF MANAGEMENT PROGRAM
JAKARTA
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Proposed as one of the requirements to obtain a Master degree in Management

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FACULTY OF ECONOMICS
MASTER OF MANAGEMENT PROGRAM
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JAKARTA
JULY 2011

HALAMAN PERNYATAAN ORISINALITAS

Tesis ini adalah hasil karya saya sendiri,
dan semua sumber baik yang dikutip maupun dirujuk
telah saya nyatakan dengan benar.

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Tanggal : 12 Juli 2011

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Judul Karya Akhir	**:** *Performance Ranking For Equity Type of Mutual Funds In Indonesia For The Period Of 2005 – 2010 Using Sharpe, Treynor, And Jensen Alpha Ratios*

Telah berhasil dipertahankan di hadapan Dewan Penguji dan diterima sebagai bagian persyaratan yang diperlukan untuk memperoleh gelar Magister Manajemen pada Program Studi Magister Manajemen Fakultas Ekonomi, Universitas Indonesia

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Ditetapkan di : Jakarta

Tanggal : __ Juli 2011

KATA PENGANTAR

Puji dan Syukur dipanjatkan kepada Tuhan Yang Maha Esa sehingga penulis dapat menyelesaikan karya akhir ini yang berjudul *"Performance Ranking For Mutual Funds (Equity) In Indonesia For The Period Of 2005 – 2010 Through The Use Of Sharpe, Treynor, And Jensen Ratios"*. Karya akhir ini dibuat sebagai syarat akhir guna mendapatkan gelar Magister Manajemen (Keuangan) dari Universitas Indonesia.

Penulis menyadari sepenuhnya bahwa pencapaian selama dua tahun ini bukanlah tanpa bantuan dari berbagai pihak. Oleh karena itu, penulis hendak mengucapkan terima kasih dan apresiasi yang sebesar – besarnya kepada pihak berikut ini:

1. Bapak Prof. Rhenald Kasali PhD, selaku Ketua Program Studi Magister Manajemen Universitas Indonesia.

2. Bapak Imo Gandakusuma, MBA, selaku dosen pembimbing atas kesabaran, waktu, pikiran, saran serta motivasi agar dapat menyelesaikan karya akhir ini tepat waktu.

3. Seluruh dosen pengajar, yang telah membekali wawasan dan pengetahuan yang pasti bermanfaat bagi penulis; serta untuk semua staf akademik, staf administrasi dan staf perpustakaan MMUI, untuk fasilitas dan administrasi pendidikan yang baik selama masa studi.

4. Keluarga penulis yang selalu memberikan dukungan, semangat, dan bantuan yang tak terhingga.

5. Bank Indonesia, Bapepam LK, BEI dan berbagai instansi yang secara tidak langsung membantu penulis dalam menyelesaikan karya akhir ini dengan menyediakan data yang dapat dipakai.

6. Kawan – kawan seperjuagan di kelas F091 dan KS091 yang tidak dapat disebutkan satu persatu. You guys rocks

7. Para pembaca karya akhir ini.

8. Semua pihak yang belum disebutkan diatas namun telah memberikan kontribusi hingga penulis dapat meraih pencapaian ini.

Selain ucapan terima kasih dan apresiasi, penulis juga ingin mengucapkan permohonan maaf apabila selama ini, penulis telah melakukan kesalahan yang disengaja maupun tidak disengaja.

Last but not least, the writer wants you all to know that all of you will always have a special place in the writer's heart. The writer hopes that our friendship does not end here and will lives on forever.

Jakarta, 12 Juli 2011

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Andrew Halim

ABSTRAK

Nama   : Andrew Halim

Program Studi   : Magister Manajemen

Judul   : Peringkat Kinerja Untuk Reksa Dana Tipe Ekuitas Di Indonesia Untuk Periode 2005-2010 Mengunakan Rasio Sharpe, Treynor, Dan Jensen Alpha

Tesis ini bertujuan menganalisis kinerja reksa dana (ekuitas) yang diperdagangkan pada periode tahun 2005 sampai 2009. Hal ini dilakukan dalam rangka untuk mencari reksadana terbaik untuk periode lima tahun tersebut berdasarkan Rasio Sharpe, Treynor, dan Jensen. Hasilnya kemudian akan digunakan untuk memprediksi apakah reksadana terbaik di lima tahun tersebut masih akan menjadi yang terbaik di 2010. Tujuan dari tesis ini adalah untuk mengetahui apakah investasi masa depan dapat diprediksi (sampai tingkat tertentu) berdasarkan data historis. Sumber data yang digunakan dalam menyelesaikan tesis ini dikumpulkan dari sumber-sumber sekunder dari lembaga seperti Bank Indonesia dan Bapepam LK. Temuan penelitian ini mendukung pernyataan bahwa kinerja terbaik untuk periode lima tahun tersebut masih merupakan reksa dana terbaik untuk 2010 berdasarkan ketiga rasio tersebut.

Kata kunci: Reksa dana, Sharpe, Treynor, dan Jensen, prediksi

ABSTRACT

Name   : Andrew Halim

Program   : Master of Management

Title   : Performance Ranking For Equity Type of Mutual Funds In Indonesia For The Period Of 2005 – 2010 Using Sharpe, Treynor, And Jensen Alpha Ratios

This thesis is intended to analyze the performance of mutual funds (equity) that were traded in the period of 2005 to 2009. This is done in order to find the best performer for the five years period based on Sharpe, Treynor, and Jensen Ratios. The result would then be used to predict whether the best performer in the five years period would still perform best in 2010. The purpose of this thesis is to find out whether future investments can be predicted (to some degree) based on historical data. The sources of data used in completing this thesis were collected from secondary resources posted by institutions such as Bank of Indonesia and Bapepam LK. The findings of this thesis seems to support the claim that the best performer for the five years period was still the best performer for 2010 based on the three ratios.

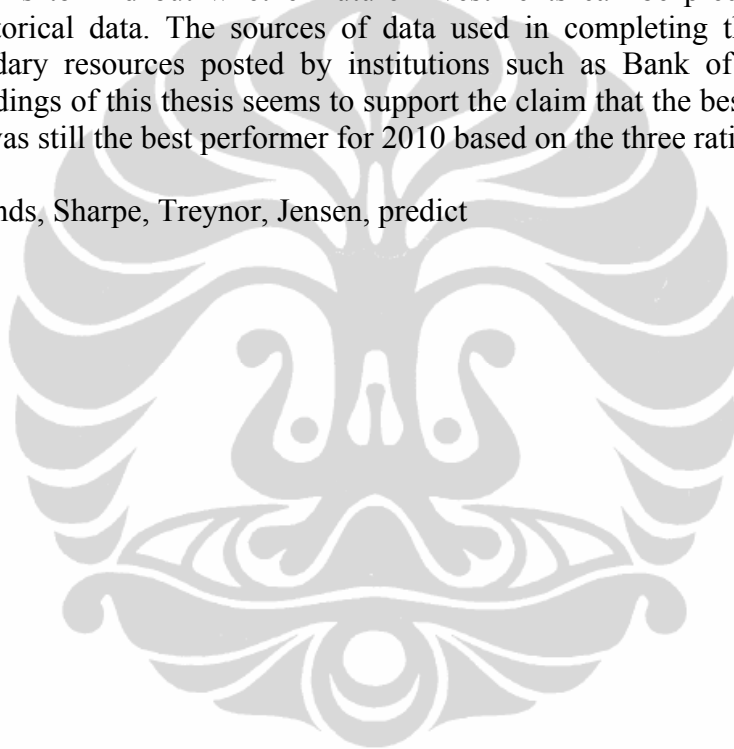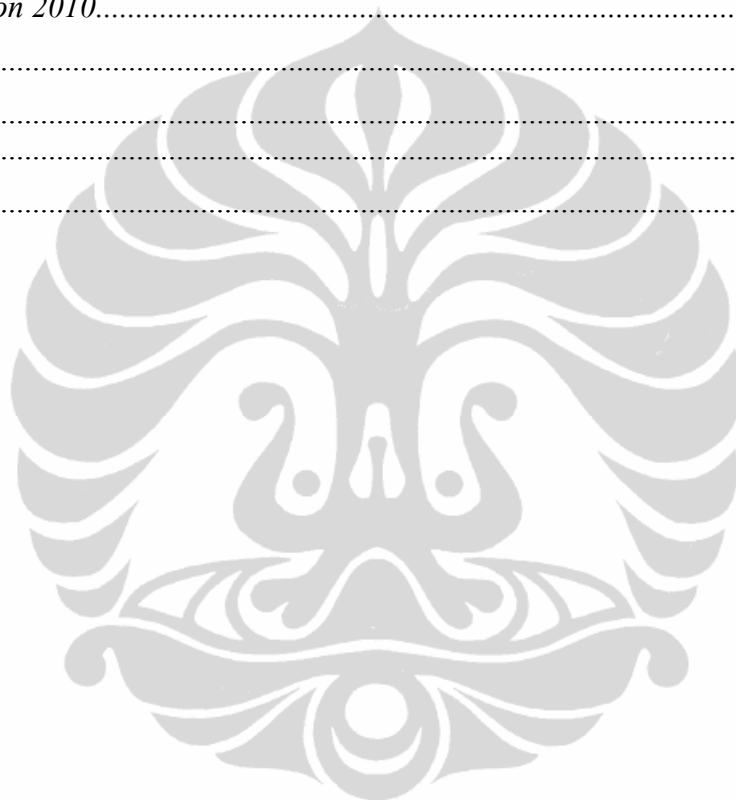Keywords: Mutual Funds, Sharpe, Treynor, Jensen, predict

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1.1 Backgrounds

There is no denying that the stock market in Indonesia has significantly flourished in this past couple of years. By comparing data between 2005 and 2009, it can be seen that: First, there has been an increase of approximately 268% or 4.44 billions more shares in average were being traded on daily basis.
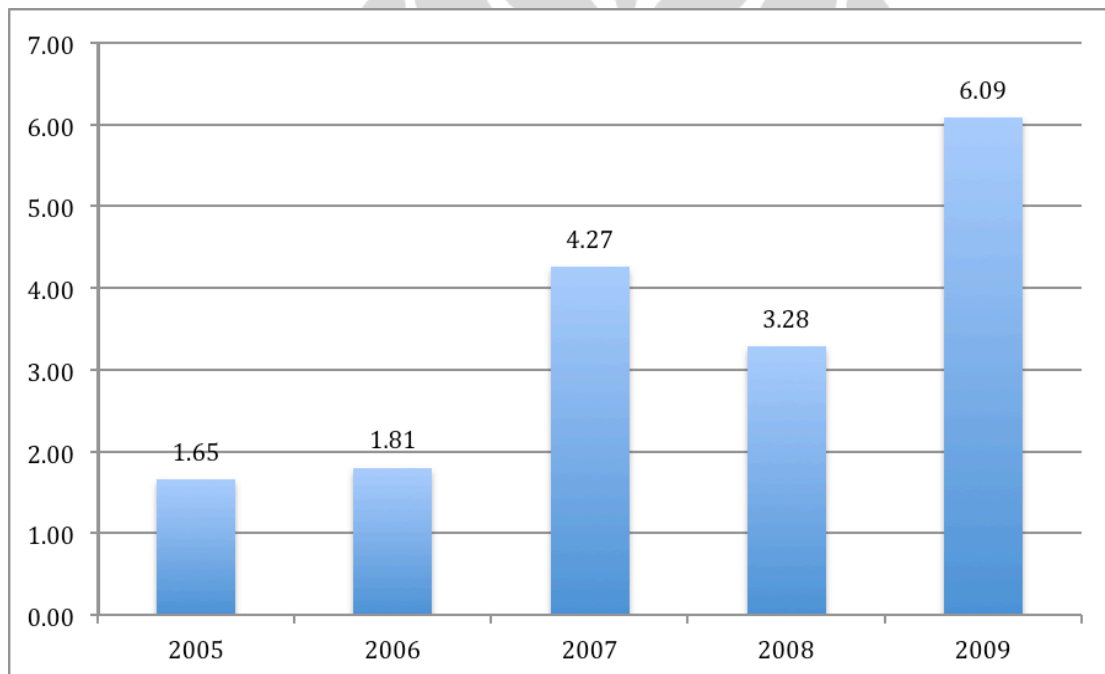
Figure 1.1: Average Daily Stock Trading Volume (in Billion Shares)
Source: www.idx.co.id/

Between 2006 and 2007, there seems to be a big jump in the average daily stock trading volume from 1.81 billion shares to 4.27 billions shares (or an increase of 136%). One factor or reason that caused this fluctuation was probably due to the fact that the Jakarta Stock Exchange (JSX) and Surabaya Stock Exchange (SSX) were merged into Indonesian Stock Exchange (IDX) in 2007. Other than that, the increase might also be a result of capital inflow from foreign into the Indonesian market.

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Secondly, there has been an increase of approximately 143% or Rp. 2.38 trillions more shares in average were being traded on daily basis.
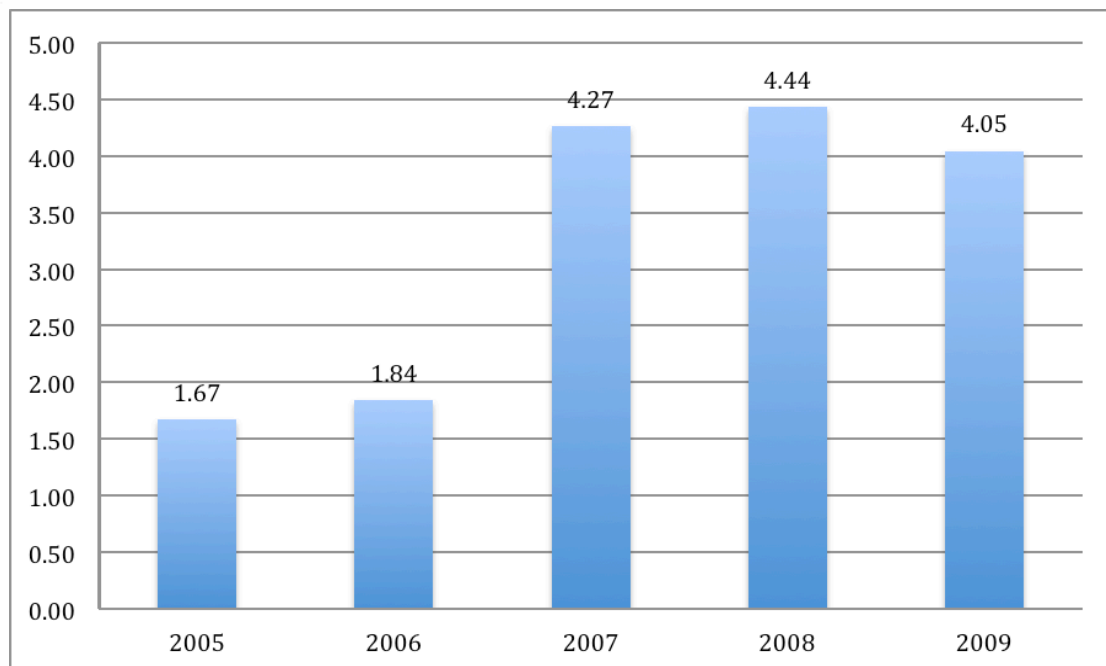
Figure 1.2: Average Daily Stock Trading Value (in Rp Trillion)
Source: www.idx.co.id/

Once again, the effects of the above-mentioned factors were also can be seen in significant increase in the average daily stock trading value between 2006 and 2007. As shown in Figure 1.2, there was an increase of Rp 2.43 trillions or 132% in the value between the two years.

Third, looking at the number of times (frequency) that stocks being traded on daily basis, it can be seen that there has been an increase of approximately 412% or 70 thousands more than the figure in 2005. And last but not least, as the results of the two factors mentioned in page 1, the increase in average daily stock trading number from around 20 thousands times to 48 thousands times between 2006 and 2007. Aside from the two factors mentioned above, the improvement of performance or quality of the Indonesian Stock Exchange (IDX) probably played some part in these increases.
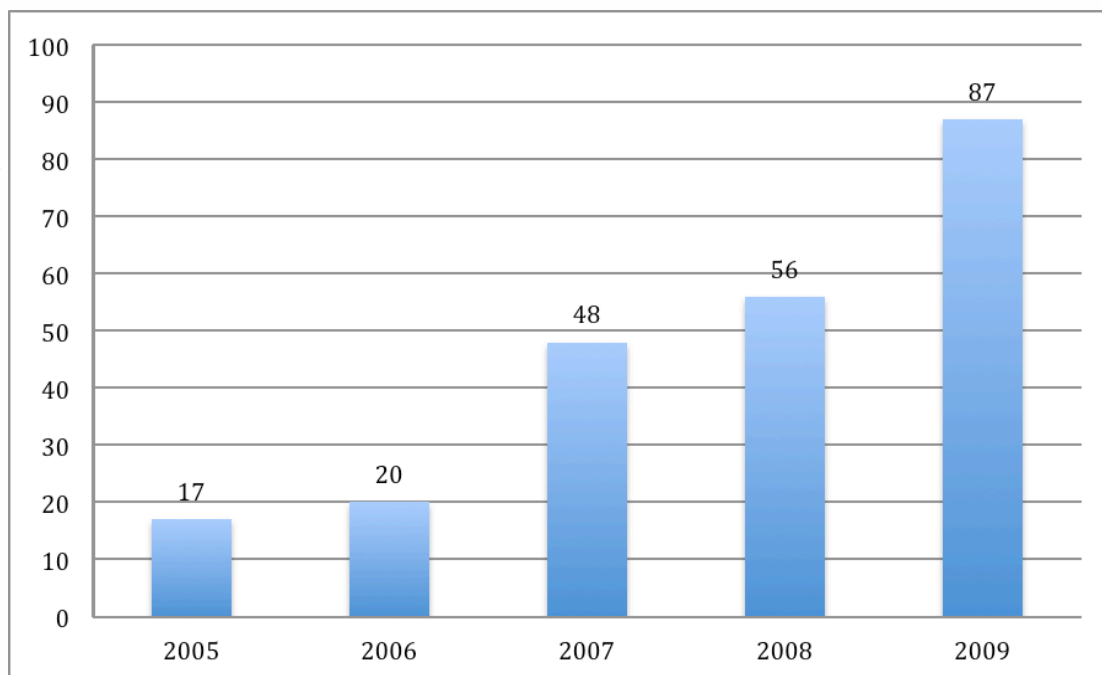
Figure 1.3: Average Daily Stock Trading Number of Trades (in Thousands)
Source: www.idx.co.id/

Next, by examining the market capitalization and the number of listed companies:
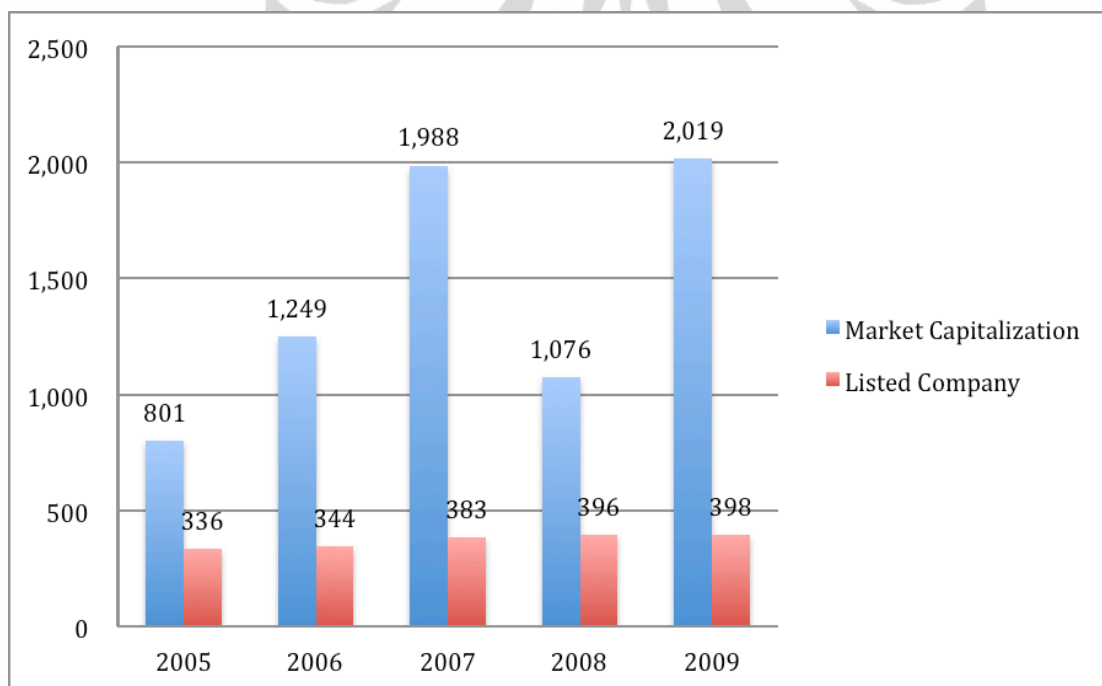
Figure 1.4: Market Capitalization (in Rp Trillion) and Number of Listed Companies
Source: www.idx.co.id/

It can be seen that the figure for market capitalization is somewhat similar to Figure 1.1, where the 2007 and 2009 figures were higher than the 2008 figure. This is despite the fact

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that there is almost no change (compared to the amount of market capitalization) in the number of listed companies in the Indonesian Stock Exchange (IDX). In term of the market capitalization, the increase between the 2006 and 2007 figures seems to be in accordance to the factors mentioned above. But in terms of the listed companies, the increase was very minimal despite of the merge of the two stock exchanges.

Finally, looking at the proportions of industry which made up the market for 2007 to 2009, it can be seen that:
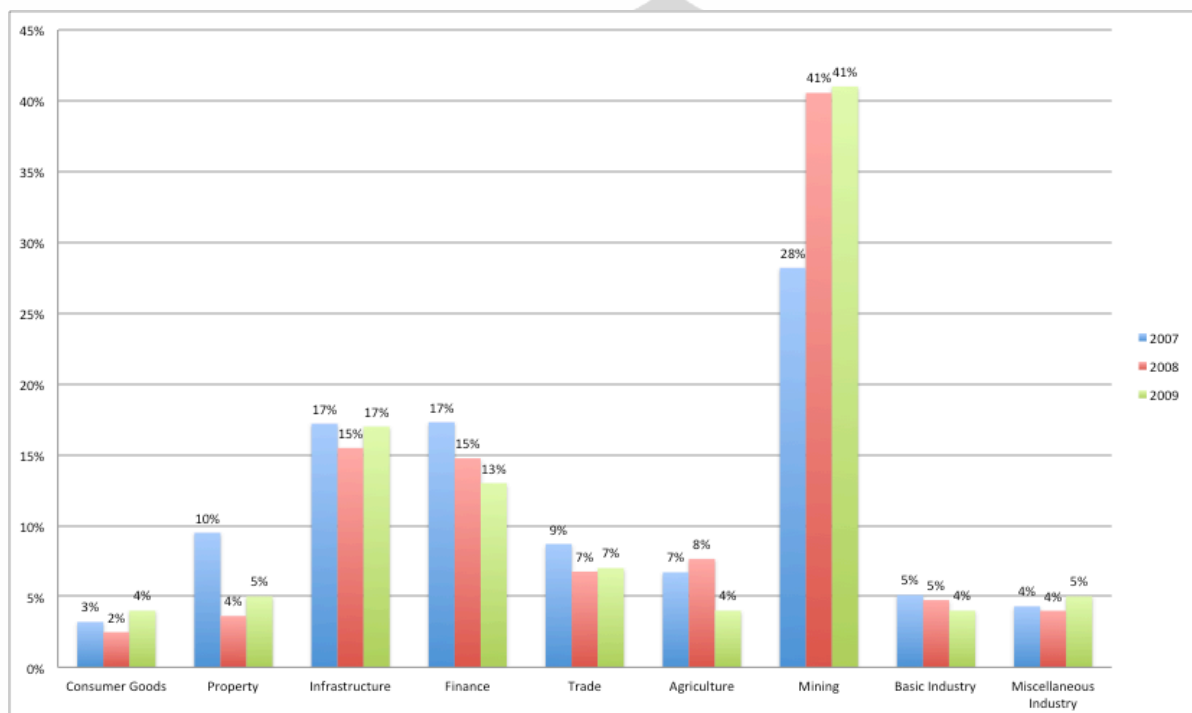
Figure 1.5: Percentage of Stock Trading Value by Industry in 2007 - 2009
Source: www.idx.co.id/

Looking at the figures above, there doesn't seem to be a lot of change in the investor's preference in types of stocks. For the period of 2007 to 2009, the 'mining' type of stocks was still the most preferred in the market; followed by infrastructure stocks and finance stocks (though it seems that these types of stock have decrease gradually in the past three years).

Next, examining the people involved in the daily activities of the stock exchange, it is also undeniable that not every investor is good at making investment decision. Even for some, it may comes down to putting their faith on the 'luck of the draw' (e.g. trusting their 'feelings') or purchased volatile stocks in the hopes of 'striking gold' (e.g. they hope that when they

bought a stock, it has reached the bottom and going to go up soon). Though this method may sometimes proven to be successful, but making investment decision without doing some kind of research or/and calculation may result in disaster. And this is where mutual fund comes to play. Referring to the number of mutual funds that can be found in the Indonesian market for the period 2005 to 2009:
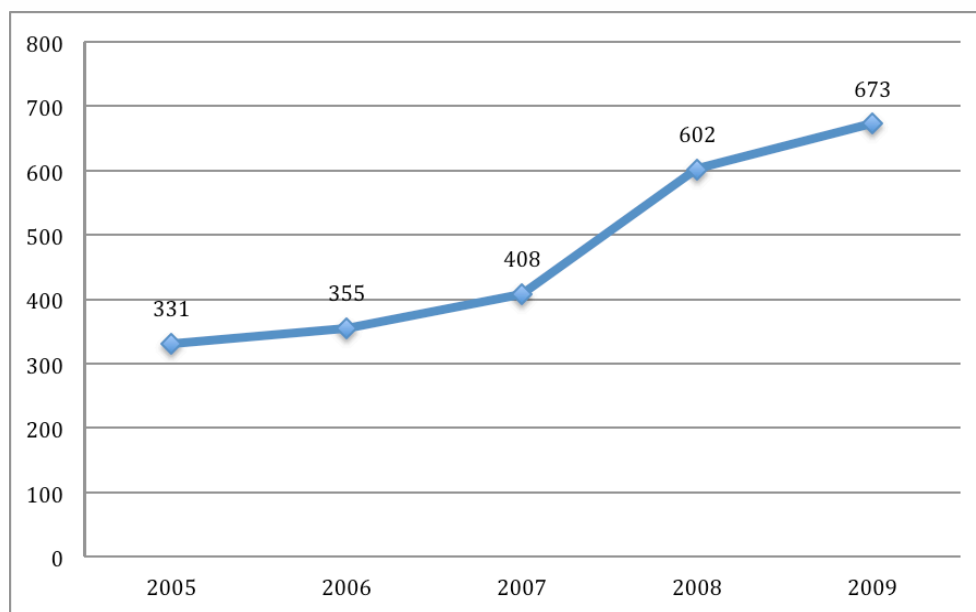
Figure 1.6: Number of Mutual Funds (2005 - 2009)
Source: Pratomo et al. (2009) pg 111 and http://www.waspada.co.id/

It can be seen that in the period of 5 years, the numbers of mutual funds in 2009 seem to have grown twice compared to the figure in 2005. This somewhat can be correlated with the number of stocks being traded daily (value, volume, and number of times) as shown in Figure 1.1 to Figure 1.3. This shows that mutual funds have become more and more acceptable by the market along side other investment instruments such as savings and time deposits. But unfortunately, unlike time deposit, an investor cannot (or should not) decide which mutual funds to be chosen by simply looking for the highest return given. This is as, different to time deposit where the return can somewhat be predictable (or another words, relatively constant), some (if not most) mutual funds such as the equity type which are filled with stocks can get (which is more often than not) volatile at times. So some kind of analysis by those investment advisers (or at least by someone with intermediary knowledge of the market) is required to make full use or benefits that may come from owning mutual fund.

In this study, the writer is going to rank mutual funds based on historical data for the period of 2005 to 2009 using tools or ratios that are known as Sharpe Ratio, Treynor Ratio, and Jensen Alpha Ratio. The reason that these tools were chosen is because they are current the most commonly used and the best performance measurement tools known in the market. These tools are not only considers the return of a mutual funds, but also the risk (an important factor in considering a worthy investment). After finding out which of the mutual fund that performed best in the period of 2005 to 2009, the writer hopes to use the information to predict the mutual fund that will perform best in 2010.

1.2   Problem Formulations

As mentioned above, the main questions that will be brought up and answered in this study are:

1.   Which are the best performing mutual funds (2005 – 2009) annually and cumulatively based on performance measurement tools: Sharpe Ratio, Treynor Ratio, and Jensen Alpha Ratio?

2.   Which were the most systematically risky mutual funds for the periods of 2005 to 2009 annually and cumulatively?

3.   Does the best performer for the five years period (2005 to 2009) still remains the best in 2010?

1.3   Research Purposes

Based on the problem formulations above, the purposes of this research are to:

1.   Find out which of the mutual funds that can be found in the market were actually the best annually and cumulatively based on performance measurement tools: Sharpe Ratio, Treynor Ratio, and Jensen Alpha Ratio.

2.   Determine which were the most systematic risky mutual funds for 2005 to 2009 on annual and cumulative basis.

3.   Check whether the best performer for the five years period (2005 to 2009) still remains the best in 2010.

1.4   Sample Selection Criteria

In making this study, some criteria were set to make it more specific and concise. The criteria for the mutual funds were:

1.   At least still traded from 1 December 2004 to 31 December 2010

2.   The type must be mutual fund (equity)

3.   Still active per 11 April 2011

4.   In IDR

5.   The data from Bapepam LK must have the monthly NAV and the units included

For the first criteria, the reason that the December 2004 figures for each of the mutual funds and Indonesian Composite Index were still included were because in order to get the return for January 2005 figures, each of them need to be deducted by the figures of the December 2004. For the second criteria, due to the time and space constraint, it is not wise to attempt to describe and create variables for each type of mutual funds that can be found in the market. While, the reason that the equity type was selected as the focus of this study was because this type of mutual fund tends to offer higher returns while at the same time, also having higher risks compared to the other types of mutual funds. For the third criteria, the date of 11 April 2011 happened to be the date that the writer started to collect the data and there was no particular reason behind the selection of that date. For the fourth criteria, the reasons that the mutual funds need to be in IDR were because: 1. It is the local currency in Indonesia; 2. Mutual funds in this currency is one of (if not the most) common type that can be found in the general market aside from those in USD; 3. The data regarding mutual funds in IDR are relatively complete and can be found easily in the Bapepam LK's website. Last but not least, for the fifth criteria which is related to the point number four, the data regarding those selected mutual funds must contain the monthly NAV and the units included in order to complete the calculations required.

Based on the five criteria mentioned above, following are the 14 mutual funds were met the requirements. They were:

•   Bahana Dana Prima

•   Batavia Dana Saham

•   BNI Reksadana Berkembang

•   BNP Paribas Ekuitas

•   Manulife Dana Saham

•   Panin Dana Maksima

•   Phinisi Dana Saham

•   Reksa Dana AXA Citradinamis

- Reksa Dana Nikko Saham Nusantara

- Reksa Dana Schroder Dana Istimewa

- Reksadana Dana Pratama Ekuitas

- Rencana Cerdas

- Schroder Dana Prestasi Plus

- TRIM Kapital

1.5   Benefits of Research

In every study created, there must be some kind of benefits that can be contributed to the society. For his study, the benefits for the academicians, the investors, and future researches are:

- To the academicians

  First, this study hopefully would be able to add, further, or continue on the past or historical studies on the subjects of mutual funds and/or the three ratios (Sharpe, Treynor, and Jensen Alpha). Secondly, this study hopefully would be considered qualified as one of the contribution from the writer to the University's library of Master Theses.

- To investors

  First and foremost, this study may provide them with tools that they can apply to their current investment. Secondly, those tools may also be used to assist them in making future purchases of mutual funds. Third, aside from the current and future purchases, investors may also apply those methods used in this study to evaluate their past purchases and find out whether the returns (while keeping in mind, the risks involved) from the mutual funds that they had, were really maximized.

- To future researches

  First, hopefully this study will be able to provide ideas for future researches, either in the form of further studies or new researches. Secondly, at the very least, the writer hopes that this study will be able to tweak the interest of those who reads it.

1.6 Writing Frames

The writing in this study is divided into 5 chapters:

CHAPTER 1: Introduction

In this chapter, the writer described the situations of the stock market (Indonesian Stock Exchange) and the markets for mutual funds in general in Indonesia for the period of 2005 to 2009. In addition, this chapter also highlights the problems that will be covered in this study along with the potential solution to the issues, the limitations of the study, benefits of the research, methodology of the research, and the writing frames.

CHAPTER 2: Literature Review

In this chapter, the writer will include all the facts and theories which cover the history of mutual funds, benefit of mutual funds, risk involved with owning mutual funds, and many more. Also, this chapter will also covers the previous studies which influence the way that this study was written.

CHAPTER 3: Research Methodology

In this chapter, the writer will cover the methodology used in the researches and analyses that will be done in Chapter 4. Such terms and methodologies that will be covered in this chapter such as:

- NAV
- Indonesian Composite Index
- Risk-Free Investment (SBI)
- Return from mutual funds
- Variance and Standard Deviation
- Beta
- Sharpe Ratio
- Treynor Ratio
- Jensen Alpha Ratio

CHAPTER 4: Analysis and Result

In this chapter, the writer will combine, analyze, and rank the findings and apply the information in order to answer the problems mentioned in section 1.2.

CHAPTER 5: Conclusion & Suggestions

In the final chapter, the writer will provide conclusions to the study and suggestions that might be useful for future researches.

CHAPTER 2

LITERATURE REVIEW

2.1   Understanding and Types of Investment

There are many ways to define the word 'investment'. According to Bank of Indonesia (http://www.bi.go.id/), investment is defined as placement of capital, usually in the long run for the procurement of fixed assets or purchase of shares and other securities to earn profits. While according to Reilly et al. (2006), investment is defined as a commitment to placement of current funds for a certain time period of time, in order to generate returns (in the form of payment) at the end of the period as compensation for the postponement of consumption, the expected rate of return, and the uncertainty of future payments. And according to Bodie et al. (2009), it is defined as also a current commitment of valuable resources (such as money) in order to get future benefits. In addition to providing the definition, Sharpe et al. (1990), also mentioned that there are two factors that cannot be separated from an investment. They are: time and risk. The reason that risk is also considered as part of an investment is because though the sacrifice in the form of commitment on current valuable resources (cost) is certain, but whether there's a gain at the end of the period is still remains uncertain.

Based on the definitions provided above, it can be concluded that the objective of making an investment is to gain return in the future, while at the same time, taking on uncertainty risk and sacrificing current benefits. And so, in order to know whether the investment made has been worthy or not, yields and risks are the usual measurements used to assess on the performance.

In term on the types of investment, according to Bodie et al. (2009), there are two types of assets that can be found in the market:

*   Real Assets. This type of investment is in the form of land, buildings, corporations, equipment or machineries used to produce goods and services, and includes workers whose expertise is used to process these resources.

*   Financial Assets. This type of investment is in the form of stocks or bonds. This type of asset does not contribute directly to the productive capacity of the economy. But

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yet, in the well-developed countries, this how investor can claimed ownership of real assets.

In the old economies, most investments were made in real assets, while in modern economies, much of the investments were made in the financial assets. This is at least according to Sharpe et al. (1990). In addition, despite being different in term of forms, but the two types of assets can be seen as complementary instead of competitive. In fact, a highly developed real asset can be as a result of highly developed investment in financial assets.

In making an investment on the stock market, an investor can either make a direct or indirect investment. In a direct investment, an investor is making a direct investment on the stock market that consists of money market investment, capital markets investment, and derivatives investment. While in an indirect investment, an investor is investing through purchasing shares in mutual funds. For this study, the writer will focus only on the indirect investment.

2.2 History of Mutual Fund

There are at least two versions of the history that this writer can find regarding the origin of mutual funds. According to Mutual Funds Resource Center (http://www.mutualfundsresource.com/), it was first introduced in Belgium. While according to Investopedia (http://www.investopedia.com/) and Economy Watch (http://www.economywatch.com/), it was first introduced in Netherlands. But all of those sources agreed that the year was 1822. It didn't take long for the idea of mutual funds to spread across Europe, and later to the US and Indonesia. In 1849, the idea of mutual funds was introduced in Switzerland and followed by Scotland in the 1880s. Later on, it spread to the Great Britain and France before making its way into the US in 1890s. In Indonesia, mutual fund was only been introduced in 1990s and it as still in the closed form. And it was only later in 1995, under the Indonesian Law no. 8 Year 1995 that mutual funds were traded in the open market.

2.3 What is Mutual Fund?

According to Merriam-Webster (http://www.merriam-webster.com/), the word 'mutual' is related to a plan whereby the members share both the profits and the expenses. While at the same time, it defined 'fund' as a sum of money or other resources that is set apart for a specific objective. And so by combining the two definitions above, basically mutual fund is a

sum of money maintain for a specific objective (or objectives) where the owners share both the profits and the expenses. According to Indonesian Law No. 8 of 1995 Article 1, paragraph 27 on the capital market, mutual funds is defined as containers or vehicle used to collect funds from public investors, which then invested in portfolio securities by fund managers (fund managers). While Bank of Indonesia (http://www.bi.go.id/), mutual fund is defined as a product used to collect funds from investors, which then invested in securities portfolio.

So by combining all of the definitions above, it can be concluded that funds collected from investor in mutual funds are being combined with funds from other investors in order to create a stronger purchasing power. This is compared to, if the investors were to invest their funds individually, the variety or volume of stocks that he can buy would probably be limited. So through mutual funds, investors will be able to 'own' several different securities, which resulted in diversification of risk.

According to Manurung (2010), mutual fund has become more and more attractive in Indonesia for these past couple of years. The reason being, the current BI rate is relatively low which resulted in the lower return for investment instruments that used interest rate as their basis; and there is also because investors do not incurred any tax if they invest on mutual funds.

There are at least two ways to categorize the types of mutual funds that can be found in the market. They can be based on the:
- Nature
- Investment Policy

2.3.1 Based on the Nature

According to Brouwer (1990), mutual funds can be divided two types based on the nature of the mutual funds.

2.3.1.1 Closed End Funds

This type of mutual funds is relatively rigid in term of number of shares that are outstanding in the market. Once shares of mutual funds have been sold to the market, the investment managers cannot buy back those shares or from another point of view, shareholders cannot sell back those shares to the investment managers. If the owners want to sell shares of mutual fund shares, it shall be done through the stock exchange where shares of mutual funds are listed. And the price of the mutual fund changes in accordance to the demand and supply in the market. This is similar to the fluctuations in stock prices in the market. As a result, the market price does not always equal to the net asset value per share.

In terms of returns, this type of mutual fund has better chances on getting higher profits compared to the open-end type. One reason would probably due to the fact that once the shares has been sold to the market, regardless whether the price of shares were to increase or decrease, the investment managers does not have to worry about having to buy-back those shares from the investors. As a result, those investment managers can focus their attention on the market and making the best investment decisions.

2.3.1.2 Open End Funds

This type mutual fund offers the option for investors to sell back their shares on the mutual funds to the investment managers at any time. The processes are done through custodian banks that have been selected by the investment managers. Under this type of mutual fund, investment managers have buy back any of their shares that the investors sold back based on Net Asset Value (NAV) per share or unit at that time.

As mentioned above, the value of this type of mutual fund is determined based on the Net Asset Value. The way to calculate NAV is by dividing the total value of portfolio by the number of shares that has been issued (usually management fees are deducted from the calculation).

To better understand the differences between the two types of mutual fund, please refer to following table:

Table 2.1
Differences Between Closed-End and Open-End Funds

No	Closed-End	Open-End
1	The investment managers sell the shares at the initial public offering, but may issue new shares through a rights issue process	The investment managers sell the shares in continuous basis as long as there are buyers
2	The shares are recorded at the Stock Exchange	The shares are not recorded at the Stock Exchange
3	Investors cannot sell back the shares to the investment managers. Instead, they can only sell those shares to other investors	Investors can sell back the shares to the investment managers.
4	The price depends on the supply and demand	The price depends on the NAV per shares which is calculated by the custodian banks
5	The share has nominal value	The share without nominal value
6	The price traded at the Stock Exchange depends on the market price	The price traded depends on the NAV
7	Initial NAV is determined by the investment managers	Initial NAV is Rp.1000
8	Return on investment derived from dividends, capital gains, and stock bonus	Return on investment derived from dividends, capital gains, and changes in the NAV value
9	Transactions in large amount has great effect, because the share prices are determined by supply and demand	Transactions in large amount has no effect, because the share prices are determined by NAV

Source: http://www.bapepam.go.id/pasar_modal/publikasi_pm/kajian_pm/studi-2005/ExchangeTF.pdf

2.3.2 Based on Investment Policy

Based on the investment policy, Bapepam LK (http://www.bapepam.go.id/) described that there are four types of mutual funds that can be found in the market: Money Market Funds, Fixed Income Market Mutual Funds, Balance Funds, and Equity Funds. But there is actually another type of mutual fund that has gained popularity in this couple of years. This type of mutual fund will be defined in section 2.3.3.5.

2.3.2.1 Money Market Funds

This type of mutual fund only invests in securities that are short-term debt with maturities of less than one year. The goal of this mutual fund is to maintain liquidity and maintaining capital. This type of mutual fund is best fitted for those looking for short-term investment. While the return from this type of mutual fund is almost the same as bank deposit, but since this type of mutual fund is relatively liquid and there is no penalty for encashment, may persuade some investors to purchase them.

2.3.2.2 Fixed Income Market Funds

At the very least, 80% of the assets in this type of mutual fund are invested in the form of debt securities such as treasury bills, bonds, and mortgages. This type of mutual fund has a relatively higher risk than money market funds. The goal of this type of mutual fund is to generate stable returns from investment.

This type of mutual fund is suitable for those investors that aim to make medium-and long-term investment. And typically, this type of mutual fund distributes profits in the form of cash dividends that is paid within a specified period of time. Under the current regulation of capital markets in Indonesia, the individual investors only subject to tax of 15 percent for the zero coupon bond.

2.3.2.3 Balance Funds

This type of mutual fund invests in combination of equity and debt securities. This type of mutual fund can be viewed as the mixture of the Fixed Income Market Funds and the Equity Funds. This type of mutual fund is perfect for those investors that are looking for medium-terms investment. The risk faced by investors owning this type of mutual funds can be said as moderate or in between the two types of mutual fund.

2.3.2.4 Equity Funds

This type of mutual fund invests at least 80% of the asset in the form of equity type of securities or in the form of stocks. This type of mutual fund faced the highest level of risk compared to the other types of mutual funds. But with high level of risks, the return from this type of mutual fund is also the highest among the types of mutual fund.

This type of mutual fund is usually diversified into several types of stocks. By diversifying the potential risk is minimize. This is compared to if the portfolio that consisted of only one kind or the stocks from one type of industry where the risk or return only depended on that one kind of type of stock. Usually, investment managers would balance their investments between the blue chip and the other types of stocks. This way, they can create a balance between the risk and return of the portfolio.

Investment managers in this case have obligations towards the investors to select stocks that have potential. This is in order to make the NAV of the mutual funds grow. The investment managers for this type of mutual fund usually have characteristics of a "risk taker" where they tend to make investment decisions that have higher risk in order to achieve higher return. In selecting an investment manager for this type of mutual funds, investors tend to look at the track record of the investment managers. This type of mutual fund usually has many options for investments. The type of mutual fund is somewhat flexible in terms of the period, even though it is better suited for those seeking long-term investments. And the rate of return that can be obtained from this type of mutual fund can be quite varied, as compared to mutual funds such as the Fixed Income Fund where the rate is somewhat stable and predictable.

For this study, the writer will focus on only this type of mutual fund.

To better understand the differences of the 4 types of mutual funds, please refer to following table

Table 2.2
Differences in the Types of Mutual Funds

Description	Money Market Funds	Fixed Income Funds	Balance Funds	Equity Funds
Purpose of Investment	Return slightly better than bank deposits	Return slightly better than bank deposits	Higher than bank deposits	Optimum Return on investment
Rate of Return	Low	Medium	Slightly high	High
Level of Risk	Low	Medium	Slightly high	High
Period of Investment	Less than 1 year	More than 1 year	More than 1 year	More than 1 year
Instrument	Commercial papers, Promissory notes, SBI	Corporate Debt, Securities	Corporate Debt, Securities, Stocks	Stocks

Source: Supriyanto (2006)

2.3.2.5 Syariah Based Funds

This type of mutual fund has recently gained popularity in Indonesia. As mentioned in the undergraduate research paper by Susetyo (2009), there are at least two differences between this type of mutual funds and the conventional equity type of mutual fund. First, different than the normal equity funds that use the Indonesian Composite Index, this type of mutual fund uses the stocks that are listed in the Jakarta Islamic Index (JII) instead. Secondly, though both types of mutual funds are influence by interest rate, but the benchmark used are different. In the conventional mutual funds, the interest rate is influence by BI Rate. While in the case of Syariah type of mutual funds, the interest rate is influence by SWBI Rate.

2.4   Advantages of Owning Mutual Funds

As any products that existed in this world, there must be advantages in owning mutual funds. Based on Nasdaq (http://www.nasdaq.com/) and Investopedia (http://www.investopedia.com/), Here are some of the advantages:

- Professionally Managed. Professionals manage mutual funds. This means that the investor's fund is being managed by those who knows (or at least more knowledgeable regarding) the market and have access to information which normally inaccessible to the general public.

- Diversification. There is a saying by Markowitz that tell people not to put all the eggs in one basket as there is a potential total loss as a result to this action. The saying is also applicable to the stock market, where an investor should not invest all his money on one type of stock (or industry). By common sense, the safest way to decrease the potential risk of losing the investment is to own as many (if not all) stocks as possible. And to do this, it requires an enormous amount of money. And so, a mutual funds becomes a better instrument to minimalize risk compare to most of an individual's portfolio.

- Easy to invest and very liquid. It is easy to invest on mutual funds and usually investment companies is able tailored the types of investment on the base on the investors risk and return appetite. And once an investor no longer wants to hold the mutual funds, he can at least 'sell' the mutual funds back to the investment companies. This is compared to time deposit which requires the holder to wait for it to matures

- Time Saver. It is safe to say that not everyone have time or willingness to sit in front of a computer or mobile phones, and constantly staring at the screen to get the most updated price on stocks. And so the presence of investment managers with their mutual fund products replaces the need for those tedious activities.

- Risk versus Cost. The cost against the risk of holding a mutual fund would probably lower compare to attempting to enter the market alone. This is as mentioned in point 1 and 2, it takes a lot of funds to diversify in order to lower the risk and the information requires to map out the market is not usually open to the public. This is in addition to the knowledge proficiency on finance for the financial adviser is usually better than the investors

2.5   Disadvantages of Owning Mutual Funds

As there are advantages, there must also be the disadvantages of owning mutual funds. Based on Nasdaq (http://www.nasdaq.com/) and Investopedia (http://www.investopedia.com/), Here are three of the disadvantages of owning mutual funds would probably be:

- Fluctuating Return. The possibility that the value of the mutual funds may fall because of external and internal factors. External factors in this case are those factors that the mutual funds manager unable to control such as earthquake in Japan and Financial Crisis of 2008 in US (which will be shown in Chapter 4, as indeed causing negative impact in the Indonesia market). While the internal factors can be as a result of bad choices made by investors or investment managers.

- Over–Diversify. Related to the internal factor as mentioned in the previous point, sometime investment managers may over-diversify. This means that sometime, investment managers may invest in stocks that are highly related between one another, possibly due to the fact that there's no other place to invest their money. As a result, the benefits of diversification may be lost along the way. Take for example; currently a portfolio contains ten types of stock that have value of Rp. 5 millions each. Then one day, the investment managers invest another Rp 2 millions to each of the stock. Did the risk decrease with the increase in investment? The answer probably no.

- Idle Money. Though the third point can be subjective, but it can become a problem at times. As there is possibility of withdrawal from the investors, investment managers tend to keep a large (or at least some) portion of their portfolio as cash. As a result, this idle money can be considered as a disadvantage.

2.6   Investment Management

In making an investment decision, investors are recommended to follow what is known as investment management. There are many ways to define the process. Some may define it as five steps process while other may define it as seven steps process though they actually the same. For this study, the writer will define the Investment Management Process in five steps as defined by Narach Investment (http://www.narachinvestment.com/):

```
┌─────────────┐
│ Setting The │◄──────────┐
│ Objectives  │           │
└─────────────┘           │
       │                  │
       ▼                  │
┌─────────────┐           │
│ Establishing│           │
│     The     │           │
│ Investment  │           │
│   Policy    │           │
└─────────────┘           │
       │                  │
       ▼                  │
┌─────────────┐           │
│ Selecting   │           │
│     The     │           │
│  Portfolio  │           │
│  Strategy   │           │
└─────────────┘           │
       │                  │
       ▼                  │
┌─────────────┐           │
│ Selecting   │           │
│     The     │           │
│   Assets    │           │
└─────────────┘           │
       │                  │
       ▼                  │
┌─────────────┐           │
│ Measuring & │───────────┘
│ Evaluating  │
│ Performance │
└─────────────┘
```
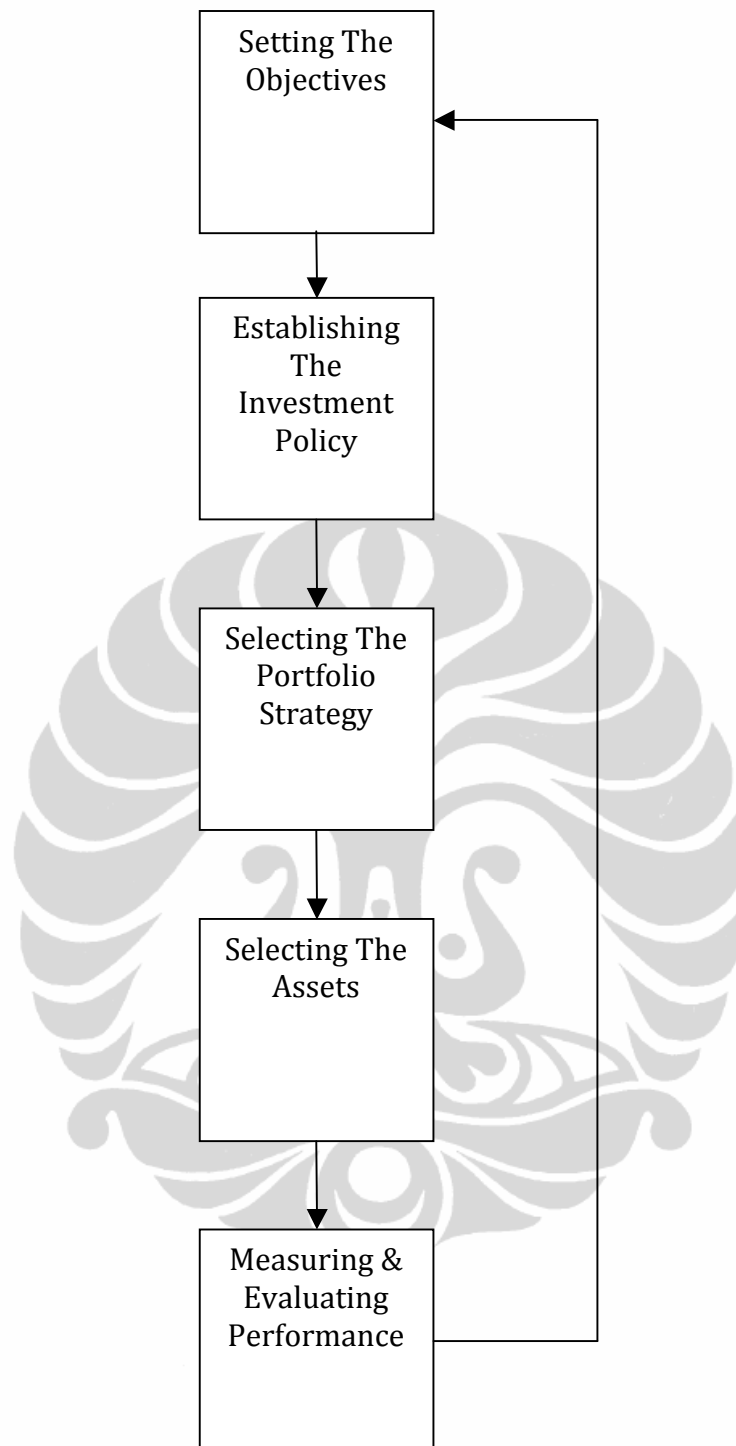
Figure 2.1: Investment Management Process

2.6.1   Setting the Objectives

The first step that an investor must do is to set the investment objective. In this case, different group of investors may have different investment objectives. Take for instance; for those pension funds, their objective would probably to get sufficient cash flow to meet their future liabilities such as redemption, dividends or claim settlement payouts. While for individual

investors, their objective might be to maximize return on investment. These objectives are closely related to what is known as risk tolerance. Normally, risk tolerances are divided into three types:

- Risk Averse

- Risk Neutral

- Risk Seekers

Someone who has 'risk adverse' characteristics tends to avoid risk as possible. This type of investors tend to choose low risk, low return types of investment such as Money Market Funds. While someone with 'risk neutral' characteristic tends to choose investments based only on the expected return (ignoring the risk). While last but not least, someone with 'risk seekers' characteristic tends to look for high-risk investment in order to increase the potential return from investment. Michael Milken or what is known as 'Junk Bond King' would probably be good example of someone who has 'risk seekers' characteristic.

Aside from the risk tolerances, objective in investment can also be influence by the time period of investments. Once again, the time period can be divided into three types:

- Short Term (less than one year)

- Medium Term (one to three years)

- Long Term (three to five years. Even though it can also be longer than five years)

2.6.2 Establishing the Investment Policy

The second step that an investor must do is to establish the investment policy. In this step, investor must begin to decide the asset allocation among the major instruments which are available in the capital market such as equities, debt, fixed income, real estates, currencies, and many more. In making the decision, those investors must keep in perspective, the external constraints (such as the government rules and regulations) and internal constraints (such as the strategies that must be undertaken).

2.6.3 Selecting the Portfolio Strategy

The third step that an investor must do is to select the portfolio strategy. The strategies selected must be consistent with the investment objectives and policies as have been covered in the previous two steps. This is as, any inconsistency would result in failure and ultimately

to the lost of investment. Take for an example, someone who works 6 days a week in a factory where each of those days, he spends in 10 hours of field work. While on Sunday, that person spent it for resting. This person is probably not suited for equity type of investment as the result would not be optimal. Instead, this person probably better suited investing in fixed incomes securities such as bonds and bank deposits.

Basically, portfolio strategies can be divided into two categories:
• Active Strategy
• Passive Strategy

The main difference between the two types of portfolio strategies is located at the motivations to make profit. Under the active strategy an investment managers will try to pick the best stocks, bonds, and mutual funds in order to make a much profit as possible. Under this strategy, they seek to achieve higher than average market returns. In order to achieve this, they tend to search out for information and developed complex methods that includes fundamental and technical analysis. The writer believes that the active strategies were applied to all the mutual funds in this study.

While under the passive strategy, those investment managers made no attempt to achieve higher than normal return and do not distinguish between attractive and unattractive securities. The main method used in this strategy is diversification. Though these investment managers want to make profit, but they are willing to settle for normal return. The judgments made under this type of strategy tend to be based on past historical data.

2.6.4   Selecting the Assets

The third step that an investor must do is to select the assets. This step can be considered to be the pivotal step in the process as this will determine whether the investment will 'make or break'. In this step, the investors or investment managers select the assets which will be included in their portfolios. In this step that the investors and investment managers attempts to create the optimal portfolios.

Some of the options for assets include:

- Equity

- Fixed income securities

- Debt instruments

- Real estate

- Currencies

2.6.5 Measuring and Evaluating Performance

The fifth step in process is to measure and evaluate the performance relative to a realistic benchmark. In relation to this study, the benchmarks can be the Jakarta Composite Index or the SBI. Aside from measuring the return of those portfolios against the benchmarks, investors or investment managers must compare those returns against the risk involved.

In this case, the tools that can be used aside from the average return are:
- Standard Deviation
- Covariance
- Beta
- Sharpe Ratio
- Treynor Ratio
- Jensen Alpha Ratio

After evaluations have been made on the portfolio, investors or investment managers may opt to drop the below than average investments and replace them with those that have potentials

2.7 **What is Risk?**

The word is probably as old as (or even older than) the history of mankind. From the dawn of humankind, it's safe to say that our ancestors (regardless whether they are aware or not) have probably known about risk. Nowadays, a person is still faced with risk in our daily life. Even long before a baby is born; he/she has already faced with risk. There is no (or almost none) action or decision that does not involved risk. From trivial things for some such as "Which shoes should I wear?" or "Should I wear this polka dots shirt to emphasize my fashion statement?" up to the complex issues such as "where should I invest my billions?"; "If I invest in this machinery, will I get my investment back in five years?" or up to the

nightmarish query for investors or investment managers such as "The market situation is not favorable right now, should I cut my loss now? How much money will I lose?". Human are constantly faced with risk. And so, it safe to say that since our ancestors time, they have practiced risk management. This is shown by the fact that they have formed guilds or hunts in packs to minimize risks. It is also safe to say that our ancestors have taken countless risks and were able to overcome some, while postponing others. This can be seen by the fact that human race still exist till now (Gallati, 2003).

Imagine if years ago, the Wright Brothers did not take risk to create the first airplane and instead, stayed in making bicycles. Then man will never or at least be delayed from ever reaching the sky. Another good example would be, if Edison did not take risk, then humankind may never know about electricity and this writer would most likely have to either write this thesis in handwriting or by typewriter accompanied by candlelight.

There are many definitions of risk. Those famous dictionaries such as Oxford Dictionaries, Cambridge Dictionaries, and Merriam-Webster Dictionary (Online) have given quite similar definition for risk. They all agree that risk is defined as situations or possibilities that can lead to danger, harm, loss, injuries and other negative results. But this is only half true as they only describe the downfall that might be incurred by someone as a result of taking risk. They failed to (or simply didn't) mention that many times if not all the time, by taking risk, someone might be able to reap gains. This usually depends on the ability of someone to see opportunities within the risks.

And so, there are those that have given a more 'neutral' definition of risk. Gallati (2003, pg 8) described it as "A condition in which there exists a possibility of deviation from the desired outcome that is expected or hoped for". To better understand the definition, Gallati breaks it into two parts. First, he defines the possibility of risk as a probability that ranges between 0 to 100%. This means that the probability is neither indefinable nor definite. Secondly, he does not agree that risk being related to negative and link to losses only. He believes that within risk, there is a possibility of the positive outcomes.

As mentioned above, risk also present when someone wants to invest in mutual funds. And so, performance measurement such as Risk Adjusted Performance Measurement (RAPM) is used to calculate the effectiveness of those mutual funds. Understanding what is risk only part of what this study is about. The other part would be to find out: How does risk influence the way that mutual funds are considered to be a good investment based on the risk involved? This will be covered in Chapters 3 and 4.

2.8   Previous Theses

The writer aware and would like to clarify (in order to avoid any misconception that may rise in the future) that this thesis is neither the first to focused on the subject of equity type of mutual funds nor the first to cover the performance measurement tools such as Sharpe, Treynor and Jensen Alpha Ratios. Prior to writing this study, the writer has read and been influenced by other similar theses such as:

- *'Analisis Kinerja Reksa Dana Saham Sebagai Alternatif Investasi Jangka Panjang (Studi Kasus : Reksa Dana Saham Periode 2003 – 2005)'* which was written by Mahdi in 2006. The writer of this thesis focused on the Sharpe Ratio. From the analyses, the writer was able to determine the best and worst performer for the study period. In addition, the writer also manages to find out that for the period of the study, the return for each of the mutual funds and IDX didn't show significant differences.

- *'Analisis Kinerja Reksa Dana Saham Di Indonesia 2003-2006'* which was written by Brian Ronggur Adobe Sihombing in 2006. The study applied the Sharpe, Treynor, Jensen Alpha, and Appraisal Ratios to measure the performance of the 15 equity mutual funds that has been selected for the period of 2003 to 2006. The data used in the study was collected from weekly equity mutual fund NAV, weekly Jakarta Composite Index (JCI), and weekly SBI interest rate. In the conclusion chapter, the writer has discovered several points where one of them was that for the period of 2003 to 2006, the equity type of mutual fund seems to be the only type that experience growth. The writer claims that one of the contribution factor was that the IDX was performing well during that period of time.

- '*Analisis Kinerja Reksa Dana Saham Dan Reksa Dana Pendapatan Tetap Di Indonesia Periode 2004–2008*' which was written by Nur Indah. The study compare the performance of the equity type of mutual fund, the fixed-income type of mutual funds in Indonesia against the IDX and the Obligation Index for the period of 2004 to 2008. The performance tools that were used: Sharpe's Measure, Treynor's Measure, Jensen's Measure, Appraisal Ratio, M_2 Measure, and T_2 Measure. Based on the study, the writer concluded that for the period of the study, both the equity type of mutual funds and fixed-income type of mutual funds were not able to beat the benchmarks (IDX and Obligation Index).

CHAPTER 3

RESEARCH METHODOLOGY

3.1   Sources and Data Period

In this study, the writer will only use secondary data from sources such as publications from Bank of Indonesia, Bapepam LK, books, and reliable online sources. Differentiated by types, the data will be divided into three categories, which namely, they are the monthly quantitative time series data. For the net asset values of mutual funds (equity) and the values of the Indonesian Composite Index, the period will be from December 2004 to December 2010. While for interest rates of Certificate of Bank of Indonesia (SBI), the period will be from January 2005 to December 2010. More details of the extraction methods of three types of information will be defined below:

3.1.1   NAV

This data will be collected from historical data as can be found in the website of Bapepam LK (http://www.bapepam.go.id/). The specific period observed were from January 2005 to December 2009. While the mutual funds selected were only consisted of those traded in the period of December 2004 to December 2010 and still active as per 11 April 2011. To be clear of any misconception, the data from December 2004 is necessary to determine the return for January 2005.

3.1.2   Indonesia Composite Index

This data will be collected from historical data as can be found in the website of Indonesian Stock Exchange (http://www.idx.co.id/), and other sources such as Yahoo Finance (http://finance.yahoo.com/). This data will be used as benchmark in this research to determine the covariance, coefficient correlation, and Beta (which determine the exposure of a mutual fund towards systematic risk). The period will also be from December 2004 to December 2010.

3.1.3   Risk–Free Investment (SBI)

This data will be collected from historical data as can be found in the website of Bank of Indonesia (http://www.bi.go.id/web/id/). This data will also be used as benchmark in this research to determine whether the returns (after considering the risks involved) from investments are actually positive. This figure is also necessary to calculate the Sharpe Ratio, Treynor Ratio, and Jensen Ratio. The period will be from January 2005 to December 2010. To clarify, the data for December 2004 is not necessary in this case because the calculation for SBI is different from the previous two data.

3.2   Methods of Study

In preparing this study, the writer did not conduct any field research, as it was deem not necessary. To better understand on what the writer did, here are the steps that the writer follows:

1.   *Collecting data*

In order to acquire the necessary data to complete the study, the writer spends numerous hours in the library to look for related books and relevant journals. In addition, the writer also searched the Internet for the necessary secondary data such as the data on SBI and mutual funds.

2.   *Selecting Data*

In selecting the relevant data, the writer followed strictly to the limitations as mentioned in section 1.4 of the Chapter 1 in this study. Following the limitations was necessary as this is one way to make sure that the topics covered from Chapter 1 to Chapter 5 in this study stays consistent with the point that the writer wants to get across to the readers.

3.   *Calculating NAV for mutual funds*

The theory part of this step will be covered in section 3.2.1 of this Chapter. The data collected to complete this calculation consist of: the NAV and the units included. Since the figures for NAV found in the Bapepam LK's website were still stated as the monthly total, so the writer divided each of those figures by the number of units included in order to get the NAV/unit.

4.   *Calculating value of the Indonesia Composite Index*

The theory part of this step will also be covered in section 3.2.1 of this Chapter. In order to calculate the monthly value of the Indonesian Composite Index (IDX), the

writer downloaded the data from Yahoo Finance (http://finance.yahoo.com/) for the period of December 2004 to December 2010.

5. *Calculating return from risk free investment (SBI)*

   The theory part of this step will also be covered in section 3.2.1 of this Chapter. Since the data on SBI that was collected from Bank of Indonesia (http://www.bi.go.id/web/id/) were still in annual basis, so the writer divided each of those figures by 12 then change it to percentage.

6. *Calculating standard deviation, covariance and coefficient correlation*

   The theory part of this step and basis of calculations for this part of the study will be covered in section 3.2.2 of this Chapter.

7. *Calculating beta*

   The theory part of this step and basis of calculations for this part of the study will be covered in section 3.2.3 of this Chapter

8. *Applying the ratios (Sharpe ratio, Treynor ratio, and Jensen ratio)*

   The theory part of this step and basis to calculations for this part of the study will be covered in section 3.2.4 to 3.2.6 of this Chapter

9. *Ranking the mutual funds based on the ratios*

   The application part of this step will be covered in Chapter 4.2 to 4.7

10. *Discussing the findings based on the information collected from step 1 – 9*

    The application part of this step will also be covered in Chapter 4.2 to 4.7

11. *Applying the information from the period of 2005 to 2009 to predict the outcome of best performer in 2010*

    The application part of this step will be covered in Chapter 4.9

Following are the information and methodologies that were used in completing this study:

3.2.1   Return from Mutual Funds

In this case, the return from mutual funds is calculated based on NAV of a certain month (t1) minus NAV from previous month (t0), then divided by NAV from the previous month (t0). The result will be presented in percentage. This study will only include measure the return from capital gains while excluding those from dividends. To be clear, please refer to following formula:

Return = ((t1 – t0) / (t0)) * 100%   (3.1)

Where:

Return   = Monthly return from mutual fund

t1   = NAV of month of interest

t0   = NAV of 1 month before the month of interest

Next, the average return of mutual funds for one year is calculated by adding all the monthly return (R), then dividing them by the number of months in the year (m). Please refer to following formula:

Average Return = Σ Return / month   (3.2)

Where:

Average Return   = Average return from mutual funds

Σ Return   = Total return from mutual funds in the particular year

month   = number of months in that period / year

Aside from calculating the return from mutual funds, the formula will also be used to calculate the return from IHSG for the period of January 2005 – December 2010. While for SBI, since the interest rate stated is on annual basis, so the result is calculated by dividing the SBI 1-month rate by 12 in order to get the monthly return for the period of January 2005 – December 2010. The result will also be in percentage. Please refer to following formula:

Monthly Return = (IR / 12) * 100%   (3.3)

Where:

Monthly Return = monthly return from investing in SBI

IR = Annual Return from investing in 1-month SBI

3.2.2   Variance and Standard Deviation

Variance can be described as an arithmetic mean of the squared deviations of the all values that is being observed from their mean in a frequency distribution. According to **Bodie et al.** (pg.129, 2009), it is calculated as following:

Variance or $\sigma^2 = \Sigma$ p(s) [r(s) – E(r)] ²   (3.4)

Where

σ^2 = Variance

p(s)   = Probability of each scenario

r(s)   = Holding-Period Returns (HPR) in each scenario

E(r)   = Mean return

Feibel (2003) believes that in order to compare the return against the reward to risk, the tools to be used should be standard deviation instead of using the variance. And so standard deviation that is described as the measure dispersion obtained by extracting the square root of the deviations of the observed values from their mean in a frequency distribution is calculated as follow:

Standard Deviation or $\sigma = \sqrt{(\Sigma p(s) [r(s) – E(r)]^2)}$ (3.5)

Standard deviation is a very important tool for measuring the volatility of a mutual fund. For risk adverse investors, they would prefer to have a very (or if possible, zero) level of standard deviation. Theoretically, if the standard deviation remains zero for infinite time, then those investors would be able to predict the return of an investment.

3.2.3   Beta

Beta can be described as the measure of volatility or the degree of exposure of a security or portfolio towards systematic risk in comparison to the market as a whole. According to Feibel (2003) a mutual fund that has higher beta would be more exposed to the market relative risk than the other mutual funds with lower beta. This can be seen in following manner, if the return from a security is moving faster than the market return when of market changes, then

the return from the securities are said to have volatility which is greater than the market return. The same can be said for the vice versa. According to **Bodie et al.** (pg.281, 2009), Beta is calculated as following:

$$\beta p = \frac{Cov\ (r_i,r_M)}{\sigma^2_M} \tag{3.6}$$

Where:

βp = Beta of portfolio p

$Cov\ (r_i,r_M)$ = Covariance return from investment portfolio (r_i) and market portfolio (r_M)

σ^2_M = Variance from market portfolio (M)

To calculate the covariance, following formula by **Sharpe et al.** (pg.146, 1990) can be used:

$$\sigma_{ij} = \rho_{ij}\ \sigma_i\sigma_j \tag{3.7}$$

Where:

σ_{ij} = Covariance between the security i and the security j. In this study, i is the investment portfolio (mutual fund), while j is the market portfolio

ρ_{ij} = Correlation coefficient of the security i and the security j. In this study, i is the investment portfolio (mutual fund), while j is the market portfolio

σ_i = Standard Deviation of security i. In this study, i is the investment portfolio (mutual fund)

σ_j = Standard Deviation of security j. In this study, j is the market portfolio

3.2.4 Sharpe Ratio

The Sharpe Ratio can be described as a ratio to measure the risk adjusted performance of mutual funds, which was developed by Nobel laureate William F. Sharpe. According to Bodie et al. (2009), this ratio is good for measuring the reward against the volatility trade off. The way to calculate this ratio is by subtracting the risk-free rate from the rate of return of the mutual funds and dividing the result by the standard deviation of the mutual funds. In this case, the risk free rate is based on the rate of Bank of Indonesia's Certificate (SBI). Based on

Bodie et al. (pg.826, 2009), the formula is as following:

$$S = (r_p - r_f) / \sigma_p \tag{3.8}$$

Where:

S   = Sharpe Ratio

r_p = Expected return from portfolio. In this study, p is the mutual fund

r_f = Expected return from risk free investment

σ_p = Standard Deviation of the portfolio. In this study, p is the mutual fund

3.2.5   Treynor Ratio

The Treynor Ratio can be described as a ratio to measure the returns earned on top of what can be achieved from what can be earned from a riskless investment based on the per unit of market risk. This ratio was developed by Jack Treynor. According to Bodie et al. (2009), this ratio is actually similar to the Sharpe Ratio, except for the fact that beta (systematic risk) is used to replace the standard deviation in the calculation. Based on **Bodie et al.** (pg.826, 2009), the way to calculate Treynor Ratio is as following:

$$T = (r_p - r_f) / \beta_p \tag{3.9}$$

Where:

T   = Treynor Ratio

r_p = Expected return from portfolio. In this study, p is the mutual fund

r_f = Expected return from risk free investment

β_p = Beta of the portfolio. In this study, p is the mutual fund

3.2.6   Jensen Alpha Ratio

Based on **Investopedia** (http://www.investopedia.com/), the Jensen Alpha Ratio is described as "A risk-adjusted performance measure that represents the average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return … The basic idea is that to analyze the

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performance of an investment manager you must look not only at the overall return of a portfolio, but also at the risk of that portfolio. For example, if there are two mutual funds that both have a 12% return, a rational investor will want the fund that is less risky. Jensen's measure is one of the ways to help determine if a portfolio is earning the proper return for its level of risk. If the value is positive, then the portfolio is earning excess returns. In other words, a positive value for Jensen's alpha means a fund manager has 'beat the market' with his or her stock picking skills". Based on **Bodie et al.** (pg.826, 2009), the way to calculate Jensen Ratio is as following:

$$\alpha_p = r_p - (r_f + \beta_p (r_M - r_f)) \qquad (3.10)$$

Where:

α_p = Jensen Alpha Ratio

r_p = Expected return from portfolio. In this study, p is the mutual fund

r_f = Expected return from risk free investment

β_p = Beta of the portfolio. In this study, p is the mutual fund

r_M = Expected return from market portfolio (M)

3.3   Method of Processing Data

In this part, two flow charts will used to describe the research process in Chapter 4. The two flow charts are:

- Research Process Flow Chart
- Data Processing Flow Chart

3.3.1   Research Process Flow Chart

Research Process Flow Chart in general will define the process flow from data collection stage to the decision-making stage and suggestion stage. Based on the above-mentioned methodology, the flow chart for the research is as shown on the next page:
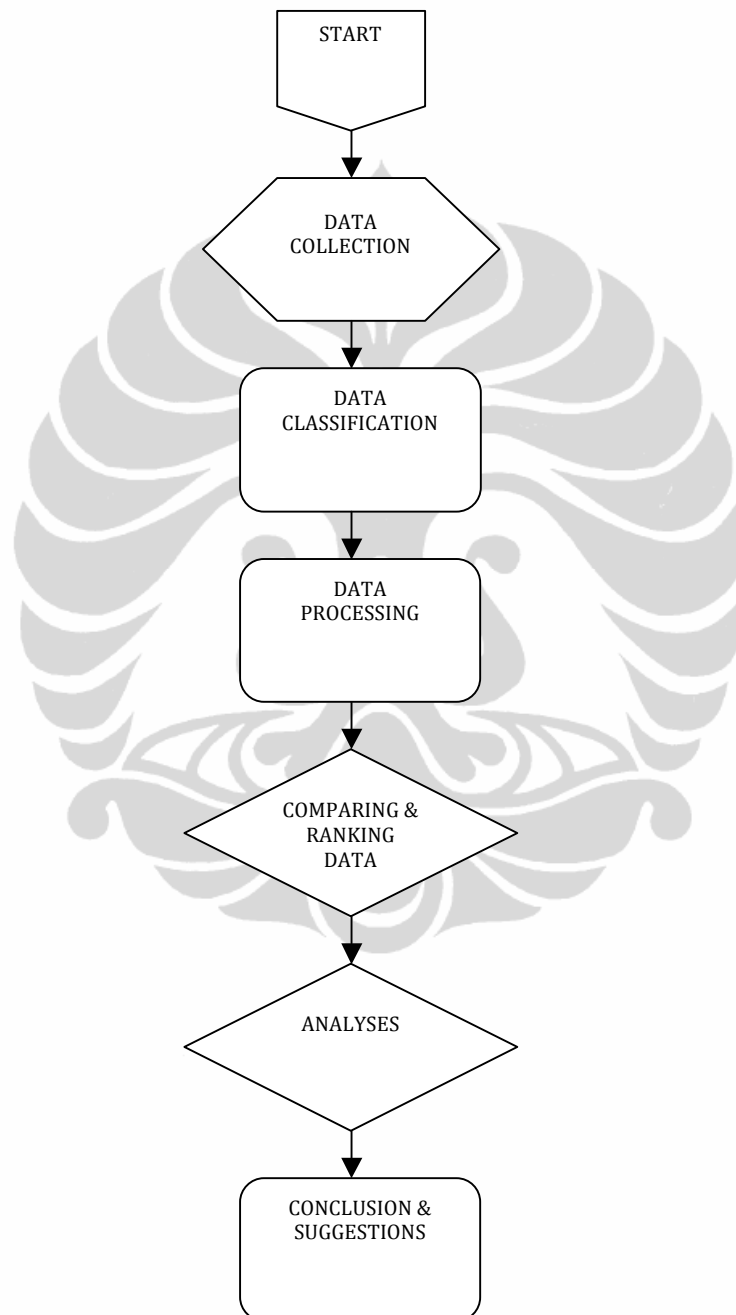
Figure 3.1: Research Process Flow Chart

3.3.2   Data Processing Flow Chart

Data Processing Flow Chart in general will define the process flow of data in the form of calculations of performance measurement of mutual funds (equity) using ratio analysis such as Sharpe Ratio, Treynor Ratio, and Jensen Ratio. To be clear, please refer to following diagram:
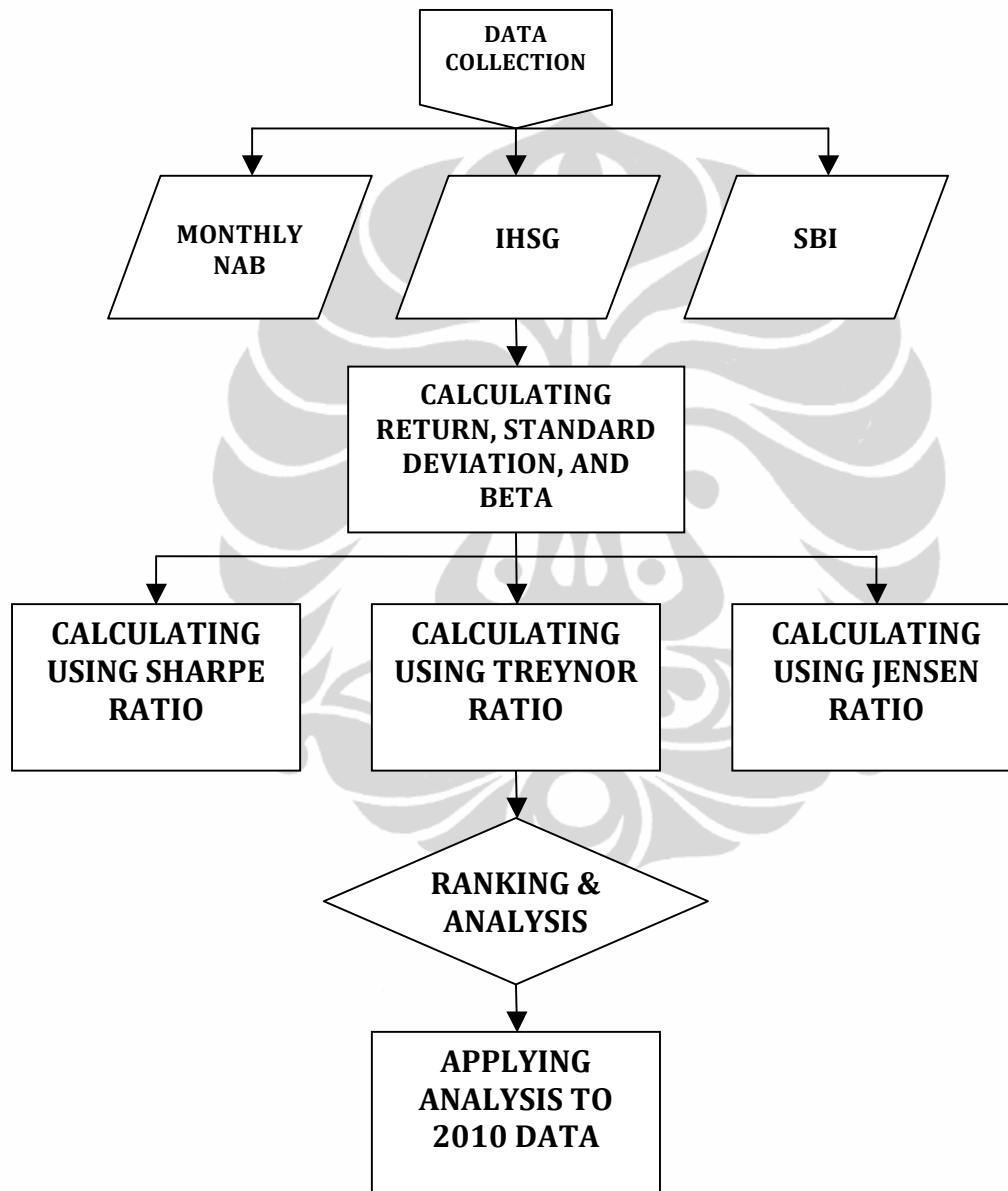
Figure 3.2: Data Processing Flow Chart

CHAPTER 4

ANALYSIS AND RESULT

4.1 Foreword

In this chapter, the writer will attempt to go further into the topic by first evaluating the performance of mutual funds for the period of 2005 to 2009 on annual and cumulative basis and followed by evaluating the performance in 2010. The writer's intention in doing this is to find out which of those mutual funds were performing best in comparison to the risk taken in the five years period (annually and cumulatively). And then based on the analyses, find out whether the mutual fund that comes out as the winner in the five-year period would still be the best performer in the 2010. The method used in the analyses is known as 'Risk Adjusted Performance Measurement' or simply RAPM. Though there are many types of tools that can be found or used within the RAPM, but this thesis will only use three of those tools. They are Sharpe Ratio, Treynor Ratio, and Jensen Alpha Ratio. As mentioned previously, the reason that the three types of measurements were chosen was because they are the most well-known and applied ratios to measure performance of mutual funds in the financial market.

Due to the time and space constraint, it is not possible to analyze all the types of mutual funds that can be found in the Indonesian market. And to make this study valid, some limitations were set. In order to be selected, those mutual funds must fulfill following criteria:

1. At least still traded from 1 December 2004 to 31 December 2010
2. The type must be mutual fund (equity)
3. Still active per 11 April 2011
4. In IDR
5. The data from Bapepam LK must have the NAV and the units included

4.2 Performance Measurement of Mutual Funds in 2005

In this sub-chapter, analysis will be done to measure the performance of the 14 mutual funds that met the criteria set above using ratios such as Sharpe, Treynor, and Jensen Alpha for the period of 2005. In order to complete the analysis, the calculation will also included the return,

standard deviation, and beta of each of the mutual funds. Following are the results of the analysis for 2005:

Table 4.1 Ranking of mutual funds with Sharpe, Treynor and Jensen Alpha Ratios for the period of 2005

No.	Name	Return	Rank	Std Dev	Lowest to Highest	Beta	Lowest to Highest	Sharpe	Rank	Treynor	Rank	Jensen	Rank
1	Bahana Dana Prima	0.0098	12	0.0528	11	0.8550	12	0.0415	12	0.0026	12	(0.0032)	12
2	Batavia Dana Saham	0.0214	6	0.0488	8	0.8141	10	0.2821	7	0.0169	9	0.0087	6
3	BNI Reksadana Berkembang	(0.0056)	14	0.0917	14	0.7538	5	(0.1449)	14	(0.0176)	14	(0.0180)	14
4	BNP Paribas Ekuitas	0.0252	3	0.0451	4	0.7475	4	0.3893	1	0.0235	2	0.0129	2
5	Manulife Dana Saham	0.0221	5	0.0432	3	0.7041	3	0.3338	3	0.0205	3	0.0100	5
6	Panin Dana Maksima	0.0210	8	0.0485	7	0.7825	7	0.2752	9	0.0171	7	0.0085	7
7	Phinisi Dana Saham	0.0210	7	0.0479	6	0.7904	8	0.2795	8	0.0169	8	0.0085	8
8	Reksa Dana AXA Citradinamis	0.0195	9	0.0408	1	0.6602	2	0.2897	5	0.0179	6	0.0077	9
9	Reksa Dana Nikko Saham Nusantara	0.0039	13	0.0426	2	0.6325	1	(0.0889)	13	(0.0060)	13	(0.0077)	13
10	Reksa Dana Schroder Dana Istimewa	0.0177	10	0.0500	10	0.8218	11	0.2014	10	0.0123	10	0.0049	10
11	Reksadana Dana Pratama Ekuitas	0.0329	1	0.0677	13	1.0595	14	0.3725	2	0.0238	1	0.0186	1
12	Rencana Cerdas	0.0226	4	0.0475	5	0.7760	6	0.3145	4	0.0193	4	0.0101	4
13	Schroder Dana Prestasi Plus	0.0153	11	0.0494	9	0.7982	9	0.1545	11	0.0096	11	0.0026	11
14	TRIM Kapital	0.0266	2	0.0671	12	0.9898	13	0.2831	6	0.0192	5	0.0128	3
	AVERAGE	0.0181		0.0531		0.7989		0.2131		0.0126		0.0055	

Source: Yahoo Finance, BI, Bapepam LK

4.2.1 Ranking using Return and Standard Deviation

Based on the table 4.1, the average return was around 0.0181 and the average standard deviation was around 0.0531. Looking at the table above, it can be seen that the mutual fund with the lowest return was for BNI Reksadana Berkembang with average return of -0.0056. While the highest return was for Reksadana Dana Pratama Ekuitas with average return of 0.0329. In terms of the standard deviation, the lowest was for Reksa Dana AXA Citradinamis of 0.0408 and the highest was for BNI Reksadana Berkembang of 0.0917.

Just by looking at the return and standard deviation of the 14 mutual funds, it is safe to say that the least favorable mutual fund in 2005 was BNI Reksadana Berkembang. This is because the mutual fund was the most volatile yet the average return was the worst. While the best mutual funds in 2005 arguably was BNP Paribas Ekuitas. This is as despite being neither having the best return (rank 3rd) nor lowest standard deviation (rank 4th) but compare to other mutual funds, the combination between the return and the risk can be argued to be the best. This is compare to Reksadana Dana Pratama Ekuitas that has the highest return, but yet rank 13th in volatility. But this depends on the investors risk appetite. In compiling this thesis, the

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writer will try to select the best mutual fund based on the combination of return and risk, where lower risk is more preferred than higher return.

4.2.2   Ranking using Sharpe Ratio

For the period of 2005, the mutual fund with the highest Sharpe ranking was BNP Paribas Ekuitas with value of 0.3893. While the lowest was BNI Reksadana Berkembang with value of -0.1449. It seems that the result of the Sharpe Ratio is supported the claim that the best performing mutual fund of 2005 (up to this point) was BNP Paribas Ekuitas. One interesting thing about the finding was that despite having positive return, but the result of the Sharpe ratio for Reksa Dana Nikko Saham Nusantara in 2005 was negative. This is due to the fact that the return from portfolio was actually below the return of the benchmark, SBI, which was 0.0077 (please refer to the Appendix 2)

4.2.3   Ranking using Treynor Ratio

Based on the table 4.1, the average beta for mutual funds in 2005 was around 0.7989. The mutual fund with the highest beta was Reksadana Dana Pratama Ekuitas with beta of 1.0595. This means that the exposure towards systematic risk for this mutual fund compared to the others was the highest.

By examining the performance of the mutual funds based on the Treynor Ratio, it can be seen that the mutual fund that has the highest value was Reksadana Dana Pratama Ekuitas with value of 0.0238. While the lowest valued mutual funds was (once again) for BNI Reksadana Berkembang with value of -0.0176. This is of course, due to the fact that the return of BNI Reksadana Berkembang was negative. With this new information, Reksadana Dana Pratama Ekuitas can also be considered to be one of the options for investment (but as a disclaimer, this mutual fund is not recommended for risk adverse investor due to the high level of volatility). Similar to the previous ratio, the Treynor Ratio for Reksa Dana Nikko Saham Nusantara also showed a negative result. This is due to the fact that the formula for Treynor ratio is similar to the Sharpe Ratio.

4.2.4   Ranking using Jensen Alpha Ratio

Based on the table 4.1, the mutual fund with the lowest beta was Reksa Dana Nikko Saham Nusantara with beta of 0.6325. This means that the exposure towards systematic risk for this mutual fund compare to the others was the lowest.

By examining the performance of the mutual funds based on the Jensen Alpha Ratio, it can be seen that the mutual fund that has the highest value was Reksadana Dana Pratama Ekuitas with value of 0.0186. While the lowest value was for BNI Reksadana Berkembang with value of -0.0180. With this last ratio, it further solidifies the fact that Reksadana Dana Pratama Ekuitas can be considered to be one of the best options.

4.2.5   Comment on 2005

Based on the ratios and information above, the mutual funds that can be considered to be performing well (or can be considered as investment worthy) in 2005 were:

•   BNP Paribas Ekuitas

•   Reksadana Dana Pratama Ekuitas

While the mutual fund that can be considered to be performing worst (or to be avoid at all cost) in 2005 was:

•   BNI Reksadana Berkembang

4.3   Performance Measurement of Mutual Funds in 2006

Next will be the analysis on the performance measurement of the 14 mutual funds that met the criteria set above using ratios such as Sharpe, Treynor, and Jensen Alpha for the period of 2006. Following are the results of the analysis:

**Table 4.2 Ranking of mutual funds with Sharpe, Treynor
and Jensen Alpha Ratios for the period of 2006**

No.	Name	Return	Rank	Std Dev	Lowest to Highest	Beta	Lowest to Highest	Sharpe	Rank	Treynor	Rank	Jensen	Rank
1	Bahana Dana Prima	0.0401	7	0.0563	12	0.8697	13	0.5370	10	0.0348	11	0.0047	10
2	Batavia Dana Saham	0.0373	11	0.0564	13	0.7802	9	0.4870	13	0.0352	9	0.0046	11
3	BNI Reksadana Berkembang	0.0341	12	0.0432	2	0.6089	1	0.5609	9	0.0398	6	0.0064	7
4	BNP Paribas Ekuitas	0.0413	4	0.0494	7	0.7936	10	0.6379	6	0.0397	7	0.0082	6
5	Manulife Dana Saham	0.0412	5	0.0474	5	0.7550	7	0.6617	3	0.0415	4	0.0092	4
6	Panin Dana Maksima	0.0462	2	0.0429	1	0.6847	3	0.8472	1	0.0531	2	0.0163	2
7	Phinisi Dana Saham	0.0410	6	0.0483	6	0.7735	8	0.6444	5	0.0402	5	0.0084	5
8	Reksa Dana AXA Citradinamis	0.0333	13	0.0466	4	0.7446	5	0.5027	12	0.0315	13	0.0016	13
9	Reksa Dana Nikko Saham Nusantara	0.0304	14	0.0569	14	0.7544	6	0.3612	14	0.0272	14	(0.0016)	14
10	Reksa Dana Schroder Dana Istimewa	0.0391	10	0.0547	11	0.8956	14	0.5343	11	0.0326	12	0.0030	12
11	Reksadana Dana Pratama Ekuitas	0.0449	3	0.0539	10	0.7369	4	0.6499	4	0.0475	3	0.0134	3
12	Rencana Cerdas	0.0401	8	0.0539	9	0.8669	12	0.5612	8	0.0349	10	0.0048	9
13	Schroder Dana Prestasi Plus	0.0398	9	0.0508	8	0.8361	11	0.5893	7	0.0358	8	0.0054	8
14	TRIM Kapital	0.0470	1	0.0442	3	0.6836	2	0.8409	2	0.0544	1	0.0171	1
	AVERAGE	0.0397		0.0503		0.7703		0.6011		0.0392		0.0073	

Source: Yahoo Finance, BI, Bapepam LK

4.3.1 Ranking using Return and Standard Deviation

Based on the table 4.2, the average return was around 0.0397 and the average standard deviation was around 0.0503. Looking at the table above, it can be seen that the mutual fund with the lowest return was Reksa Dana Nikko Saham Nusantara with average return of 0.0304. While the highest return was for TRIM Kapital with average return of 0.0470. While in terms of the standard deviation, the lowest was for Panin Dana Maksima of 0.0429. While the highest was for Reksa Dana Nikko Saham Nusantara of 0.0569. Based on table 4.2, it safe to assume that 2006 has been a better year compared to 2005 for mutual funds managers. First, it is because the returns for all of the mutual funds were positive. Secondly, the average return for the mutual funds in 2006 has increased by 0.0216 compare to 2005.

Next, just by looking at the return and standard deviation of the 14 mutual funds, it is safe to say that the least favorable mutual fund in 2006 was Reksa Dana Nikko Saham Nusantara. This is because similar to BNI Reksadana Berkembang in 2005, the mutual fund was the most volatile yet the average return was the worst out of the 14 mutual funds. While the best performing mutual funds in 2006 arguably were either Panin Dana Maksima (rank 2nd in term of return and the lowest in term of standard deviation) or TRIM Kapital (rank 1st in term of return and rank 3rd lowest in term of standard deviation).

4.3.2   Ranking using Sharpe Ratio

Based on the Sharpe Ratio, for the period of 2006, the mutual fund with the highest ranking was Panin Dana Maksima with value of 0.8472. While the lowest ranking mutual fund was Reksa Dana Nikko Saham Nusantara with value of -0.3612. But despite being the lowest, Reksa Dana Nikko Saham Nusantara perform pretty well in comparison to the ratios of those mutual funds in 2005. In 2005, only BNP Paribas Ekuitas (rank 1st in Sharpe ratio with value of 0.3893) and Reksadana Dana Pratama Ekuitas (rank 2nd in Sharpe ratio with value of 0.3725) were actually scored better than Reksa Dana Nikko Saham Nusantara in 2006.

4.3.3   Ranking using Treynor Ratio

Based on the table 4.2, the average beta for mutual funds in 2006 was 0.7703. This is actually a little bit lower than the beta in 2005 (0.7989). Which means that in average, the exposure towards systematic risk on return for the mutual funds in 2006 was actually lower than in 2005. For 2006, the mutual fund with the highest beta was Reksa Dana Schroder Dana Istimewa with beta of 0.8956.

By examining the performance of the mutual funds based on the Treynor Ratio, it can be seen that the mutual fund that has the highest value was TRIM Kapital with value of 0.0544. While the lowest value was for Reksa Dana Nikko Saham Nusantara with value of 0.0272. With this new information, TRIM Kapital (as already stated in sub-chapter 4.3.1) can also be considered to be one of the best options for investment.

4.3.4   Ranking using Jensen Alpha Ratio

Based on the table 4.2, the mutual fund with the lowest beta was BNI Reksadana Berkembang with beta of 0.6089. Next, by examining the performance of the mutual funds based on the Jensen Alpha Ratio, it can be seen that the mutual fund that has the highest value was TRIM Kapital with value of 0.0171. While the lowest value was for Reksa Dana Nikko Saham Nusantara with value of -0.0016. With this final ratio, it can be concluded that the best performing mutual fund in 2006 was arguably TRIM Kapital. Once again, despite having positive return, but for Reksa Dana Nikko Saham Nusantara, it is not enough to cover the risk that was taken.

4.3.5 Comment on 2006

Based on the ratios and information above, the mutual funds that can be considered to be performing well (or can be considered as investment worthy) in 2006 were:

- Panin Dana Maksima

- TRIM Kapital

While the mutual fund that can be considered to be performing worst (or to be avoid at all cost) in 2006 was:

- Reksa Dana Nikko Saham Nusantara

4.4 Performance Measurement of Mutual Funds in 2007

Next will be the analysis on the performance measurement of the 14 mutual funds that met the criteria set above using ratios such as Sharpe, Treynor, and Jensen for the period of 2007. Following are the results of the analysis

Table 4.3 Ranking of mutual funds with Sharpe, Treynor and Jensen Alpha Ratios for the period of 2007

No.	Name	Return	Rank	Std Dev	Lowest to Highest	Beta	Lowest to Highest	Sharpe	Rank	Treynor	Rank	Jensen	Rank
1	Bahana Dana Prima	0.0457	3	0.0681	12	1.1077	13	0.5651	2	0.0347	2	0.0062	2
2	Batavia Dana Saham	0.0354	9	0.0594	6	0.9710	8	0.4747	8	0.0291	10	(0.0001)	11
3	BNI Reksadana Berkembang	0.0190	13	0.0429	2	0.6418	2	0.2763	12	0.0185	12	(0.0068)	13
4	BNP Paribas Ekuitas	0.0536	1	0.0589	5	0.9602	7	0.7892	1	0.0484	1	0.0185	1
5	Manulife Dana Saham	0.0417	4	0.0627	10	1.0293	12	0.5504	4	0.0335	5	0.0045	5
6	Panin Dana Maksima	0.0246	12	0.0426	1	0.5059	1	0.4099	10	0.0345	3	0.0027	9
7	Phinisi Dana Saham	0.0416	5	0.1109	14	0.9987	11	(0.4915)	14	(0.0546)	14	0.0037	6
8	Reksa Dana AXA Citradinamis	0.0391	8	0.0612	9	0.9781	9	0.5226	7	0.0327	7	0.0035	7
9	Reksa Dana Nikko Saham Nusantara	0.0113	14	0.0443	3	0.6454	3	0.0939	13	0.0064	13	(0.0146)	14
10	Reksa Dana Schroder Dana Istimewa	0.0393	6	0.0607	8	0.9848	10	0.5297	5	0.0326	8	0.0035	8
11	Reksadana Dana Pratama Ekuitas	0.0292	11	0.0640	11	0.9549	6	0.3443	11	0.0231	11	(0.0058)	12
12	Rencana Cerdas	0.0349	10	0.0600	7	0.9311	4	0.4628	9	0.0298	9	0.0007	10
13	Schroder Dana Prestasi Plus	0.0392	7	0.0574	4	0.9330	5	0.5582	3	0.0344	4	0.0049	4
14	TRIM Kapital	0.0461	2	0.0744	13	1.1670	14	0.5233	6	0.0334	6	0.0049	3
	AVERAGE	0.0358		0.0620		0.9149		0.4006		0.0240		0.0018	

Source: Yahoo Finance, BI, Bapepam LK

4.4.1 Ranking using Return and Standard Deviation

Based on the table 4.3, the average return was around 0.0358 and the average standard deviation was around 0.0620. Looking at the table above, it can be seen that the mutual fund with the lowest return was once again, Reksa Dana Nikko Saham Nusantara with average

return of 0.0113. While the highest return was for BNP Paribas Ekuitas with average return of 0.0536. While in terms of the standard deviation, the lowest was for Panin Dana Maksima of 0.0426 and the highest was for Phinisi Dana Saham with 0.1109.

Just by looking at the return and standard deviation of the 14 mutual funds, it seems that there was no clear winner or loser for 2007 like what have been shown in the previous 2 years. But using simple ranking calculation, this issue can be resolved. The calculation is as following:

Rank of return + Lowest standard deviation = the ranking (the lower, the better)

Please refer to the table below:

Table 4.4 Simple Calculations for 2007 Figures

No.	Name	Return rank	Std Dev Rank	Rank of return + Lowest standard deviation = the ranking (the lower, the better)
1	Bahana Dana Prima	3	12	15
2	Batavia Dana Saham	9	6	15
3	BNI Reksadana Berkembang	13	2	15
4	BNP Paribas Ekuitas	1	5	6
5	Manulife Dana Saham	4	10	14
6	Panin Dana Maksima	12	1	13
7	Phinisi Dana Saham	5	14	19
8	Reksa Dana AXA Citradinamis	8	9	17
9	Reksa Dana Nikko Saham Nusantara	14	3	17
10	Reksa Dana Schroder Dana Istimewa	6	8	14
11	Reksadana Dana Pratama Ekuitas	11	11	22
12	Rencana Cerdas	10	7	17
13	Schroder Dana Prestasi Plus	7	4	11
14	TRIM Kapital	2	13	15

Based on the calculation, it can be seen that the BNP Paribas Ekuitas (rank 1st in return and 5th in term of the volatility) was the best with value of 6, while Reksadana Dana Pratama Ekuitas (rank 11th in return and 11th in volatility) was the worst with 22. But then again, it depends on the risk appetite of the investors. If he only considers the lowest risk possible, then the best mutual fund was probably be Panin Dana Maksima. This is simply because the

standard deviation for this mutual fund was the lowest among the 14 mutual funds. But if he only considers the return, then BNP Paribas Ekuitas was the best option.

4.4.2   Ranking using Sharpe Ratio

Based on the Sharpe Ratio, for the period of 2007, the mutual fund with the highest ranking was BNP Paribas Ekuitas with value of 0.7892. While the lowest ranking mutual fund was Phinisi Dana Saham with value of -0.4915. Up to this point, it can be concluded that the worst performing mutual funds of 2007 based on Sharpe Ratio was Phinisi Dana Saham. This is as despite having positive return, but the mutual fund was very volatile and has the lowest value of Sharpe Ratio.

4.4.3   Ranking using Treynor Ratio

Based on the table 4.3, the average beta for mutual funds in 2007 was around 0.9149. The mutual fund with the highest beta was TRIM Kapital with beta of 1.1670 and it was the highest among all the mutual funds in the three years period (2005 to 2007). This means that the exposure towards systematic risk for TRIM Kapital compared to the other mutual funds in the three years period was the highest. Making this mutual fund prone to higher risk in the event that there's a recession in the economy.

By examining the performance of the mutual funds based on the Treynor Ratio, it can be seen that the mutual fund that has the highest value was BNP Paribas Ekuitas with value of 0.0484. While the lowest value was once again, for Phinisi Dana Saham with value of -0.0546. With this new information, BNP Paribas Ekuitas can be considered to be the best investment of 2007 (but once again, it is not recommended for very risk adverse investor due to the higher level of volatility).

4.4.4   Ranking using Jensen Ratio

Based on the table 4.3, the mutual fund with the lowest beta was Panin Dana Maksima with beta of 0.0426. By examining the performance of the mutual funds based on the Jensen Alpha Ratio, it can be seen that the mutual fund that has the highest value was BNP Paribas Ekuitas with value of 0.0185. While the lowest value was for Reksa Dana Nikko Saham Nusantara with value of -0.0146. With this last ratio, it is clear that the best performing mutual fund for 2007 was BNP Paribas Ekuitas

4.4.5 Comment on 2007

Based on the ratios and information above, the mutual fund that can be considered to be the best (or can be considered as investment worthy) in 2005 was:

- BNP Paribas Ekuitas

While the mutual fund that can be considered to be performing worst (or to be avoid at all cost) in 2005 were arguably:

- Reksa Dana Nikko Saham Nusantara

- Phinisi Dana Saham

- BNI Reksadana Berkembang

4.5 Performance Measurement of Mutual Funds in 2008

Next will be the analysis on the performance measurement of the 14 mutual funds that met the criteria set above using ratios such as Sharpe, Treynor, and Jensen for the period of 2008. Following are the results of the analysis:

Table 4.5 Ranking of mutual funds with Sharpe, Treynor and Jensen Alpha Ratios for the period of 2008

No.	Name	Return	Rank	Std Dev	Lowest to Highest	Beta	Lowest to Highest	Sharpe	Rank	Treynor	Rank	Jensen	Rank
1	Bahana Dana Prima	(0.0511)	9	0.1273	11	1.1525	13	(0.4611)	6	(0.0509)	5	0.0085	2
2	Batavia Dana Saham	(0.0406)	4	0.1110	5	0.9516	4	(0.4347)	3	(0.0507)	3	0.0072	5
3	BNI Reksadana Berkembang	(0.0885)	14	0.1224	10	1.0868	10	(0.7850)	14	(0.0884)	14	(0.0328)	14
4	BNP Paribas Ekuitas	(0.0541)	10	0.1307	13	1.1840	14	(0.4722)	8	(0.0521)	6	0.0073	4
5	Manulife Dana Saham	(0.0495)	8	0.1073	3	0.9693	6	(0.5324)	12	(0.0590)	11	(0.0007)	11
6	Panin Dana Maksima	(0.0300)	1	0.1140	6	0.9554	5	(0.3302)	1	(0.0394)	1	0.0181	1
7	Phinisi Dana Saham	(0.0469)	7	0.1109	4	0.9987	7	(0.4915)	9	(0.0546)	8	0.0037	8
8	Reksa Dana AXA Citradinamis	(0.0557)	11	0.1187	8	1.0202	8	(0.5337)	13	(0.0621)	13	(0.0039)	13
9	Reksa Dana Nikko Saham Nusantara	(0.0426)	5	0.1185	7	0.9178	3	(0.4242)	2	(0.0547)	9	0.0033	9
10	Reksa Dana Schroder Dana Istimewa	(0.0398)	3	0.1020	1	0.8981	1	(0.4650)	7	(0.0528)	7	0.0049	7
11	Reksadana Dana Pratama Ekuitas	(0.0612)	13	0.1315	14	1.1475	12	(0.5238)	11	(0.0600)	12	(0.0020)	12
12	Rencana Cerdas	(0.0459)	6	0.1197	9	1.0624	9	(0.4473)	4	(0.0504)	2	0.0084	3
13	Schroder Dana Prestasi Plus	(0.0387)	2	0.1027	2	0.9135	2	(0.4511)	5	(0.0507)	4	0.0069	6
14	TRIM Kapital	(0.0589)	12	0.1275	12	1.1303	11	(0.5219)	10	(0.0589)	10	(0.0007)	10
	AVERAGE	(0.0502)		0.1175		1.0277		(0.4910)		(0.0561)		0.0020	

Source: Yahoo Finance, BI, Bapepam LK

4.5.1   Ranking using Return and Standard Deviation

It is safe to say that the Financial Crisis of 2008 in the United States has quite a great impact (negatively) on the return of mutual funds in Indonesia. This is shown by the fact that all the mutual funds in this study was having negative returns in 2008. But even though, none of the mutual funds have gotten positive returns, but there is still merit to determine which mutual fund perform above the rest in 2008. Based on the table 4.5, the average return was around -0.0502 and the average standard deviation was around 0.1175. Looking at the table above, it can be seen that the mutual funds with the highest loss was for BNI Reksadana Berkembang with average return of -0.0885. While the mutual fund with the lowest loss was Panin Dana Maksima with average return of -0.0300. While in terms of the standard deviation, the lowest was for Reksa Dana Schroder Dana Istimewa of 0.1020. And the highest was for Reksadana Dana Pratama Ekuitas of 0.1315.

Just by looking at the return and standard deviation of the 14 mutual funds, it is safe to say that the least favorable mutual fund in 2008 was Reksadana Dana Pratama Ekuitas (rank 13th in return and 14th in standard deviation). While the best mutual funds in 2008 were arguably either Reksa Dana Schroder Dana Istimewa (rank 3rd in return and lowest on the standard deviation) or/and Schroder Dana Prestasi Plus (rank 2nd in return and 2nd on the standard deviation).

4.5.2   Ranking using Sharpe Ratio

Based on the Sharpe Ratio, for the period of 2008, the mutual fund with the highest ranking was Panin Dana Maksima with value of -0.3302. While the lowest ranking mutual fund was BNI Reksadana Berkembang with value of -0.7850. This makes Panin Dana Maksima into a contender for the best performing mutual fund in 2008.

4.5.3   Ranking using Treynor Ratio

Based on the table 4.5, the average beta for mutual funds in 2008 was 1.0277. Compared to the previous years, it seems that in average, all of the mutual funds were exposed to higher systematic risk in 2008. For 2008, the mutual fund with the highest beta was BNP Paribas Ekuitas with value of 1.1840.

By examining the performance of the mutual funds based on the Treynor Ratio, it can be seen that the mutual fund that has the highest value was Panin Dana Maksima with value of -0.0394. While the lowest value was for BNI Reksadana Berkembang with value of -0.0884. With this new information, Panin Dana Maksima can be considered to be best performing mutual funds of 2008.

4.5.4   Ranking using Jensen Ratio

Based on the table 4.5, the mutual fund with the lowest beta was Reksa Dana Schroder Dana Istimewa with beta of 0.8981. By examining the performance of the mutual funds based on the Jensen Ratio, it can be seen that the mutual fund that has the highest value was Panin Dana Maksima with value of 0.0181. While the lowest value was for BNI Reksadana Berkembang with value of (0.0328). With this last ratio, it is safe to say that Panin Dana Maksima was the best performing mutual fund out of the rest in 2008 based on the 3 ratios.

4.5.5   Comment on 2008

Based on the ratios and information above, the mutual funds that can be considered to be best in 2008 (or can be considered as investment worthy) in 2005 was:

• Panin Dana Maksima

While the mutual fund that can be considered to be performing worst (or to be avoid at all cost) in 2008 was:

• BNI Reksadana Berkembang

4.6   Performance Measurement of Mutual Funds in 2009

Next will be the analysis on the performance measurement of the 14 mutual funds that met the criteria set above using ratios such as Sharpe, Treynor, and Jensen for the period of 2009. Following are the results of the analysis:

**Table 4.6 Ranking of mutual funds with Sharpe, Treynor
and Jensen Alpha Ratios for the period of 2009**

No.	Name	Return	Rank	Std Dev	Lowest to Highest	Beta	Lowest to Highest	Sharpe	Rank	Treynor	Rank	Jensen	Rank
1	Bahana Dana Prima	0.0657	5	0.0886	8	1.0431	9	0.6726	9	0.0571	9	0.0089	10
2	Batavia Dana Saham	0.0700	3	0.1068	12	1.2385	12	0.5980	11	0.0516	12	0.0037	12
3	BNI Reksadana Berkembang	0.0639	6	0.1431	14	1.4457	14	0.4038	14	0.0400	14	(0.0124)	14
4	BNP Paribas Ekuitas	0.0684	4	0.0911	9	1.0582	10	0.6843	8	0.0589	8	0.0109	9
5	Manulife Dana Saham	0.0629	8	0.0798	6	0.9326	6	0.7125	7	0.0610	7	0.0116	6
6	Panin Dana Maksima	0.0729	2	0.0931	10	1.0370	8	0.7178	4	0.0644	3	0.0165	1
7	Phinisi Dana Saham	0.0622	9	0.0741	2	0.8649	2	0.7571	2	0.0649	2	0.0141	3
8	Reksa Dana AXA Citradinamis	0.0583	13	0.0843	7	0.9742	7	0.6201	10	0.0536	11	0.0049	11
9	Reksa Dana Nikko Saham Nusantara	0.0516	14	0.0560	1	0.6307	1	0.8137	1	0.0722	1	0.0149	2
10	Reksa Dana Schroder Dana Istimewa	0.0614	11	0.0774	5	0.8915	5	0.7146	5	0.0620	5	0.0120	5
11	Reksadana Dana Pratama Ekuitas	0.0812	1	0.1285	13	1.3161	13	0.5848	12	0.0571	10	0.0112	8
12	Rencana Cerdas	0.0602	12	0.0758	3	0.8757	3	0.7134	6	0.0617	6	0.0115	7
13	Schroder Dana Prestasi Plus	0.0620	10	0.0764	4	0.8835	4	0.7317	3	0.0632	4	0.0130	4
14	TRIM Kapital	0.0636	7	0.1010	11	1.1464	11	0.5696	13	0.0502	13	0.0019	13
	AVERAGE	0.0646		0.0911		1.0241		0.6639		0.0584		0.0088	

Source: Yahoo Finance, BI, Bapepam LK

4.6.1 Ranking using Return and Standard Deviation

Based on the table 4.1, the average return was around 0.0646 and the average standard deviation was around 0.0911. Looking at the table above, it can be seen that the mutual funds with the lowest return was for Reksa Dana Nikko Saham Nusantara with average return of 0.0516. While the highest return was for Reksadana Dana Pratama Ekuitas with average return of 0.0812. While in terms of the standard deviation, the lowest was for Reksa Dana Nikko Saham Nusantara of 0.0560. And the highest was for BNI Reksadana Berkembang with value of 0.1431.

Just by looking at the return and standard deviation of the 14 mutual funds, it seems that once again there was no clear winner for 2009. And so a simple ranking calculation will once again be used:

Rank of return + Lowest standard deviation = the ranking (the lower, the better)

Please refer to the table below:

Table 4.7 Simple Calculations for 2009 Figures

No.	Name	Return rank	Std Dev Rank	Rank of return + Lowest standard deviation = the ranking (the lower, the better)
1	Bahana Dana Prima	5	8	13
2	Batavia Dana Saham	3	12	15
3	BNI Reksadana Berkembang	6	14	20
4	BNP Paribas Ekuitas	4	9	13
5	Manulife Dana Saham	8	6	14
6	Panin Dana Maksima	2	10	12
7	Phinisi Dana Saham	9	2	11
8	Reksa Dana AXA Citradinamis	13	7	20
9	Reksa Dana Nikko Saham Nusantara	14	1	15
10	Reksa Dana Schroder Dana Istimewa	11	5	16
11	Reksadana Dana Pratama Ekuitas	1	13	14
12	Rencana Cerdas	12	3	15
13	Schroder Dana Prestasi Plus	10	4	14
14	TRIM Kapital	7	11	18

It shown that Phinisi Dana Saham (rank 9th in return and 2nd in standard deviation) as the best performer with 11. BNI Reksadana Berkembang (rank 6th in return and most volatile) with Reksa Dana AXA Citradinamis (rank 13th in return and 7th in volatility) was the worst with 20. The reason that in this case, Phinisi Dana Saham was considered to be the best is because the combination between return and standard deviation can be considered to be the best out of the rest (emphasis on lower volatility compare to higher return). But then again, it depends on the risk appetite of the investor. If he was a very risk adverse person, then the best mutual funds would probably be Reksa Dana Nikko Saham Nusantara. This is simply because the standard deviation for this mutual fund was the lowest among the 14 mutual funds, though at the same time, the return was also the lowest. But if he only considers the return, then Reksadana Dana Pratama Ekuitas is the best option.

4.6.2 Ranking using Sharpe Ratio

Based on the Sharpe Ratio, for the period of 2009, the mutual fund with the highest ranking was Reksa Dana Nikko Saham Nusantara with value of 0.8137. While the lowest ranking mutual fund was BNI Reksadana Berkembang with value of 0.4038.

4.6.3 Ranking using Treynor Ratio

Based on the table 4.6, the average beta for mutual funds in 2009 was 1.0241. The mutual fund with the highest beta was BNI Reksadana Berkembang with beta of 1.4457. This means that aside from being very volatile in 2009, the exposure towards systematic risk for BNI Reksadana Berkembang compare to the others was the highest.

By examining the performance of the mutual funds based on the Treynor Ratio, it can be seen that the mutual fund that has the highest value was Reksa Dana Nikko Saham Nusantara with value of 0.0722. While the lowest value was for BNI Reksadana Berkembang with value of 0.0400. With this new information, Reksa Dana Nikko Saham Nusantara can also be considered to be the best for 2009.

4.6.4 Ranking using Jensen Alpha Ratio

Based on the table 4.6, the mutual fund with the lowest beta was Reksa Dana Nikko Saham Nusantara with beta of 0.6307. By examining the performance of the mutual funds based on the Jensen Alpha Ratio, it can be seen that the mutual fund that has the highest value was Panin Dana Maksima with value of 0.0165. While the lowest value was for BNI Reksadana Berkembang with value of (0.0124). With this last ratio, it further solidifies the fact that BNI Reksadana Berkembang can be considered to be the worst mutual fund to be chosen in the five years period. But in order to confirm whether this claim is true or not, will need to refer to the next section on the cumulative performance for 2005 to 2009.

4.6.5 Comment on 2009

Based on the ratios and information above, the mutual funds that can be considered to be performing well (or can be considered as investment worthy) in 2009 were:

- Panin Dana Maksima
- Phinisi Dana Saham
- Reksa Dana Nikko Saham Nusantara

While the mutual fund that can be considered to be performing worst (or to be avoid at all cost) in 2005 was once again:

- BNI Reksadana Berkembang

4.7 Performance Measurement of Mutual Funds for the period of 2005 to 2009

Next will be the analysis on the performance measurement of the 14 mutual funds that met the criteria set above using ratio such as Sharpe, Treynor, and Jensen for the period of 2005 to 2009 combined. Following are the results of the analysis:

Table 4.8 Ranking of mutual funds with Sharpe, Treynor and Jensen Alpha Ratios for the period of 2005 to 2009

No.	Name	Return	Rank	Std Dev	Lowest to Highest	Beta	Lowest to Highest	Sharpe	Rank	Treynor	Rank	Jensen	Rank
1	Bahana Dana Prima	0.0220	11	0.0903	11	1.1152	11	0.1591	11	0.0129	11	0.0021	11
2	Batavia Dana Saham	0.0247	5	0.0864	9	1.0330	9	0.1970	7	0.0165	5	0.0057	3
3	BNI Reksadana Berkembang	0.0046	14	0.1076	14	1.1585	13	(0.0288)	14	(0.0027)	14	(0.0158)	14
4	BNP Paribas Ekuitas	0.0269	2	0.0899	10	1.1092	10	0.2138	2	0.0173	2	0.0070	2
5	Manulife Dana Saham	0.0237	7	0.0798	5	0.9891	6	0.2005	6	0.0162	7	0.0051	7
6	Panin Dana Maksima	0.0270	1	0.0796	4	0.9133	2	0.2422	1	0.0211	1	0.0092	1
7	Phinisi Dana Saham	0.0238	6	0.0799	6	0.9891	5	0.2015	5	0.0163	6	0.0052	6
8	Reksa Dana AXA Citradinamis	0.0189	12	0.0833	8	1.0060	8	0.1347	12	0.0112	12	0.0002	12
9	Reksa Dana Nikko Saham Nusantara	0.0109	13	0.0743	1	0.8146	1	0.0437	13	0.0040	13	(0.0057)	13
10	Reksa Dana Schroder Dana Istimewa	0.0235	8	0.0774	3	0.9521	4	0.2051	4	0.0167	4	0.0054	5
11	Reksadana Dana Pratama Ekuitas	0.0254	3	0.1035	13	1.1907	14	0.1710	10	0.0149	9	0.0046	8
12	Rencana Cerdas	0.0224	10	0.0819	7	0.9999	7	0.1794	9	0.0147	10	0.0037	10
13	Schroder Dana Prestasi Plus	0.0235	9	0.0762	2	0.9410	3	0.2076	3	0.0168	3	0.0055	4
14	TRIM Kapital	0.0249	4	0.0953	12	1.1463	12	0.1805	8	0.0150	8	0.0046	9
	AVERAGE	0.0216		0.0861		1.0256		0.1648		0.0136		0.0026	

Source: Yahoo Finance, BI, Bapepam LK

4.7.1 Ranking using Return and Standard Deviation

Based on the table 4.8, the average return was around 0.0216 and the average standard deviation was around 0.0861. Looking at the table above, it can be seen that the mutual funds with the lowest return was for BNI Reksadana Berkembang with average return of 0.0046. While the highest return was for Panin Dana Maksima with average return of 0.0270. While in terms of the standard deviation, the lowest was for Reksa Dana Nikko Saham Nusantara of 0.0743 and the highest was for BNI Reksadana Berkembang of 0.1076.

Just by looking at the return and standard deviation of the 14 mutual funds, it is safe to say that the least favorable mutual fund for 2005 to 2009 was once again, BNI Reksadana Berkembang. This is because the mutual fund was the most volatile yet the average return was the worst. While the best mutual funds for 2005 to 2009 was arguably Panin Dana Maksima. This is as the mutual fund has the best return even though not the lowest in standard deviation (rank 4th). But in comparison to other mutual funds, the combination

seems to be arguably the best. This compared to Reksa Dana Nikko Saham Nusantara that has lowest volatility, but yet rank 13 in return.

4.7.2   Ranking using Sharpe Ratio

Based on the Sharpe Ratio, for the period of 2005 to 2009, the mutual fund with the highest ranking was Panin Dana Maksima with value of 0.2422. While the lowest ranking mutual fund was BNI Reksadana Berkembang with value of -0.0288. This further solidifies the argument that the best performing mutual fund for the period of 2005 to 2009 was Panin Dana Maksima. While at the same time, the worst was for BNI Reksadana Berkembang.

4.7.3   Ranking using Treynor Ratio

Based on the table 4.8, the average beta for mutual funds from 2005 to 2009 was 1.0256. The mutual fund with the highest beta was Reksadana Dana Pratama Ekuitas with beta of 1.1907. This means that for the 5 years period, the exposure towards systematic risk for this mutual fund compare to the others was the highest.

By examining the performance of the mutual funds based on the Treynor Ratio, it can be seen that the mutual fund that has the highest value was Panin Dana Maksima with value of 0.0211. While the lowest value was for BNI Reksadana Berkembang with value of (0.0027). With this new information, Panin Dana Maksima still remains to be the best options to be selected.

4.7.4   Ranking using Jensen Ratio

Based on the table 4.8, the mutual fund with the lowest beta was Reksa Dana Nikko Saham Nusantara with beta of 0.8146. This means that the exposure towards systematic risk for this mutual fund compare to the others was lowest in the 5 years period.

By examining the performance of the mutual funds based on the Jensen Ratio, it can be seen that the mutual fund that has the highest value was Panin Dana Maksima with value of 0.0092. While the lowest value was for BNI Reksadana Berkembang with value of -0.0158. With this last ratio, Panin Dana Maksima can be considered to be the best performing mutual fund for the 5 years period. And also, confirming the claim as stated in 4.6.4, that BNI Reksadana Berkembang was the worst performing mutual for the period of 2005 to 2009.

4.7.5   Comment on 2005 to 2009

Based on the ratios and information above, the mutual funds that can be considered to be performing well (or can be considered as investment worthy) in the period of 2005 to 2009 was:

• 	Panin Dana Maksima

While the mutual fund that can be considered to be performing worst (or to be avoid at all cost) in the period of 2005 to 2009 was:

• 	BNI Reksadana Berkembang

4.8   Summary of the Result

Please refer to following table for the best performers annually and cumulatively for the period of 2005 to 2009:

Table 4.9 Summary of the Result

Year	Sharpe (highest)	Treynor (highest)	Jensen Alpha (highest)
2005	BNP Paribas Ekuitas	Reksadana Dana Pratama Ekuitas	Reksadana Dana Pratama Ekuitas
2006	Panin Dana Maksima	TRIM Kapital	TRIM Kapital
2007	BNP Paribas Ekuitas	BNP Paribas Ekuitas	BNP Paribas Ekuitas
2008	Panin Dana Maksima	Panin Dana Maksima	Panin Dana Maksima
2009	Reksa Dana Nikko Saham Nusantara	Reksa Dana Nikko Saham Nusantara	Panin Dana Maksima
2005 - 2009	Panin Dana Maksima	Panin Dana Maksima	Panin Dana Maksima

Based on the table 4.9, Panin Dana Maksima seems to be the best performer out of the rest with 8 occurrences; followed by BNP Paribas Ekuitas with 4 occurrences; and Reksadana Dana Pratama Ekuitas, TRIM Kapital, and Reksa Dana Nikko Saham Nusantara with 2 occurrences each. **Based on the table 4.9, the writer assume that Panin Dana Maksima would perform best (or at least one of the best) in 2010**. To find out whether the claim is true or not, please refer to following analysis.

4.9   Performance Measurement of Mutual Funds in 2010

Finally, following are the analysis on the performance measurement of the 14 mutual funds that met the criteria set above using ratio such as Sharpe, Treynor, and Jensen for the period of 2010:

Table 4.10 Ranking of mutual funds with Sharpe, Treynor
and Jensen Alpha Ratios for the period of 2010

No.	Name	Return	Rank	Std Dev	Lowest to Highest	Beta	Lowest to Highest	Sharpe	Rank	Treynor	Rank	Jensen	Rank
1	Bahana Dana Prima	0.0242	11	0.0549	8	0.9120	8	0.3440	10	0.0207	11	(0.0068)	12
2	Batavia Dana Saham	0.0255	9	0.0552	9	0.9146	9	0.3658	8	0.0221	10	(0.0056)	10
3	BNI Reksadana Berkembang	0.0235	12	0.0535	7	0.6908	2	0.3406	11	0.0264	3	(0.0013)	3
4	BNP Paribas Ekuitas	0.0295	5	0.0557	10	0.9305	11	0.4346	3	0.0260	4	(0.0020)	4
5	Manulife Dana Saham	0.0257	7	0.0501	3	0.8319	4	0.4076	5	0.0245	7	(0.0030)	7
6	Panin Dana Maksima	0.0620	1	0.0618	12	0.9205	10	0.9184	1	0.0617	1	0.0308	1
7	Phinisi Dana Saham	0.0249	10	0.0482	2	0.7908	3	0.4070	6	0.0248	6	(0.0027)	5
8	Reksa Dana AXA Citradinamis	0.0209	13	0.0522	5	0.8695	6	0.2991	13	0.0180	13	(0.0089)	13
9	Reksa Dana Nikko Saham Nusantara	0.0112	14	0.0416	1	0.4102	1	0.1411	14	0.0143	14	(0.0057)	11
10	Reksa Dana Schroder Dana Istimewa	0.0297	4	0.0589	11	0.9672	12	0.4141	4	0.0252	5	(0.0028)	6
11	Reksadana Dana Pratama Ekuitas	0.0263	6	0.0652	13	1.0691	14	0.3228	12	0.0197	12	(0.0091)	14
12	Rencana Cerdas	0.0301	2	0.0531	6	0.8839	7	0.4674	2	0.0281	2	(0.0001)	2
13	Schroder Dana Prestasi Plus	0.0257	8	0.0503	4	0.8415	5	0.4054	7	0.0242	8	(0.0033)	8
14	TRIM Kapital	0.0297	3	0.0673	14	1.0529	13	0.3626	9	0.0232	9	(0.0053)	9
	AVERAGE	0.0278		0.0549		0.8632		0.4022		0.0256		(0.0018)	

Source: Yahoo Finance, BI, Bapepam LK

4.9.1   Ranking using Return and Standard Deviation

Based on the table 4.10, the average return was around 0.0278 and the average standard deviation was around 0.0549. Looking at the table above, it can be seen that the mutual fund with the lowest return was for Reksa Dana Nikko Saham Nusantara with average return of 0.0112. While the highest return was for Panin Dana Maksima with average return of 0.0620. While in terms of the standard deviation, the lowest was for Reksa Dana Nikko Saham Nusantara of 0.0416. And the highest was for TRIM Kapital of 0.0673.

Just by looking at the return and standard deviation of the 14 mutual funds, it seems that up to this point, part of the assumption in 4.8 was proven to be correct where Panin Dana Maksima achieved the best average return in 2010 (but no so much on the standard deviation).

4.9.2 Ranking using Sharpe Ratio

Based on the Sharpe Ratio, for the period of 2010, the mutual fund with the highest ranking was Panin Dana Maksima with value of 0.9184. While the lowest ranking mutual fund was Reksa Dana Nikko Saham Nusantara with value of 0.1411. Once again, Panin Dana Maksima was performing best in this ratio.

4.9.3 Ranking using Treynor Ratio

Based on the table 4.10, the average beta for mutual funds in 2010 was 0.8632. The mutual fund with the highest beta was Reksadana Dana Pratama Ekuitas with beta of 1.0691. By examining the performance of the mutual funds based on the Treynor Ratio, it can be seen that the mutual fund that has the highest value was Panin Dana Maksima with value of 0.0617. While the lowest value was for Reksa Dana Nikko Saham Nusantara with value of 0.0143. With this new information, Panin Dana Maksima still remains to be the best performer for 2010.

4.9.4 Ranking using Jensen Alpha Ratio

Based on the table 4.10, the mutual fund with the lowest beta was Reksa Dana Nikko Saham Nusantara with beta of 0.4102. By examining the performance of the mutual funds based on the Jensen Alpha Ratio, it can be seen that the mutual fund that has the highest value was Panin Dana Maksima with value of 0.0308. And it appears that Panin Dana Maksima was also the only one that actually achieved positive value for this ratio. While the lowest value was for Reksadana Dana Pratama Ekuitas with value of -0.0091. With this last ratio, it further solidifies the fact that Panin Dana Maksima as the best performer of 2010.

4.9.5 Comment on 2010

Based on the ratios and information above, the mutual funds that can be considered to be performing well (or can be considered as investment worthy) in 2010 was:

• Panin Dana Maksima

With this, it is confirmed that the claim that stated Panin Dana Maksima would outperform the other 13 mutual funds in 2010 (as described in 4.8) was proven to be true.

CHAPTER 5

CONCLUSION & SUGGESTIONS

5.1   Conclusion

From the results of the study and analysis of data that has been done in the previous chapters, following are the answers to the research questions as mentioned in section 1.2:

- Based on at the table above, in 2005, it was *Reksadana Dana Pratama Ekuitas* as the best performer for that year. While in 2006, it was *TRIM Kapital*. In 2007, it was BNP Paribas Ekuitas. In 2008, it was *Panin Dana Maksima* as the best performing mutual funds though for that year, all the return was negative. In 2009, it was *Reksa Dana Nikko Saham Nusantara*. While cumulatively, out of all the mutual funds that were being examined in this study, it appears that *Panin Dana Maksima* was arguably can be considered to be the best performing mutual funds in the five years period.

- Based on the calculation of the Beta, the most systematically risky mutual fund for 2005 was *Reksadana Dana Pratama Ekuitas*. For 2006, it was *Reksa Dana Schroder Dana Istimewa*. While for 2007, it was *TRIM Kapital*. For 2008, it was *BNP Paribas Ekuitas*. For 2009, it was *BNI Reksadana Berkembang*. While cumulatively, it was *Reksadana Dana Pratama Ekuitas*.

- Based on the information processed for the period of 2005 to 2009, it was concluded that Panin Dana Maksima was the best mutual fund in that five years period. And so, the writer expected it to also perform best in 2010. After the analysis has been done on 2010 figures, it was found that Panin Dana Maksima was indeed deemed to be the best performer based on the 3 ratios in 2010.

Performance ranking..., Andrew Halim, FEUI, 2011

5.2   Suggestions

The results of this study are relatively conditional in nature (in term of focus, space, and time), because of the many factors that should or shouldn't be included in the study. A few suggestions that can be provided from this study are:

- To the academicians

    This study can be added into the University's library of Master Theses in order to enrich the database in regards to the study of mutual funds (equity) and the three types of tools.

- To investors

    They may use this study to assist them in future purchases of mutual funds, and to assess their current and past purchases on whether they have maximize their investment opportunities.

- To future researches

    They may be able to use this study to provide ideas or references for their researches or study. In this study, the writer only uses three tools

REFERENCES

Books / Journal / Thesis:

Bodie, Z.; A, Kane; A.J, Markus (2009). *Investments* (8th ed.). Singapore: McGraw-Hill Companies, Inc.

Brouwer, Kurt (1990). *Mutual Funds*. USA: John Wiley & Sons, Inc.

Feibel, Bruce J (2003). *Investment Performance Measurement*. New Jersey, USA: John Wiley & Sons, Inc.

Gallati, Reto (2003). *Risk Management and Capital Adequacy*. USA: McGraw-Hill, Inc.

Indah, Nur (2010). *Analisis Kinerja Reksa Dana Saham Dan Reksa Dana Pendapatan Tetap Di Indonesia Periode 2004–2008*. Universitas Indonesia

IDX Annual Report 2007

IDX Annual Report 2008

IDX Annual Report 2009

Manurung, Adler Haymans (2010). *Ekonomi Finansial*. Jakarta: PT ABFI Institute Perbanas.

Mahdi (2006). *Analisis Kinerja Reksa Dana Saham Sebagai Alternatif Investasi Jangka Panjang (Studi Kasus : Reksa Dana Saham Periode 2003 – 2005)*. Universitas Indonesia

Pratomo, Eko P. and Nugraha, Ubaidillah (2009). *Reksa dana – Solusi Perencanaan Investasi di Era Modern*. Jakarta: PT Gramedia Pustaka Utama

Reilly, F.K. & K.C. Brown (2006). *Investment Analysis and Portfolio Management*. USA: Thompson South-Western.

Ross, S.A.; R.W. Westerfield; J. Jafee; & B.D. Jordan (2008). Modern Financial Management. New York, USA: McGraw-Hill Companies, Inc.

Sharpe, W.F. & G.J. Alexander (1990). *Investments* (4th ed). USA: Prentice-Hall, Inc.

Sihombing, Brian R.A. (2006). *Analisis Kinerja Reksa Dana Saham Di Indonesia 2003-2006*. Universitas Indonesia

Supriyanto, Eko B. (2006). *Menjadi Kaya Melalui Reksa Dana*. Jakarta: Elex Media Computindo.

Susetyo. Mahayuhadi. F. (2009). *Comparison of Conventional Mutual Fund and Syariah Mutual Fund Based on Financial Performance in 2005-2007*. Institute Technology Bandung

Websites:

Bank Indonesia. *http://www.bi.go.id/web/id/*. 11 April 2011

Bapepam LK. *http://www.bapepam.go.id*. 11 April 2011

BusinessDictionary.com. *http://www.businessdictionary.com/*. 04 April 2011

Cambridge Dictionaries Online. *http://dictionary.cambridge.org/*. 01 March 2011

Economy Watch. **History of Mutual Funds**. *http://www.economywatch.com/mutual-funds/definition/history-of-mutual-funds.html*. 09 April 2011

Indonesian Stock Exchange. *http://www.idx.co.id/*. 11 April 2011

Infovesta. **Apa itu Reksadana?**. *http://www.infovesta.com/roller/vesta/entry/apa_itu_reksa_dana*. 20 March 2011

Investopedia. **A Brief History Of The Mutual Fund**. *http://www.investopedia.com/articles/mutualfund/05/MFhistory.asp#axzz1Oc508Rap*. 04 April 2011

Investopedia. **Beta (Definition)**. *http://www.investopedia.com/terms/b/beta.asp*. 04 April 2011

Investopedia. **Jensen's Measure (Definition)**. *http://www.investopedia.com/terms/j/jensensmeasure.asp*. 04 April 2011

Investopedia. **Mutual Funds Are Awesome - Except When They're Not**. *http://www.investopedia.com/articles/basics/03/041103.asp*. 04 April 2011

Investopedia. **Sharpe Ratio (Definition)**. *http://www.investopedia.com/terms/s/sharperatio.asp*. 04 April 2011

Investopedia. **Treynor Ratio (Definition)**. *http://www.investopedia.com/terms/t/treynorratio.asp*. 04 April 2011

Merriam-Webster (Online). http://www.merriam-webster.com/. 01 March 2011

Mutual Funds Resource Center. **History of Mutual** Funds. *http://www.mutualfundsresource.com/history/*. 09 April 2011

Narach Investment. **The Investment Management Process**. *http://www.narachinvestment.com/investment_management_process.htm*. 05 June 2011

Nasdaq. **Advantages Of Mutual Funds**. http://www.nasdaq.com/investing/advantages-of-mutual-funds.stm, 05 June 2011

Nasdaq. **Disadvantages of Mutual Funds**. http://www.nasdaq.com/investing/disadvantages-of-mutual-funds.stm, 05 June 2011

Oxford Dictionaries Online. *http://oxforddictionaries.com/*, 01 March 2011

Waspada Online. **Jumlah reksadana 2009 naik 11,42%**. *http://www.waspada.co.id/index.php?option=com_content&view=article&id=77946:jumlah-reksadana-2009-naik-1142&catid=18&Itemid=28*. 22 March 2011

Yahoo Finance. *http://finance.yahoo.com/*. 11 April 2011

APPENDIX
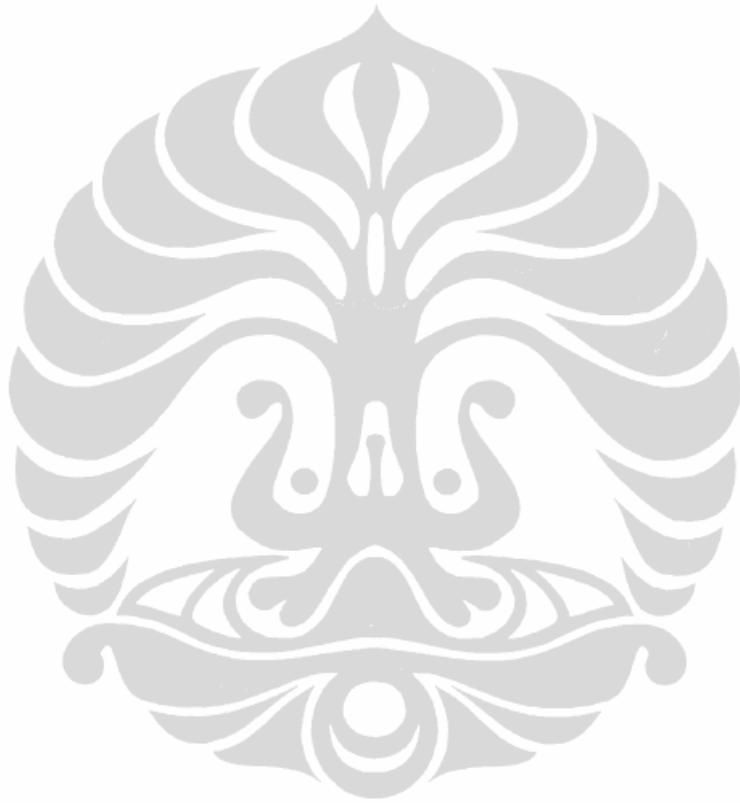
APPENDIX 1 CALCULATIONS OF RETURN AND VARIANCE for JSX

	PRICE	RETURN	
December - 2004	1,001		
January - 2005	1,046	0.0455	Return (Average)
February - 2005	1,074	0.0269	0.0139
March - 2005	1,082	0.0068	
April - 2005	1,031	(0.0466)	Var Mkt Rtn
May - 2005	1,088	0.0548	0.0028
June - 2005	1,124	0.0338	
July - 2005	1,180	0.0500	
August - 2005	1,029	(0.1285)	
September - 2005	1,055	0.0256	
October - 2005	1,073	0.0168	
November - 2005	1,095	0.0210	
December - 2005	1,162	0.0608	
January - 2006	1,234	0.0619	Return (Average)
February - 2006	1,223	(0.0090)	0.0392
March - 2006	1,322	0.0815	
April - 2006	1,468	0.1103	Var Mkt Rtn
May - 2006	1,340	(0.0873)	0.0030
June - 2006	1,311	(0.0221)	
July - 2006	1,353	0.0322	
August - 2006	1,432	0.0583	
September - 2006	1,532	0.0702	
October - 2006	1,583	0.0331	
November - 2006	1,720	0.0868	
December - 2006	1,813	0.0542	
January - 2007	1,766	(0.0262)	Return (Average)
February - 2007	1,752	(0.0078)	0.0363
March - 2007	1,837	0.0486	
April - 2007	1,995	0.0860	Var Mkt Rtn
May - 2007	2,101	0.0529	0.0030
June - 2007	2,141	0.0190	
July - 2007	2,319	0.0832	
August - 2007	2,194	(0.0536)	
September - 2007	2,367	0.0785	
October - 2007	2,693	0.1377	
November - 2007	2,704	0.0042	
December - 2007	2,740	0.0133	
January - 2008	2,657	(0.0301)	Return (Average)
February - 2008	2,652	(0.0020)	(0.0507)
March - 2008	2,464	(0.0709)	
April - 2008	2,334	(0.0528)	Var Mkt Rtn
May - 2008	2,448	0.0489	0.0097
June - 2008	2,361	(0.0352)	
July - 2008	2,283	(0.0332)	
August - 2008	2,157	(0.0552)	
September - 2008	1,767	(0.1808)	
October - 2008	1,282	(0.2747)	
November - 2008	1,241	(0.0317)	
December - 2008	1,377	0.1101	
January - 2009	1,330	(0.0344)	Return (Average)
February - 2009	1,285	(0.0335)	0.0547
March - 2009	1,434	0.1156	
April - 2009	1,723	0.2013	Var Mkt Rtn
May - 2009	1,917	0.1130	0.0059
June - 2009	2,027	0.0571	
July - 2009	2,324	0.1465	
August - 2009	2,341	0.0076	
September - 2009	2,468	0.0540	
October - 2009	2,366	(0.0414)	
November - 2009	2,416	0.0213	
December - 2009	2,534	0.0488	

Return (Average) 2005 to 2009		0.0187
Variance Market Return 2005 to 2009		0.0060

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APPENDIX 2 CALCULATIONS OF INTEREST RATE (AVERAGE) for SBI (1 MONTH)

	p.a. for 1 month (%)	Interest (monthly)	
December - 2004	7.43		
January - 2005	7.42	0.0062	Interest (Average)
February - 2005	7.43	0.0062	0.0077
March - 2005	7.44	0.0062	
April - 2005	7.70	0.0064	
May - 2005	7.95	0.0066	
June - 2005	8.25	0.0069	
July - 2005	8.49	0.0071	
August - 2005	9.51	0.0079	
September - 2005	10.00	0.0083	
October - 2005	11.00	0.0092	
November - 2005	12.25	0.0102	
December - 2005	12.75	0.0106	
January - 2006	12.75	0.0106	Interest (Average)
February - 2006	12.74	0.0106	0.0099
March - 2006	12.73	0.0106	
April - 2006	12.74	0.0106	
May - 2006	12.50	0.0104	
June - 2006	12.50	0.0104	
July - 2006	12.25	0.0102	
August - 2006	11.75	0.0098	
September - 2006	11.25	0.0094	
October - 2006	10.75	0.0090	
November - 2006	10.25	0.0085	
December - 2006	9.75	0.0081	
January - 2007	9.50	0.0079	Interest (Average)
February - 2007	9.25	0.0077	0.0072
March - 2007	9.00	0.0075	
April - 2007	9.00	0.0075	
May - 2007	8.75	0.0073	
June - 2007	8.50	0.0071	
July - 2007	8.25	0.0069	
August - 2007	8.25	0.0069	
September - 2007	8.25	0.0069	
October - 2007	8.25	0.0069	
November - 2007	8.25	0.0069	
December - 2007	8.00	0.0067	
January - 2008	8.00	0.0067	Interest (Average)
February - 2008	7.93	0.0066	0.0076
March - 2008	7.96	0.0066	
April - 2008	7.99	0.0067	
May - 2008	8.31	0.0069	
June - 2008	8.73	0.0073	
July - 2008	9.23	0.0077	
August - 2008	9.28	0.0077	
September - 2008	9.57	0.0080	
October - 2008	10.98	0.0092	
November - 2008	11.24	0.0094	
December - 2008	10.83	0.0090	
January - 2009	9.77	0.0081	Interest (Average)
February - 2009	8.74	0.0073	0.0061
March - 2009	8.21	0.0068	
April - 2009	7.64	0.0064	
May - 2009	7.25	0.0060	
June - 2009	6.95	0.0058	
July - 2009	6.71	0.0056	
August - 2009	6.58	0.0055	
September - 2009	6.48	0.0054	
October - 2009	6.49	0.0054	
November - 2009	6.47	0.0054	
December - 2009	6.46	0.0054	

Interest (Average) 2005 to 2009	0.0077	

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APPENDIX 3 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Bahana Dana Prima

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	61,308,321,823	19,525,128	3,140			
January - 2005	65,884,192,992	19,949,797	3,302	0.0518	Return (Average)	0.0098
February - 2005	90,306,305,143	26,533,692	3,403	0.0306	Std Dev	0.0528
March - 2005	137,564,570,022	40,046,459	3,435	0.0093	Covariance (Rp; Rm)	0.0024
April - 2005	125,756,941,984	38,602,942	3,258	(0.0516)	Coefficient Correlation (Rp; Rm)	0.9368
May - 2005	131,467,930,439	38,039,945	3,456	0.0609	Beta (β) = Covariance/Variance	0.8550
June - 2005	130,961,831,296	36,511,754	3,587	0.0378	Sharpe = (Rp - Rf)/σp	0.0415
July - 2005	125,336,071,152	33,074,648	3,789	0.0565	Treynor = (Rp - Rf)/βp	0.0026
August - 2005	125,422,610,303	37,156,451	3,376	(0.1092)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0032)
September - 2005	109,168,134,194	32,220,287	3,388	0.0037		
October - 2005	89,142,827,486	27,229,345	3,274	(0.0338)		
November - 2005	81,625,583,024	24,963,657	3,270	(0.0012)		
December - 2005	81,828,504,796	23,534,721	3,477	0.0634		
January - 2006	60,471,173,231	16,014,539	3,776	0.0860	Return (Average)	0.0401
February - 2006	63,852,490,813	16,765,091	3,809	0.0086	Std Dev	0.0563
March - 2006	58,685,552,091	14,298,901	4,104	0.0776	Covariance (Rp; Rm)	0.0026
April - 2006	65,258,535,177	13,869,409	4,705	0.1464	Coefficient Correlation (Rp; Rm)	0.9279
May - 2006	60,054,642,086	14,034,908	4,279	(0.0906)	Beta (β) = Covariance/Variance	0.8697
June - 2006	61,985,878,872	14,488,194	4,278	(0.0001)	Sharpe = (Rp - Rf)/σp	0.5370
July - 2006	74,473,785,390	16,811,939	4,430	0.0354	Treynor = (Rp - Rf)/βp	0.0348
August - 2006	84,556,630,999	18,340,480	4,610	0.0408	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0047
September - 2006	101,097,831,213	20,835,096	4,852	0.0525		
October - 2006	92,817,269,978	18,441,536	5,033	0.0373		
November - 2006	94,279,979,054	17,810,553	5,293	0.0517		
December - 2006	100,216,679,657	18,283,984	5,481	0.0354		
January - 2007	129,077,006,280	24,661,737	5,234	(0.0451)	Return (Average)	0.0457
February - 2007	128,300,296,856	24,790,707	5,175	(0.0112)	Std Dev	0.0681
March - 2007	134,066,603,426	24,256,426	5,527	0.0680	Covariance (Rp; Rm)	0.0033
April - 2007	132,811,889,972	22,146,422	5,997	0.0850	Coefficient Correlation (Rp; Rm)	0.9710
May - 2007	132,133,411,663	21,076,269	6,269	0.0454	Beta (β) = Covariance/Variance	1.1077
June - 2007	130,813,293,071	20,075,543	6,516	0.0394	Sharpe = (Rp - Rf)/σp	0.5651
July - 2007	165,722,084,418	22,748,153	7,285	0.1180	Treynor = (Rp - Rf)/βp	0.0347
August - 2007	188,739,995,784	27,727,448	6,807	(0.0656)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0062
September - 2007	218,109,288,731	29,328,254	7,437	0.0925		
October - 2007	226,850,838,425	26,006,634	8,723	0.1729		
November - 2007	243,443,460,806	26,809,355	9,081	0.0410		
December - 2007	249,440,393,153	27,262,062	9,150	0.0076		
January - 2008	288,861,633,420	32,461,581	8,899	(0.0274)	Return (Average)	(0.0511)
February - 2008	296,245,067,114	32,249,348	9,186	0.0323	Std Dev	0.1273
March - 2008	267,372,703,404	33,315,819	8,025	(0.1264)	Covariance (Rp; Rm)	0.0112
April - 2008	263,586,513,914	35,181,537	7,492	(0.0664)	Coefficient Correlation (Rp; Rm)	0.9739
May - 2008	274,304,895,356	33,406,457	8,211	0.0960	Beta (β) = Covariance/Variance	1.1525
June - 2008	287,073,611,563	36,617,980	7,840	(0.0452)	Sharpe = (Rp - Rf)/σp	(0.4611)
July - 2008	277,884,325,606	36,558,623	7,601	(0.0304)	Treynor = (Rp - Rf)/βp	(0.0509)
August - 2008	266,444,637,766	37,161,221	7,170	(0.0567)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0085
September - 2008	222,296,589,156	37,572,075	5,917	(0.1748)		
October - 2008	141,531,063,909	37,126,062	3,812	(0.3557)		
November - 2008	142,719,200,726	36,660,305	3,893	0.0212		
December - 2008	163,385,019,477	37,446,044	4,363	0.1208		
January - 2009	150,484,632,260	34,986,825	4,301	(0.0142)	Return (Average)	0.0657
February - 2009	138,470,534,557	33,096,751	4,184	(0.0273)	Std Dev	0.0886
March - 2009	167,488,516,739	35,593,993	4,706	0.1247	Covariance (Rp; Rm)	0.0062
April - 2009	199,018,957,812	33,713,765	5,903	0.2545	Coefficient Correlation (Rp; Rm)	0.9903
May - 2009	231,985,444,113	34,525,465	6,719	0.1382	Beta (β) = Covariance/Variance	1.0431
June - 2009	235,413,722,803	33,161,930	7,099	0.0565	Sharpe = (Rp - Rf)/σp	0.6726
July - 2009	267,125,350,099	32,314,346	8,266	0.1645	Treynor = (Rp - Rf)/βp	0.0571
August - 2009	248,684,882,799	29,996,846	8,290	0.0029	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0089
September - 2009	270,166,493,143	30,821,267	8,766	0.0573		
October - 2009	286,729,429,537	33,998,881	8,433	(0.0379)		
November - 2009	292,233,388,124	33,934,144	8,612	0.0211		
December - 2009	303,396,190,076	33,624,627	9,023	0.0478		

2005 to 2009	
Return (Average)	0.0220
Std Dev	0.0903
Covariance (Rp; Rm)	0.0067
Coefficient Correlation (Rp; Rm)	0.9704
Beta (β) = Covariance/Variance	1.1152
Sharpe = (Rp - Rf)/σp	0.1591
Treynor = (Rp - Rf)/βp	0.0129
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0021

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APPENDIX 4 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Batavia Dana Saham

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN
December - 2004	34,176,540,483	4,072,171	8,393	
January - 2005	40,346,610,619	4,502,670	8,961	0.0677
February - 2005	55,685,177,342	6,055,104	9,196	0.0263
March - 2005	87,479,921,467	9,511,024	9,198	0.0001
April - 2005	101,380,726,459	11,315,853	8,959	(0.0259)
May - 2005	104,994,850,450	10,963,600	9,577	0.0689
June - 2005	78,135,752,031	7,869,327	9,929	0.0368
July - 2005	86,955,589,146	8,253,711	10,535	0.0611
August - 2005	91,489,620,183	9,648,619	9,482	(0.1000)
September - 2005	89,743,521,675	9,297,620	9,652	0.0179
October - 2005	83,604,057,978	8,664,956	9,649	(0.0004)
November - 2005	94,415,988,921	9,386,363	10,059	0.0425
December - 2005	73,258,552,931	6,857,308	10,683	0.0621

Return (Average) 0.0214
Std Dev 0.0488
Covariance (Rp; Rm) 0.0023
Coefficient Correlation (Rp; Rm) 0.9639
Beta (β) = Covariance/Variance 0.8141
Sharpe = (Rp - Rf)/σp 0.2821
Treynor = (Rp - Rf)/βp 0.0169
Jensen = Rp – [Rf + βp (Rm – Rf)] 0.0087

January - 2006	52,097,567,267	4,462,748	11,674	0.0927
February - 2006	83,186,491,304	6,830,563	12,179	0.0432
March - 2006	107,551,520,049	8,092,179	13,291	0.0913
April - 2006	124,221,633,616	8,276,785	15,008	0.1292
May - 2006	168,156,169,556	12,173,432	13,813	(0.0796)
June - 2006	181,337,908,713	13,617,559	13,316	(0.0360)
July - 2006	206,708,336,100	14,671,093	14,089	0.0580
August - 2006	231,418,859,530	15,931,245	14,526	0.0310
September - 2006	240,913,822,913	16,184,512	14,885	0.0247
October - 2006	172,020,761,231	11,411,257	15,075	0.0127
November - 2006	147,172,240,682	9,491,398	15,506	0.0286
December - 2006	147,729,776,067	9,055,010	16,315	0.0522

Return (Average) 0.0373
Std Dev 0.0564
Covariance (Rp; Rm) 0.0024
Coefficient Correlation (Rp; Rm) 0.8301
Beta (β) = Covariance/Variance 0.7802
Sharpe = (Rp - Rf)/σp 0.4870
Treynor = (Rp - Rf)/βp 0.0352
Jensen = Rp – [Rf + βp (Rm – Rf)] 0.0046

January - 2007	148,033,981,045	9,409,129	15,733	(0.0357)
February - 2007	145,268,389,538	9,319,791	15,587	(0.0093)
March - 2007	146,046,859,904	8,948,801	16,320	0.0470
April - 2007	144,652,336,313	8,205,912	17,628	0.0801
May - 2007	144,578,292,353	7,847,612	18,423	0.0451
June - 2007	145,057,112,806	7,721,338	18,787	0.0197
July - 2007	148,800,592,083	7,147,548	20,818	0.1082
August - 2007	140,213,507,392	7,286,514	19,243	(0.0757)
September - 2007	133,070,130,455	6,350,144	20,955	0.0890
October - 2007	156,989,462,501	6,672,330	23,528	0.1228
November - 2007	170,281,532,062	7,232,093	23,545	0.0007
December - 2007	163,999,520,005	6,744,998	24,314	0.0327

Return (Average) 0.0354
Std Dev 0.0594
Covariance (Rp; Rm) 0.0029
Coefficient Correlation (Rp; Rm) 0.9753
Beta (β) = Covariance/Variance 0.9710
Sharpe = (Rp - Rf)/σp 0.4747
Treynor = (Rp - Rf)/βp 0.0291
Jensen = Rp – [Rf + βp (Rm – Rf)] (0.0001)

January - 2008	153,064,369,650	6,682,697	22,905	(0.0580)
February - 2008	150,392,741,938	6,330,684	23,756	0.0372
March - 2008	130,826,686,745	6,317,523	20,709	(0.1283)
April - 2008	123,101,091,902	6,309,145	19,512	(0.0578)
May - 2008	132,641,165,581	6,244,857	21,240	0.0886
June - 2008	135,487,370,399	6,535,843	20,730	(0.0240)
July - 2008	133,950,996,173	6,677,889	20,059	(0.0324)
August - 2008	127,509,753,560	6,903,627	18,470	(0.0792)
September - 2008	110,314,740,497	6,947,507	15,878	(0.1403)
October - 2008	75,878,637,207	6,626,312	11,451	(0.2788)
November - 2008	82,023,775,482	6,644,581	12,344	0.0780
December - 2008	90,586,890,708	6,625,258	13,673	0.1076

Return (Average) (0.0406)
Std Dev 0.1110
Covariance (Rp; Rm) 0.0093
Coefficient Correlation (Rp; Rm) 0.9223
Beta (β) = Covariance/Variance 0.9516
Sharpe = (Rp - Rf)/σp (0.4347)
Treynor = (Rp - Rf)/βp (0.0507)
Jensen = Rp – [Rf + βp (Rm – Rf)] 0.0072

January - 2009	87,669,467,095	6,654,714	13,174	(0.0365)
February - 2009	84,696,393,633	6,645,202	12,745	(0.0325)
March - 2009	69,287,376,437	4,893,806	14,158	0.1108
April - 2009	89,853,114,570	4,857,305	18,499	0.3066
May - 2009	103,204,855,093	4,715,819	21,885	0.1831
June - 2009	96,033,930,564	4,099,624	23,425	0.0704
July - 2009	110,412,070,224	4,018,554	27,476	0.1729
August - 2009	115,943,662,394	4,226,311	27,434	(0.0015)
September - 2009	123,194,630,740	4,271,603	28,840	0.0513
October - 2009	126,138,913,015	4,586,886	27,500	(0.0465)
November - 2009	132,998,016,746	4,769,105	27,887	0.0141
December - 2009	134,224,970,040	4,594,582	29,214	0.0476

Return (Average) 0.0700
Std Dev 0.1068
Covariance (Rp; Rm) 0.0074
Coefficient Correlation (Rp; Rm) 0.9751
Beta (β) = Covariance/Variance 1.2385
Sharpe = (Rp - Rf)/σp 0.5980
Treynor = (Rp - Rf)/βp 0.0516
Jensen = Rp – [Rf + βp (Rm – Rf)] 0.0037

2005 to 2009	
Return (Average)	0.0247
Std Dev	0.0864
Covariance (Rp; Rm)	0.0062
Coefficient Correlation (Rp; Rm)	0.9389
Beta (β) = Covariance/Variance	1.0330
Sharpe = (Rp - Rf)/σp	0.1970
Treynor = (Rp - Rf)/βp	0.0165
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0057

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APPENDIX 5 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for BNI Reksadana Berkembang

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN			
December - 2004	34,852,157,061	19,354,953	1,801				
January - 2005	57,945,442,357	37,090,609	1,562	(0.1324)	Return (Average)		(0.0056)
February - 2005	70,296,110,622	38,395,600	1,831	0.1719	Std Dev		0.0917
March - 2005	93,267,987,402	59,146,143	1,577	(0.1387)	Covariance (Rp; Rm)		0.0021
April - 2005	113,785,826,755	76,298,227	1,491	(0.0543)	Coefficient Correlation (Rp; Rm)		0.4756
May - 2005	109,461,385,466	69,163,473	1,583	0.0612	Beta (б) = Covariance/Variance		0.7538
June - 2005	104,992,173,102	63,419,233	1,656	0.0460	Sharpe = (Rp - Rf)/Цp		(0.1449)
July - 2005	100,987,778,262	58,827,924	1,717	0.0369	Treynor = (Rp - Rf)/бp		(0.0176)
August - 2005	158,716,671,404	103,623,871	1,532	(0.1078)	Jensen = Rp œ[Rf + бp (Rm œRf)]		(0.0180)
September - 2005	216,741,493,419	141,758,453	1,529	(0.0018)			
October - 2005	202,422,074,107	135,231,614	1,497	(0.0210)			
November - 2005	192,363,884,302	127,558,296	1,508	0.0075			
December - 2005	169,091,980,662	105,313,290	1,606	0.0647			
January - 2006	150,984,661,974	88,226,055	1,711	0.0659	Return (Average)		0.0341
February - 2006	140,937,870,777	80,557,218	1,750	0.0223	Std Dev		0.0432
March - 2006	108,419,613,235	56,294,435	1,926	0.1008	Covariance (Rp; Rm)		0.0018
April - 2006	113,131,140,736	54,937,694	2,059	0.0692	Coefficient Correlation (Rp; Rm)		0.8462
May - 2006	113,386,971,110	58,816,993	1,928	(0.0638)	Beta (б) = Covariance/Variance		0.6089
June - 2006	115,661,334,789	60,357,747	1,916	(0.0060)	Sharpe = (Rp - Rf)/Цp		0.5609
July - 2006	115,797,829,128	58,621,790	1,975	0.0308	Treynor = (Rp - Rf)/бp		0.0398
August - 2006	113,344,785,652	53,604,783	2,114	0.0704	Jensen = Rp œ[Rf + бp (Rm œRf)]		0.0064
September - 2006	114,917,093,024	51,754,357	2,220	0.0501			
October - 2006	112,455,430,761	50,154,270	2,242	0.0098			
November - 2006	101,565,803,901	44,511,758	2,282	0.0177			
December - 2006	105,812,899,525	44,506,557	2,377	0.0419			
January - 2007	108,544,840,183	47,495,966	2,285	(0.0387)	Return (Average)		0.0190
February - 2007	87,233,381,511	38,545,619	2,263	(0.0097)	Std Dev		0.0429
March - 2007	83,014,528,715	34,765,160	2,388	0.0551	Covariance (Rp; Rm)		0.0019
April - 2007	77,673,135,252	30,707,969	2,529	0.0593	Coefficient Correlation (Rp; Rm)		0.8927
May - 2007	76,055,842,143	29,531,515	2,575	0.0182	Beta (б) = Covariance/Variance		0.6418
June - 2007	67,407,396,882	26,099,447	2,583	0.0028	Sharpe = (Rp - Rf)/Цp		0.2763
July - 2007	64,537,160,452	24,168,148	2,670	0.0339	Treynor = (Rp - Rf)/бp		0.0185
August - 2007	84,309,183,503	32,744,596	2,575	(0.0358)	Jensen = Rp œ[Rf + бp (Rm œRf)]		(0.0068)
September - 2007	88,844,465,914	31,601,184	2,811	0.0919			
October - 2007	66,356,990,155	22,043,030	3,010	0.0708			
November - 2007	69,382,380,727	23,150,614	2,997	(0.0044)			
December - 2007	72,306,012,260	24,492,055	2,952	(0.0149)			
January - 2008	75,173,337,191	28,872,644	2,604	(0.1181)	Return (Average)		(0.0885)
February - 2008	75,913,070,175	28,966,276	2,621	0.0066	Std Dev		0.1224
March - 2008	70,712,383,390	31,869,890	2,219	(0.1534)	Covariance (Rp; Rm)		0.0106
April - 2008	68,533,312,673	32,228,058	2,127	(0.0416)	Coefficient Correlation (Rp; Rm)		0.9552
May - 2008	68,795,829,937	30,886,589	2,227	0.0474	Beta (б) = Covariance/Variance		1.0868
June - 2008	66,091,224,926	31,248,546	2,115	(0.0504)	Sharpe = (Rp - Rf)/Цp		(0.7850)
July - 2008	63,184,562,625	31,017,629	2,037	(0.0369)	Treynor = (Rp - Rf)/бp		(0.0884)
August - 2008	57,060,860,537	30,988,153	1,841	(0.0961)	Jensen = Rp œ[Rf + бp (Rm œRf)]		(0.0328)
September - 2008	44,637,139,957	30,557,443	1,461	(0.2067)			
October - 2008	26,806,032,655	29,889,353	897	(0.3860)			
November - 2008	24,640,405,797	30,224,298	815	(0.0910)			
December - 2008	26,282,288,084	30,284,283	868	0.0645			
January - 2009	25,890,113,910	30,324,174	854	(0.0162)	Return (Average)		0.0639
February - 2009	26,507,805,451	30,308,947	875	0.0244	Std Dev		0.1431
March - 2009	27,790,740,480	30,357,206	915	0.0467	Covariance (Rp; Rm)		0.0086
April - 2009	40,096,181,181	30,472,478	1,316	0.4373	Coefficient Correlation (Rp; Rm)		0.8499
May - 2009	48,302,053,669	30,431,574	1,587	0.2063	Beta (б) = Covariance/Variance		1.4457
June - 2009	50,048,794,506	30,323,561	1,650	0.0399	Sharpe = (Rp - Rf)/Цp		0.4038
July - 2009	56,888,710,023	30,146,268	1,887	0.1433	Treynor = (Rp - Rf)/бp		0.0400
August - 2009	54,769,489,743	28,836,925	1,899	0.0065	Jensen = Rp œ[Rf + бp (Rm œRf)]		(0.0124)
September - 2009	54,229,014,090	27,872,217	1,946	0.0244			
October - 2009	49,783,252,070	28,556,614	1,743	(0.1040)			
November - 2009	47,254,045,902	28,777,662	1,642	(0.0581)			
December - 2009	46,338,816,806	27,778,978	1,668	0.0159			

2005 to 2009	
Return (Average)	0.0046
Std Dev	0.1076
Covariance (Rp; Rm)	0.0069
Coefficient Correlation (Rp; Rm)	0.8453
Beta (б) = Covariance/Variance	1.1585
Sharpe = (Rp - Rf)/Цp	(0.0288)
Treynor = (Rp - Rf)/бp	(0.0027)
Jensen = Rp œ[Rf + бp (Rm œRf)]	(0.0158)

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APPENDIX 6 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for BNP Paribas Ekuitas

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	31,650,124,981	12,215,468	2,591			
January - 2005	34,891,978,004	12,799,600	2,726	0.0521	Return (Average)	0.0252
February - 2005	38,372,760,054	13,456,633	2,852	0.0461	Std Dev	0.0451
March - 2005	78,661,106,486	27,484,725	2,862	0.0036	Covariance (Rp; Rm)	0.0021
April - 2005	84,764,946,395	30,579,357	2,772	(0.0315)	Coefficient Correlation (Rp; Rm)	0.9583
May - 2005	97,149,804,645	33,273,815	2,920	0.0533	Beta (β) = Covariance/Variance	0.7475
June - 2005	122,000,350,857	39,335,592	3,102	0.0623	Sharpe = (Rp - Rf)/σp	0.3893
July - 2005	175,819,438,473	52,946,769	3,321	0.0707	Treynor = (Rp - Rf)/βp	0.0235
August - 2005	241,722,899,301	79,274,722	3,049	(0.0818)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0129
September - 2005	247,207,398,980	79,516,224	3,109	0.0196		
October - 2005	242,434,003,845	77,317,523	3,136	0.0086		
November - 2005	240,869,024,612	74,124,256	3,250	0.0363		
December - 2005	200,438,456,879	58,014,535	3,455	0.0632		
January - 2006	181,317,057,337	49,660,376	3,651	0.0568	Return (Average)	0.0413
February - 2006	194,943,614,212	52,486,802	3,714	0.0173	Std Dev	0.0494
March - 2006	182,395,393,899	46,119,111	3,955	0.0648	Covariance (Rp; Rm)	0.0024
April - 2006	199,514,189,151	45,185,386	4,415	0.1165	Coefficient Correlation (Rp; Rm)	0.9655
May - 2006	206,669,067,325	51,055,190	4,048	(0.0832)	Beta (β) = Covariance/Variance	0.7936
June - 2006	226,378,637,982	56,115,186	4,034	(0.0034)	Sharpe = (Rp - Rf)/σp	0.6379
July - 2006	255,833,155,850	60,519,986	4,227	0.0479	Treynor = (Rp - Rf)/βp	0.0397
August - 2006	283,813,614,248	63,218,737	4,489	0.0620	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0082
September - 2006	329,013,811,880	69,654,687	4,723	0.0521		
October - 2006	363,757,663,058	73,598,860	4,942	0.0464		
November - 2006	447,333,637,166	83,658,804	5,347	0.0819		
December - 2006	526,621,537,986	94,950,847	5,546	0.0372		
January - 2007	653,734,626,452	121,453,261	5,383	(0.0295)	Return (Average)	0.0536
February - 2007	761,488,502,096	138,827,265	5,485	0.0191	Std Dev	0.0589
March - 2007	981,400,250,915	168,633,303	5,820	0.0610	Covariance (Rp; Rm)	0.0029
April - 2007	1,050,994,965,748	163,842,255	6,415	0.1022	Coefficient Correlation (Rp; Rm)	0.9739
May - 2007	1,296,824,200,125	185,663,719	6,985	0.0889	Beta (β) = Covariance/Variance	0.9602
June - 2007	1,875,722,731,972	256,803,851	7,304	0.0457	Sharpe = (Rp - Rf)/σp	0.7892
July - 2007	3,009,417,497,042	369,968,763	8,134	0.1137	Treynor = (Rp - Rf)/βp	0.0484
August - 2007	3,946,049,386,875	510,128,283	7,735	(0.0490)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0185
September - 2007	4,697,254,179,480	554,775,310	8,467	0.0946		
October - 2007	4,963,098,993,491	511,488,442	9,703	0.1460		
November - 2007	5,490,915,017,036	544,678,980	10,081	0.0389		
December - 2007	5,887,788,048,777	577,084,054	10,203	0.0121		
January - 2008	6,681,659,584,895	673,602,551	9,919	(0.0278)	Return (Average)	(0.0541)
February - 2008	6,149,029,250,468	604,097,695	10,179	0.0262	Std Dev	0.1307
March - 2008	6,898,033,644,156	776,189,420	8,887	(0.1269)	Covariance (Rp; Rm)	0.0115
April - 2008	6,605,901,256,046	797,594,817	8,282	(0.0681)	Coefficient Correlation (Rp; Rm)	0.9748
May - 2008	6,967,673,250,056	759,931,278	9,169	0.1070	Beta (β) = Covariance/Variance	1.1840
June - 2008	6,702,650,617,597	756,827,949	8,856	(0.0341)	Sharpe = (Rp - Rf)/σp	(0.4722)
July - 2008	6,436,479,088,419	759,543,056	8,474	(0.0431)	Treynor = (Rp - Rf)/βp	(0.0521)
August - 2008	6,041,545,789,355	768,316,704	7,863	(0.0721)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0073
September - 2008	4,903,848,405,366	774,746,679	6,330	(0.1950)		
October - 2008	3,010,471,820,142	741,656,288	4,059	(0.3587)		
November - 2008	3,114,868,402,540	747,695,561	4,166	0.0263		
December - 2008	3,463,067,466,709	744,026,444	4,654	0.1173		
January - 2009	3,467,804,146,188	746,221,468	4,647	(0.0016)	Return (Average)	0.0684
February - 2009	3,324,384,300,868	743,736,780	4,470	(0.0382)	Std Dev	0.0911
March - 2009	3,615,798,602,720	727,231,651	4,972	0.1123	Covariance (Rp; Rm)	0.0063
April - 2009	4,549,307,435,614	733,441,352	6,203	0.2475	Coefficient Correlation (Rp; Rm)	0.9772
May - 2009	5,469,737,509,712	751,608,114	7,277	0.1733	Beta (β) = Covariance/Variance	1.0582
June - 2009	5,804,451,924,552	756,152,780	7,676	0.0548	Sharpe = (Rp - Rf)/σp	0.6843
July - 2009	6,778,286,721,232	749,838,711	9,040	0.1776	Treynor = (Rp - Rf)/βp	0.0589
August - 2009	6,650,137,998,804	732,067,312	9,084	0.0049	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0109
September - 2009	6,864,764,820,688	713,229,897	9,625	0.0595		
October - 2009	6,774,213,395,261	729,652,277	9,284	(0.0354)		
November - 2009	6,824,665,190,180	722,337,028	9,448	0.0177		
December - 2009	6,718,458,414,297	678,213,044	9,906	0.0485		

2005 to 2009	
Return (Average)	0.0269
Std Dev	0.0899
Covariance (Rp; Rm)	0.0066
Coefficient Correlation (Rp; Rm)	0.9689
Beta (β) = Covariance/Variance	1.1092
Sharpe = (Rp - Rf)/σp	0.2138
Treynor = (Rp - Rf)/βp	0.0173
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0070

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APPENDIX 7 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Manulife Dana Saham

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	126,445,632,818	61,013,217	2,072			
January - 2005	166,253,325,499	76,880,195	2,162	0.0435	Return (Average)	0.0221
February - 2005	200,232,761,180	88,837,964	2,254	0.0423	Std Dev	0.0432
March - 2005	341,193,079,986	149,191,619	2,287	0.0147	Covariance (Rp; Rm)	0.0020
April - 2005	360,881,983,185	163,379,721	2,209	(0.0341)	Coefficient Correlation (Rp; Rm)	0.9419
May - 2005	395,240,596,919	168,859,430	2,341	0.0597	Beta (β) = Covariance/Variance	0.7041
June - 2005	400,099,342,039	163,526,779	2,447	0.0453	Sharpe = (Rp - Rf)/σp	0.3338
July - 2005	448,458,800,940	170,836,635	2,625	0.0729	Treynor = (Rp - Rf)/βp	0.0205
August - 2005	548,581,461,712	226,319,605	2,424	(0.0766)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0100
September - 2005	567,947,795,498	228,390,323	2,487	0.0259		
October - 2005	530,317,462,434	215,797,161	2,457	(0.0118)		
November - 2005	540,953,351,635	213,696,627	2,531	0.0301		
December - 2005	444,706,842,315	166,792,942	2,666	0.0533		
January - 2006	379,152,762,539	132,015,547	2,872	0.0772	Return (Average)	0.0412
February - 2006	378,663,919,225	129,860,684	2,916	0.0153	Std Dev	0.0474
March - 2006	339,282,173,321	110,115,381	3,081	0.0567	Covariance (Rp; Rm)	0.0023
April - 2006	394,484,912,104	113,643,911	3,471	0.1266	Coefficient Correlation (Rp; Rm)	0.9567
May - 2006	440,526,025,411	135,237,812	3,257	(0.0616)	Beta (β) = Covariance/Variance	0.7550
June - 2006	489,670,857,976	152,797,960	3,205	(0.0162)	Sharpe = (Rp - Rf)/σp	0.6617
July - 2006	529,000,596,438	158,995,890	3,327	0.0382	Treynor = (Rp - Rf)/βp	0.0415
August - 2006	526,421,392,577	150,072,241	3,508	0.0543	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0092
September - 2006	568,491,719,532	154,377,507	3,682	0.0498		
October - 2006	623,702,455,735	163,270,045	3,820	0.0374		
November - 2006	781,094,230,273	190,398,803	4,102	0.0739		
December - 2006	949,061,741,514	221,790,615	4,279	0.0431		
January - 2007	1,169,535,004,222	282,044,995	4,147	(0.0310)	Return (Average)	0.0417
February - 2007	1,246,961,276,175	305,656,519	4,080	(0.0162)	Std Dev	0.0627
March - 2007	1,418,850,456,796	330,199,806	4,297	0.0533	Covariance (Rp; Rm)	0.0031
April - 2007	1,366,600,877,245	292,778,103	4,668	0.0863	Coefficient Correlation (Rp; Rm)	0.9806
May - 2007	1,537,538,041,069	313,474,303	4,905	0.0508	Beta (β) = Covariance/Variance	1.0293
June - 2007	1,707,111,283,699	338,578,385	5,042	0.0280	Sharpe = (Rp - Rf)/σp	0.5504
July - 2007	2,121,469,368,624	375,753,094	5,646	0.1198	Treynor = (Rp - Rf)/βp	0.0335
August - 2007	2,454,268,936,935	466,284,467	5,263	(0.0677)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0045
September - 2007	2,749,602,138,766	482,699,400	5,696	0.0822		
October - 2007	2,905,020,377,009	443,602,333	6,549	0.1496		
November - 2007	2,954,226,617,661	438,562,339	6,736	0.0286		
December - 2007	3,001,459,884,617	438,455,206	6,846	0.0162		
January - 2008	2,881,918,940,491	435,587,973	6,616	(0.0335)	Return (Average)	(0.0495)
February - 2008	2,747,914,388,729	403,673,420	6,807	0.0289	Std Dev	0.1073
March - 2008	2,572,208,174,512	427,117,558	6,022	(0.1153)	Covariance (Rp; Rm)	0.0094
April - 2008	2,413,549,509,262	425,957,110	5,666	(0.0591)	Coefficient Correlation (Rp; Rm)	0.9716
May - 2008	2,456,204,174,300	406,908,341	6,036	0.0653	Beta (β) = Covariance/Variance	0.9693
June - 2008	2,310,467,791,196	401,581,043	5,753	(0.0469)	Sharpe = (Rp - Rf)/σp	(0.5324)
July - 2008	2,188,082,248,027	391,328,045	5,591	(0.0282)	Treynor = (Rp - Rf)/βp	(0.0590)
August - 2008	2,078,499,286,842	389,132,362	5,341	(0.0447)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0007)
September - 2008	1,716,132,386,021	382,404,165	4,488	(0.1598)		
October - 2008	1,153,676,131,783	370,793,323	3,111	(0.3067)		
November - 2008	1,173,841,518,261	371,914,946	3,156	0.0144		
December - 2008	1,274,738,969,192	370,050,548	3,445	0.0914		
January - 2009	1,277,900,709,188	370,913,621	3,445	0.0001	Return (Average)	0.0629
February - 2009	1,218,947,832,557	368,275,652	3,310	(0.0393)	Std Dev	0.0798
March - 2009	1,368,835,209,739	365,669,246	3,743	0.1310	Covariance (Rp; Rm)	0.0055
April - 2009	1,651,893,619,744	368,576,633	4,482	0.1973	Coefficient Correlation (Rp; Rm)	0.9831
May - 2009	1,875,355,932,450	369,725,064	5,072	0.1318	Beta (β) = Covariance/Variance	0.9326
June - 2009	1,947,948,745,141	365,735,276	5,326	0.0500	Sharpe = (Rp - Rf)/σp	0.7125
July - 2009	2,249,273,445,914	357,901,609	6,285	0.1800	Treynor = (Rp - Rf)/βp	0.0610
August - 2009	2,178,126,701,185	344,601,267	6,321	0.0057	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0116
September - 2009	2,263,062,911,313	336,669,634	6,722	0.0635		
October - 2009	2,211,929,594,856	339,906,657	6,507	(0.0319)		
November - 2009	2,204,990,373,685	332,139,969	6,639	0.0202		
December - 2009	2,163,146,433,254	311,228,756	6,950	0.0469		

2005 to 2009	
Return (Average)	0.0237
Std Dev	0.0798
Covariance (Rp; Rm)	0.0059
Coefficient Correlation (Rp; Rm)	0.9736
Beta (β) = Covariance/Variance	0.9891
Sharpe = (Rp - Rf)/σp	0.2005
Treynor = (Rp - Rf)/βp	0.0162
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0051

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APPENDIX 8 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Panin Dana Maksima

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	48,707,896,551	8,200,670	5,940			
January - 2005	52,534,700,064	8,368,908	6,277	0.0569	Return (Average)	0.0210
February - 2005	57,547,581,157	8,784,328	6,551	0.0436	Std Dev	0.0485
March - 2005	71,652,326,200	10,345,570	6,926	0.0572	Covariance (Rp; Rm)	0.0022
April - 2005	70,297,080,477	10,441,115	6,733	(0.0279)	Coefficient Correlation (Rp; Rm)	0.9326
May - 2005	72,327,305,928	10,288,219	7,030	0.0442	Beta (β) = Covariance/Variance	0.7825
June - 2005	68,222,358,293	9,555,190	7,140	0.0156	Sharpe = (Rp - Rf)/σp	0.2752
July - 2005	66,557,605,139	8,965,486	7,424	0.0398	Treynor = (Rp - Rf)/βp	0.0171
August - 2005	63,802,896,504	9,715,149	6,567	(0.1154)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0085
September - 2005	67,497,227,359	9,985,459	6,760	0.0293		
October - 2005	68,892,236,487	9,903,739	6,956	0.0291		
November - 2005	72,639,392,984	10,088,490	7,200	0.0351		
December - 2005	74,533,108,234	9,909,288	7,522	0.0446		
January - 2006	73,451,783,888	9,122,542	8,052	0.0705	Return (Average)	0.0462
February - 2006	72,863,824,894	8,726,755	8,349	0.0370	Std Dev	0.0429
March - 2006	78,418,042,625	8,705,976	9,007	0.0788	Covariance (Rp; Rm)	0.0021
April - 2006	81,087,754,899	8,257,754	9,820	0.0902	Coefficient Correlation (Rp; Rm)	0.9575
May - 2006	83,011,597,132	9,038,277	9,184	(0.0647)	Beta (β) = Covariance/Variance	0.6847
June - 2006	90,602,934,852	9,881,780	9,169	(0.0017)	Sharpe = (Rp - Rf)/σp	0.8472
July - 2006	94,727,581,714	9,950,646	9,520	0.0383	Treynor = (Rp - Rf)/βp	0.0531
August - 2006	96,310,025,877	9,529,197	10,107	0.0617	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0163
September - 2006	103,460,298,737	9,644,423	10,727	0.0614		
October - 2006	120,886,472,692	10,855,937	11,136	0.0380		
November - 2006	134,986,964,241	11,330,720	11,913	0.0699		
December - 2006	165,615,904,458	12,925,198	12,813	0.0755		
January - 2007	301,681,788,506	22,708,898	13,285	0.0368	Return (Average)	0.0246
February - 2007	357,083,047,120	27,364,087	13,049	(0.0177)	Std Dev	0.0426
March - 2007	408,796,730,424	30,915,475	13,223	0.0133	Covariance (Rp; Rm)	0.0015
April - 2007	411,459,775,189	28,861,258	14,256	0.0782	Coefficient Correlation (Rp; Rm)	0.7084
May - 2007	425,494,406,305	28,320,064	15,024	0.0539	Beta (β) = Covariance/Variance	0.5059
June - 2007	510,995,624,408	32,489,927	15,728	0.0468	Sharpe = (Rp - Rf)/σp	0.4099
July - 2007	646,954,554,395	38,312,605	16,886	0.0737	Treynor = (Rp - Rf)/βp	0.0345
August - 2007	688,112,356,793	43,099,402	15,966	(0.0545)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0027
September - 2007	732,830,035,726	44,283,786	16,548	0.0365		
October - 2007	704,334,617,141	40,613,457	17,342	0.0480		
November - 2007	610,706,208,748	36,735,283	16,625	(0.0414)		
December - 2007	607,761,946,630	35,760,263	16,995	0.0223		
January - 2008	520,886,583,569	33,451,438	15,571	(0.0838)	Return (Average)	(0.0300)
February - 2008	479,151,422,529	30,891,133	15,511	(0.0039)	Std Dev	0.1140
March - 2008	449,866,259,729	30,771,702	14,619	(0.0575)	Covariance (Rp; Rm)	0.0093
April - 2008	424,729,873,260	30,437,398	13,954	(0.0455)	Coefficient Correlation (Rp; Rm)	0.9018
May - 2008	477,418,998,389	29,851,118	15,993	0.1461	Beta (β) = Covariance/Variance	0.9554
June - 2008	471,455,577,726	29,720,525	15,863	(0.0082)	Sharpe = (Rp - Rf)/σp	(0.3302)
July - 2008	503,654,071,187	29,268,360	17,208	0.0848	Treynor = (Rp - Rf)/βp	(0.0394)
August - 2008	478,616,853,597	29,006,638	16,500	(0.0411)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0181
September - 2008	414,453,284,003	28,927,749	14,327	(0.1317)		
October - 2008	285,351,779,506	28,271,376	10,093	(0.2955)		
November - 2008	283,850,230,516	28,221,731	10,058	(0.0035)		
December - 2008	307,279,757,179	28,294,856	10,860	0.0797		
January - 2009	302,925,717,726	28,060,055	10,796	(0.0059)	Return (Average)	0.0729
February - 2009	298,061,501,668	28,039,161	10,630	(0.0153)	Std Dev	0.0931
March - 2009	312,857,350,202	27,038,000	11,571	0.0885	Covariance (Rp; Rm)	0.0062
April - 2009	396,707,947,132	26,986,716	14,700	0.2704	Coefficient Correlation (Rp; Rm)	0.9367
May - 2009	466,836,233,253	26,568,478	17,571	0.1953	Beta (β) = Covariance/Variance	1.0370
June - 2009	465,165,422,212	24,235,466	19,194	0.0923	Sharpe = (Rp - Rf)/σp	0.7178
July - 2009	509,540,425,905	23,362,245	21,810	0.1363	Treynor = (Rp - Rf)/βp	0.0644
August - 2009	520,599,741,628	23,775,364	21,897	0.0040	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0165
September - 2009	564,887,336,308	23,622,482	23,913	0.0921		
October - 2009	540,489,068,600	23,698,159	22,807	(0.0462)		
November - 2009	570,566,152,957	24,184,400	23,592	0.0344		
December - 2009	582,403,247,174	23,985,387	24,282	0.0292		

2005 to 2009	
Return (Average)	0.0270
Std Dev	0.0796
Covariance (Rp; Rm)	0.0054
Coefficient Correlation (Rp; Rm)	0.9012
Beta (β) = Covariance/Variance	0.9133
Sharpe = (Rp - Rf)/σp	0.2422
Treynor = (Rp - Rf)/βp	0.0211
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0092

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APPENDIX 9 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Phinisi Dana Saham

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	59,924,432,844	16,196,006	3,700			
January - 2005	62,776,932,544	16,172,235	3,882	0.0491	Return (Average)	0.0210
February - 2005	57,674,425,920	14,190,888	4,064	0.0470	Std Dev	0.0479
March - 2005	76,092,083,829	18,376,658	4,141	0.0188	Covariance (Rp; Rm)	0.0022
April - 2005	81,688,943,322	20,506,960	3,983	(0.0380)	Coefficient Correlation (Rp; Rm)	0.9536
May - 2005	86,649,899,574	20,507,022	4,225	0.0607	Beta (β) = Covariance/Variance	0.7904
June - 2005	90,365,590,272	20,501,856	4,408	0.0431	Sharpe = (Rp - Rf)/σp	0.2795
July - 2005	96,180,960,097	20,467,299	4,699	0.0662	Treynor = (Rp - Rf)/βp	0.0169
August - 2005	87,231,592,587	20,466,128	4,262	(0.0930)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0085
September - 2005	89,091,154,754	20,431,857	4,360	0.0230		
October - 2005	87,592,467,862	20,429,752	4,287	(0.0167)		
November - 2005	90,205,067,445	20,429,752	4,415	0.0298		
December - 2005	95,829,044,786	20,428,444	4,691	0.0624		
January - 2006	103,266,567,369	20,420,884	5,057	0.0780	Return (Average)	0.0410
February - 2006	105,121,784,495	20,420,258	5,148	0.0180	Std Dev	0.0483
March - 2006	116,824,487,862	21,293,245	5,486	0.0658	Covariance (Rp; Rm)	0.0023
April - 2006	66,867,742,629	10,866,544	6,154	0.1216	Coefficient Correlation (Rp; Rm)	0.9618
May - 2006	62,073,306,204	10,835,716	5,729	(0.0691)	Beta (β) = Covariance/Variance	0.7735
June - 2006	61,027,882,567	10,826,139	5,637	(0.0160)	Sharpe = (Rp - Rf)/σp	0.6444
July - 2006	56,827,984,188	9,681,999	5,869	0.0412	Treynor = (Rp - Rf)/βp	0.0402
August - 2006	60,154,180,401	9,681,616	6,213	0.0586	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0084
September - 2006	63,318,089,744	9,680,922	6,541	0.0527		
October - 2006	65,592,162,411	9,680,922	6,775	0.0359		
November - 2006	70,110,135,961	9,677,602	7,245	0.0692		
December - 2006	72,590,734,266	9,673,285	7,504	0.0358		
January - 2007	70,063,933,742	9,673,846	7,243	(0.0349)	Return (Average)	0.0416
February - 2007	68,745,115,413	9,672,527	7,107	(0.0187)	Std Dev	0.0642
March - 2007	72,886,756,385	9,670,835	7,537	0.0604	Covariance (Rp; Rm)	0.0031
April - 2007	79,892,603,536	9,670,659	8,261	0.0961	Coefficient Correlation (Rp; Rm)	0.9658
May - 2007	81,717,664,249	9,666,280	8,454	0.0233	Beta (β) = Covariance/Variance	1.0380
June - 2007	84,135,640,805	9,665,857	8,704	0.0296	Sharpe = (Rp - Rf)/σp	0.5367
July - 2007	91,932,945,395	9,657,314	9,520	0.0936	Treynor = (Rp - Rf)/βp	0.0332
August - 2007	86,644,951,214	9,650,740	8,978	(0.0569)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0042
September - 2007	93,666,287,102	9,650,568	9,706	0.0811		
October - 2007	109,791,685,468	9,642,902	11,386	0.1731		
November - 2007	110,443,810,457	9,343,047	11,821	0.0382		
December - 2007	111,946,907,779	9,336,884	11,990	0.0143		
January - 2008	108,675,681,896	9,336,662	11,640	(0.0292)	Return (Average)	(0.0469)
February - 2008	112,517,889,110	9,335,394	12,053	0.0355	Std Dev	0.1109
March - 2008	99,947,191,195	9,327,671	10,715	(0.1110)	Covariance (Rp; Rm)	0.0097
April - 2008	93,950,426,951	9,290,322	10,113	(0.0562)	Coefficient Correlation (Rp; Rm)	0.9691
May - 2008	100,760,703,393	9,290,322	10,846	0.0725	Beta (β) = Covariance/Variance	0.9987
June - 2008	97,420,382,085	9,290,077	10,486	(0.0331)	Sharpe = (Rp - Rf)/σp	(0.4915)
July - 2008	93,980,446,317	9,273,896	10,134	(0.0336)	Treynor = (Rp - Rf)/βp	(0.0546)
August - 2008	89,391,839,318	9,273,896	9,639	(0.0488)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0037
September - 2008	75,213,937,585	9,233,759	8,146	(0.1549)		
October - 2008	50,998,104,415	9,178,849	5,556	(0.3179)		
November - 2008	52,090,934,177	9,179,626	5,675	0.0213		
December - 2008	56,939,434,439	9,179,626	6,203	0.0931		
January - 2009	57,135,473,344	9,179,099	6,225	0.0035	Return (Average)	0.0622
February - 2009	55,193,559,499	9,178,593	6,013	(0.0339)	Std Dev	0.0741
March - 2009	62,443,868,057	9,178,682	6,803	0.1314	Covariance (Rp; Rm)	0.0051
April - 2009	74,218,389,965	9,170,620	8,093	0.1896	Coefficient Correlation (Rp; Rm)	0.9815
May - 2009	82,341,802,011	9,171,304	8,978	0.1094	Beta (β) = Covariance/Variance	0.8649
June - 2009	86,625,367,655	9,173,030	9,443	0.0518	Sharpe = (Rp - Rf)/σp	0.7571
July - 2009	101,612,698,421	9,164,048	11,088	0.1742	Treynor = (Rp - Rf)/βp	0.0649
August - 2009	102,140,259,166	9,162,765	11,147	0.0053	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0141
September - 2009	108,468,632,804	9,161,576	11,840	0.0621		
October - 2009	105,946,404,239	9,160,097	11,566	(0.0231)		
November - 2009	109,035,856,218	9,160,031	11,903	0.0292		
December - 2009	110,146,357,910	8,838,414	12,462	0.0469		

2005 to 2009	
Return (Average)	0.0238
Std Dev	0.0799
Covariance (Rp; Rm)	0.0059
Coefficient Correlation (Rp; Rm)	0.9717
Beta (β) = Covariance/Variance	0.9891
Sharpe = (Rp - Rf)/σp	0.2015
Treynor = (Rp - Rf)/βp	0.0163
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0052

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APPENDIX 10 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Reksa Dana AXA Citradinamis

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	1,653,909,398	1,449,498	1,141			
January - 2005	1,740,837,520	1,445,958	1,204	0.0551	Return (Average)	0.0195
February - 2005	2,759,688,542	2,286,085	1,207	0.0027	Std Dev	0.0408
March - 2005	2,857,232,549	2,294,369	1,245	0.0316	Covariance (Rp; Rm)	0.0020
April - 2005	1,898,441,276	1,581,567	1,200	(0.0361)	Coefficient Correlation (Rp; Rm)	0.9358
May - 2005	2,223,244,337	1,745,652	1,274	0.0610	Beta (б) = Covariance/Variance	0.6254
June - 2005	2,298,114,347	1,745,652	1,316	0.0337	Sharpe = (Rp - Rf)/Цp	0.2897
July - 2005	2,370,485,478	1,728,268	1,372	0.0419	Treynor = (Rp - Rf)/бp	0.0189
August - 2005	2,224,888,612	1,761,823	1,263	(0.0793)	Jensen = Rp œ[Rf + бp (Rm œRf)]	0.0074
September - 2005	2,326,977,420	1,793,730	1,297	0.0273		
October - 2005	2,307,694,181	1,763,217	1,309	0.0089		
November - 2005	2,607,303,318	1,903,123	1,370	0.0468		
December - 2005	2,620,954,671	1,839,123	1,425	0.0402		
January - 2006	2,724,703,780	1,788,399	1,524	0.0691	Return (Average)	0.0333
February - 2006	2,426,669,068	1,578,550	1,537	0.0090	Std Dev	0.0466
March - 2006	2,528,473,252	1,573,513	1,607	0.0453	Covariance (Rp; Rm)	0.0023
April - 2006	2,728,055,823	1,554,887	1,755	0.0919	Coefficient Correlation (Rp; Rm)	0.9749
May - 2006	2,492,271,955	1,554,887	1,603	(0.0864)	Beta (б) = Covariance/Variance	0.7440
June - 2006	2,623,114,444	1,648,813	1,591	(0.0075)	Sharpe = (Rp - Rf)/Цp	0.5027
July - 2006	2,622,613,975	1,590,067	1,649	0.0367	Treynor = (Rp - Rf)/бp	0.0315
August - 2006	2,744,200,209	1,565,067	1,753	0.0631	Jensen = Rp œ[Rf + бp (Rm œRf)]	0.0022
September - 2006	2,886,804,445	1,565,067	1,845	0.0520		
October - 2006	3,062,508,893	1,619,428	1,891	0.0253		
November - 2006	3,236,723,834	1,604,164	2,018	0.0669		
December - 2006	3,356,991,162	1,608,983	2,086	0.0341		
January - 2007	3,202,343,741	1,599,136	2,003	(0.0402)	Return (Average)	0.0391
February - 2007	3,135,065,745	1,603,122	1,956	(0.0234)	Std Dev	0.0612
March - 2007	3,307,849,290	1,602,261	2,064	0.0557	Covariance (Rp; Rm)	0.0035
April - 2007	3,571,049,395	1,594,675	2,239	0.0847	Coefficient Correlation (Rp; Rm)	0.9931
May - 2007	3,611,385,855	1,585,510	2,278	0.0171	Beta (б) = Covariance/Variance	0.8766
June - 2007	3,683,731,275	1,584,583	2,325	0.0206	Sharpe = (Rp - Rf)/Цp	0.5226
July - 2007	4,500,030,769	1,769,343	2,543	0.0940	Treynor = (Rp - Rf)/бp	0.0365
August - 2007	4,320,615,568	1,771,772	2,439	(0.0412)	Jensen = Rp œ[Rf + бp (Rm œRf)]	0.0053
September - 2007	4,762,899,786	1,792,020	2,658	0.0899		
October - 2007	5,568,495,718	1,803,493	3,088	0.1617		
November - 2007	6,061,058,419	1,891,912	3,204	0.0376		
December - 2007	6,217,665,553	1,915,965	3,245	0.0130		
January - 2008	5,929,746,407	1,942,295	3,053	(0.0592)	Return (Average)	(0.0557)
February - 2008	6,040,404,091	1,876,801	3,218	0.0542	Std Dev	0.1187
March - 2008	5,302,644,935	1,925,084	2,755	(0.1442)	Covariance (Rp; Rm)	0.0124
April - 2008	5,356,104,856	1,971,772	2,716	(0.0138)	Coefficient Correlation (Rp; Rm)	0.9492
May - 2008	5,727,741,321	1,912,310	2,995	0.1026	Beta (б) = Covariance/Variance	0.8587
June - 2008	5,660,722,485	1,909,154	2,965	(0.0101)	Sharpe = (Rp - Rf)/Цp	(0.5337)
July - 2008	5,126,520,646	1,918,334	2,672	(0.0987)	Treynor = (Rp - Rf)/бp	(0.0738)
August - 2008	4,702,200,206	1,934,671	2,430	(0.0905)	Jensen = Rp œ[Rf + бp (Rm œRf)]	(0.0083)
September - 2008	3,822,006,024	1,922,315	1,988	(0.1820)		
October - 2008	2,627,305,016	1,920,140	1,368	(0.3118)		
November - 2008	2,627,508,927	1,903,970	1,380	0.0086		
December - 2008	2,828,097,582	1,903,970	1,485	0.0763		
January - 2009	1,207,738,233	806,935	1,497	0.0076	Return (Average)	0.0583
February - 2009	1,152,509,725	816,908	1,411	(0.0574)	Std Dev	0.0843
March - 2009	1,286,017,224	816,908	1,574	0.1158	Covariance (Rp; Rm)	0.0062
April - 2009	1,583,732,869	812,146	1,950	0.2387	Coefficient Correlation (Rp; Rm)	0.9806
May - 2009	1,845,055,691	859,831	2,146	0.1004	Beta (б) = Covariance/Variance	0.9273
June - 2009	1,895,004,235	842,477	2,249	0.0482	Sharpe = (Rp - Rf)/Цp	0.6201
July - 2009	2,222,171,593	849,348	2,616	0.1632	Treynor = (Rp - Rf)/бp	0.0563
August - 2009	2,071,283,240	793,310	2,611	(0.0021)	Jensen = Rp œ[Rf + бp (Rm œRf)]	0.0068
September - 2009	2,076,052,680	751,643	2,762	0.0579		
October - 2009	2,034,603,949	760,443	2,676	(0.0313)		
November - 2009	2,101,446,584	767,153	2,739	0.0238		
December - 2009	2,105,701,321	742,626	2,835	0.0351		

2005 to 2009	
Return (Average)	0.0189
Std Dev	0.0833
Covariance (Rp; Rm)	0.0060
Coefficient Correlation (Rp; Rm)	0.9486
Beta (б) = Covariance/Variance	1.0060
Sharpe = (Rp - Rf)/Цp	0.1347
Treynor = (Rp - Rf)/бp	0.0112
Jensen = Rp œ[Rf + бp (Rm œRf)]	0.0002

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APPENDIX 11 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Reksa Dana Nikko Saham Nusantara

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	4,349,535,565	5,040,760	863			
January - 2005	4,322,660,845	4,908,328	881	0.0206	Return (Average)	0.0039
February - 2005	4,591,929,983	4,897,854	938	0.0646	Std Dev	0.0426
March - 2005	4,687,967,565	5,094,724	920	(0.0185)	Covariance (Rp; Rm)	0.0018
April - 2005	7,502,794,403	8,353,030	898	(0.0239)	Coefficient Correlation (Rp; Rm)	0.8596
May - 2005	7,806,865,540	8,351,847	935	0.0407	Beta (β) = Covariance/Variance	0.6325
June - 2005	7,923,296,795	8,413,458	942	0.0075	Sharpe = (Rp - Rf)/σp	(0.0889)
July - 2005	8,058,829,365	8,446,445	954	0.0131	Treynor = (Rp - Rf)/βp	(0.0060)
August - 2005	7,205,087,232	8,343,535	864	(0.0949)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0077)
September - 2005	4,430,687,996	5,075,137	873	0.0110		
October - 2005	4,423,237,347	5,075,137	872	(0.0017)		
November - 2005	4,308,404,079	5,075,137	849	(0.0260)		
December - 2005	4,552,031,853	5,087,909	895	0.0539		
January - 2006	4,720,746,724	5,064,028	932	0.0420	Return (Average)	0.0304
February - 2006	4,486,922,652	4,834,375	928	(0.0044)	Std Dev	0.0569
March - 2006	4,752,478,288	4,834,375	983	0.0592	Covariance (Rp; Rm)	0.0023
April - 2006	5,058,168,437	4,805,406	1,053	0.0707	Coefficient Correlation (Rp; Rm)	0.7967
May - 2006	4,464,486,495	4,619,197	967	(0.0818)	Beta (β) = Covariance/Variance	0.7544
June - 2006	4,250,991,076	4,619,197	920	(0.0478)	Sharpe = (Rp - Rf)/σp	0.3612
July - 2006	4,419,988,332	4,617,222	957	0.0402	Treynor = (Rp - Rf)/βp	0.0272
August - 2006	4,663,164,123	4,546,923	1,026	0.0713	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0016)
September - 2006	5,211,944,188	4,543,124	1,147	0.1186		
October - 2006	5,316,757,929	4,516,869	1,177	0.0260		
November - 2006	5,307,035,940	4,536,331	1,170	(0.0061)		
December - 2006	5,064,113,700	4,019,853	1,260	0.0768		
January - 2007	4,954,508,796	4,180,503	1,185	(0.0592)	Return (Average)	0.0113
February - 2007	4,969,246,927	4,188,779	1,186	0.0010	Std Dev	0.0443
March - 2007	5,042,271,880	4,144,460	1,217	0.0255	Covariance (Rp; Rm)	0.0019
April - 2007	5,308,911,696	4,141,596	1,282	0.0536	Coefficient Correlation (Rp; Rm)	0.8699
May - 2007	5,576,885,623	4,129,882	1,350	0.0535	Beta (β) = Covariance/Variance	0.6454
June - 2007	5,500,289,145	4,133,630	1,331	(0.0146)	Sharpe = (Rp - Rf)/σp	0.0939
July - 2007	5,680,287,799	4,136,549	1,373	0.0320	Treynor = (Rp - Rf)/βp	0.0064
August - 2007	5,247,963,975	4,141,695	1,267	(0.0773)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0146)
September - 2007	5,563,242,214	4,143,974	1,342	0.0595		
October - 2007	5,801,212,051	4,122,140	1,407	0.0483		
November - 2007	5,860,128,344	4,112,998	1,425	0.0124		
December - 2007	5,867,604,786	4,112,998	1,427	0.0013		
January - 2008	5,327,307,481	4,114,486	1,295	(0.0924)	Return (Average)	(0.0426)
February - 2008	5,255,096,031	4,110,797	1,278	(0.0127)	Std Dev	0.1185
March - 2008	4,800,082,823	4,110,797	1,168	(0.0866)	Covariance (Rp; Rm)	0.0089
April - 2008	4,730,391,309	4,092,775	1,156	(0.0102)	Coefficient Correlation (Rp; Rm)	0.8338
May - 2008	5,770,218,953	4,099,491	1,408	0.2178	Beta (β) = Covariance/Variance	0.9178
June - 2008	5,392,621,856	3,895,049	1,384	(0.0164)	Sharpe = (Rp - Rf)/σp	(0.4242)
July - 2008	5,359,994,171	3,895,049	1,376	(0.0061)	Treynor = (Rp - Rf)/βp	(0.0547)
August - 2008	5,086,169,965	3,897,941	1,305	(0.0518)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0033
September - 2008	4,242,278,907	3,890,325	1,090	(0.1643)		
October - 2008	3,025,062,256	3,890,325	778	(0.2869)		
November - 2008	3,004,875,472	3,890,325	772	(0.0067)		
December - 2008	3,019,628,702	3,890,325	776	0.0049		
January - 2009	3,126,828,036	3,890,325	804	0.0355	Return (Average)	0.0516
February - 2009	3,076,441,850	3,903,036	788	(0.0193)	Std Dev	0.0560
March - 2009	3,362,454,248	3,903,036	861	0.0930	Covariance (Rp; Rm)	0.0037
April - 2009	3,901,787,863	3,903,036	1,000	0.1604	Coefficient Correlation (Rp; Rm)	0.9478
May - 2009	4,282,050,264	3,903,036	1,097	0.0975	Beta (β) = Covariance/Variance	0.6307
June - 2009	4,454,073,822	3,903,036	1,141	0.0402	Sharpe = (Rp - Rf)/σp	0.8137
July - 2009	4,998,192,947	3,911,481	1,278	0.1197	Treynor = (Rp - Rf)/βp	0.0722
August - 2009	5,029,917,170	3,908,527	1,287	0.0071	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0149
September - 2009	5,345,526,638	3,908,527	1,368	0.0627		
October - 2009	5,247,238,599	3,896,944	1,347	(0.0155)		
November - 2009	5,327,946,973	3,896,944	1,367	0.0154		
December - 2009	5,449,963,003	3,896,944	1,399	0.0229		

2005 to 2009	
Return (Average)	0.0109
Std Dev	0.0743
Covariance (Rp; Rm)	0.0049
Coefficient Correlation (Rp; Rm)	0.8616
Beta (β) = Covariance/Variance	0.8146
Sharpe = (Rp - Rf)/σp	0.0437
Treynor = (Rp - Rf)/βp	0.0040
Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0057)

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APPENDIX 12 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Reksa Dana Schroder Dana Istimewa

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	6,793,185,203	6,801,266	999			
January - 2005	68,118,386,934	64,244,879	1,060	0.0616	Return (Average)	0.0177
February - 2005	271,273,273,604	246,366,035	1,101	0.0385	Std Dev	0.0500
March - 2005	633,451,147,208	569,436,887	1,112	0.0103	Covariance (Rp; Rm)	0.0023
April - 2005	659,195,202,981	622,135,614	1,060	(0.0475)	Coefficient Correlation (Rp; Rm)	0.9501
May - 2005	715,886,169,850	632,824,449	1,131	0.0677	Beta (β) = Covariance/Variance	0.8218
June - 2005	680,471,119,526	571,405,245	1,191	0.0527	Sharpe = (Rp - Rf)/σp	0.2014
July - 2005	705,663,991,703	558,243,714	1,264	0.0615	Treynor = (Rp - Rf)/βp	0.0123
August - 2005	768,065,209,132	673,586,548	1,140	(0.0980)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0049
September - 2005	762,819,298,610	663,797,026	1,149	0.0078		
October - 2005	702,469,586,150	617,583,682	1,137	(0.0102)		
November - 2005	695,079,464,970	599,340,988	1,160	0.0196		
December - 2005	581,443,901,262	478,024,270	1,216	0.0488		
January - 2006	423,783,288,377	334,434,302	1,267	0.0418	Return (Average)	0.0391
February - 2006	401,316,596,572	318,259,269	1,261	(0.0049)	Std Dev	0.0547
March - 2006	314,042,994,303	229,610,063	1,368	0.0847	Covariance (Rp; Rm)	0.0027
April - 2006	327,236,333,047	217,073,413	1,507	0.1022	Coefficient Correlation (Rp; Rm)	0.9831
May - 2006	338,863,812,973	249,051,966	1,361	(0.0974)	Beta (β) = Covariance/Variance	0.8956
June - 2006	354,682,369,589	262,358,986	1,352	(0.0064)	Sharpe = (Rp - Rf)/σp	0.5343
July - 2006	369,546,215,114	264,319,438	1,398	0.0342	Treynor = (Rp - Rf)/βp	0.0326
August - 2006	370,577,687,263	247,725,723	1,496	0.0700	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0030
September - 2006	407,040,029,446	254,273,768	1,601	0.0701		
October - 2006	446,227,675,712	270,072,039	1,652	0.0321		
November - 2006	537,650,147,254	301,386,123	1,784	0.0797		
December - 2006	662,526,895,743	349,350,711	1,896	0.0631		
January - 2007	809,118,304,823	444,521,193	1,820	(0.0402)	Return (Average)	0.0393
February - 2007	820,064,839,230	458,753,771	1,788	(0.0179)	Std Dev	0.0607
March - 2007	877,720,963,334	473,085,667	1,855	0.0379	Covariance (Rp; Rm)	0.0030
April - 2007	763,681,773,898	383,675,538	1,990	0.0728	Coefficient Correlation (Rp; Rm)	0.9687
May - 2007	801,046,493,624	376,800,612	2,126	0.0681	Beta (β) = Covariance/Variance	0.9848
June - 2007	884,364,875,442	398,514,370	2,219	0.0439	Sharpe = (Rp - Rf)/σp	0.5297
July - 2007	1,058,063,462,965	425,855,840	2,485	0.1196	Treynor = (Rp - Rf)/βp	0.0326
August - 2007	946,662,364,345	403,393,016	2,347	(0.0555)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0035
September - 2007	1,003,218,721,480	395,863,483	2,534	0.0799		
October - 2007	1,013,465,893,708	350,590,838	2,891	0.1407		
November - 2007	957,218,813,597	328,824,790	2,911	0.0070		
December - 2007	935,196,364,440	316,323,485	2,956	0.0156		
January - 2008	840,583,636,872	297,295,725	2,827	(0.0436)	Return (Average)	(0.0398)
February - 2008	822,526,896,600	283,779,723	2,898	0.0251	Std Dev	0.1020
March - 2008	839,523,220,305	317,099,466	2,648	(0.0866)	Covariance (Rp; Rm)	0.0087
April - 2008	790,389,779,910	317,834,407	2,487	(0.0607)	Coefficient Correlation (Rp; Rm)	0.9470
May - 2008	797,259,331,153	302,092,701	2,639	0.0613	Beta (β) = Covariance/Variance	0.8981
June - 2008	742,852,920,186	297,615,017	2,496	(0.0542)	Sharpe = (Rp - Rf)/σp	(0.4650)
July - 2008	719,502,516,078	287,074,228	2,506	0.0041	Treynor = (Rp - Rf)/βp	(0.0528)
August - 2008	697,555,145,931	287,843,622	2,423	(0.0331)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0049
September - 2008	607,828,942,925	286,341,667	2,123	(0.1241)		
October - 2008	405,252,038,301	270,946,739	1,496	(0.2954)		
November - 2008	421,351,796,771	270,292,538	1,559	0.0422		
December - 2008	454,669,110,935	268,257,714	1,695	0.0873		
January - 2009	453,712,105,288	268,631,634	1,689	(0.0035)	Return (Average)	0.0614
February - 2009	431,350,143,393	266,972,807	1,616	(0.0434)	Std Dev	0.0774
March - 2009	465,166,517,876	257,201,886	1,809	0.1194	Covariance (Rp; Rm)	0.0053
April - 2009	553,228,097,363	260,757,358	2,122	0.1731	Coefficient Correlation (Rp; Rm)	0.9686
May - 2009	628,235,321,751	264,684,790	2,374	0.1187	Beta (β) = Covariance/Variance	0.8915
June - 2009	693,183,801,646	270,436,882	2,563	0.0799	Sharpe = (Rp - Rf)/σp	0.7146
July - 2009	831,572,776,348	272,423,505	3,053	0.1909	Treynor = (Rp - Rf)/βp	0.0620
August - 2009	856,242,707,252	279,879,435	3,059	0.0022	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0120
September - 2009	929,786,514,104	285,010,171	3,262	0.0663		
October - 2009	996,738,335,283	315,829,590	3,156	(0.0326)		
November - 2009	999,700,837,250	311,375,101	3,211	0.0173		
December - 2009	958,968,147,537	284,900,219	3,366	0.0484		

2005 to 2009	
Return (Average)	0.0235
Std Dev	0.0774
Covariance (Rp; Rm)	0.0057
Coefficient Correlation (Rp; Rm)	0.9665
Beta (β) = Covariance/Variance	0.9521
Sharpe = (Rp - Rf)/σp	0.2051
Treynor = (Rp - Rf)/βp	0.0167
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0054

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APPENDIX 13 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Reksadana Dana Pratama Ekuitas

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	24,709,576,828	17,865,771	1,383			
January - 2005	38,158,415,249	25,220,922	1,513	0.0939	Return (Average)	0.0329
February - 2005	66,412,775,553	39,372,361	1,687	0.1149	Std Dev	0.0677
March - 2005	77,586,960,580	44,142,594	1,758	0.0420	Covariance (Rp; Rm)	0.0030
April - 2005	82,288,564,361	49,228,507	1,672	(0.0490)	Coefficient Correlation (Rp; Rm)	0.9056
May - 2005	92,243,552,634	51,249,544	1,800	0.0768	Beta (β) = Covariance/Variance	1.0595
June - 2005	101,787,237,608	54,027,458	1,884	0.0467	Sharpe = (Rp - Rf)/σp	0.3725
July - 2005	127,169,644,964	64,959,084	1,958	0.0391	Treynor = (Rp - Rf)/βp	0.0238
August - 2005	129,234,406,157	75,477,547	1,712	(0.1254)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0186
September - 2005	112,982,333,895	63,572,516	1,777	0.0380		
October - 2005	97,587,016,516	54,842,951	1,779	0.0012		
November - 2005	99,477,262,320	55,058,072	1,807	0.0154		
December - 2005	90,767,880,432	45,645,363	1,989	0.1006		
January - 2006	73,943,776,998	35,462,239	2,085	0.0486	Return (Average)	0.0449
February - 2006	73,164,852,589	32,623,906	2,243	0.0756	Std Dev	0.0539
March - 2006	89,270,099,360	35,118,574	2,542	0.1335	Covariance (Rp; Rm)	0.0022
April - 2006	115,259,662,126	41,178,813	2,799	0.1011	Coefficient Correlation (Rp; Rm)	0.8215
May - 2006	147,405,395,413	56,512,640	2,608	(0.0681)	Beta (β) = Covariance/Variance	0.7369
June - 2006	140,916,423,478	55,688,698	2,530	(0.0299)	Sharpe = (Rp - Rf)/σp	0.6499
July - 2006	161,435,415,752	61,789,980	2,613	0.0325	Treynor = (Rp - Rf)/βp	0.0475
August - 2006	170,164,197,135	61,224,068	2,779	0.0638	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0134
September - 2006	178,517,518,913	61,775,732	2,890	0.0397		
October - 2006	186,274,677,449	63,083,524	2,953	0.0218		
November - 2006	219,334,030,211	69,658,418	3,149	0.0663		
December - 2006	286,360,566,347	86,321,023	3,317	0.0536		
January - 2007	274,502,122,847	87,044,443	3,154	(0.0494)	Return (Average)	0.0292
February - 2007	269,911,793,843	87,279,638	3,092	(0.0194)	Std Dev	0.0640
March - 2007	279,607,555,961	88,996,278	3,142	0.0159	Covariance (Rp; Rm)	0.0029
April - 2007	256,655,381,040	74,401,761	3,450	0.0980	Coefficient Correlation (Rp; Rm)	0.8905
May - 2007	244,618,548,793	65,259,402	3,748	0.0866	Beta (β) = Covariance/Variance	0.9549
June - 2007	225,443,059,297	60,217,904	3,744	(0.0012)	Sharpe = (Rp - Rf)/σp	0.3443
July - 2007	135,041,992,602	32,540,521	4,150	0.1085	Treynor = (Rp - Rf)/βp	0.0231
August - 2007	126,599,403,276	33,415,797	3,789	(0.0871)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0058)
September - 2007	131,232,003,721	31,560,447	4,158	0.0975		
October - 2007	131,111,395,293	29,319,098	4,472	0.0755		
November - 2007	122,417,765,234	26,716,289	4,582	0.0247		
December - 2007	103,248,760,299	22,511,483	4,586	0.0010		
January - 2008	98,536,185,116	24,007,256	4,104	(0.1051)	Return (Average)	(0.0612)
February - 2008	97,913,014,586	23,432,128	4,179	0.0181	Std Dev	0.1315
March - 2008	81,416,821,493	22,592,885	3,604	(0.1376)	Covariance (Rp; Rm)	0.0112
April - 2008	77,935,294,266	22,624,341	3,445	(0.0441)	Coefficient Correlation (Rp; Rm)	0.9389
May - 2008	75,433,598,898	20,140,757	3,745	0.0873	Beta (β) = Covariance/Variance	1.1475
June - 2008	72,057,004,441	19,992,516	3,604	(0.0377)	Sharpe = (Rp - Rf)/σp	(0.5238)
July - 2008	73,782,843,845	19,940,299	3,700	0.0266	Treynor = (Rp - Rf)/βp	(0.0600)
August - 2008	68,955,377,746	19,911,556	3,463	(0.0641)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0020)
September - 2008	54,985,644,186	20,003,871	2,749	(0.2063)		
October - 2008	33,504,218,895	19,481,820	1,720	(0.3743)		
November - 2008	34,366,606,385	19,481,820	1,764	0.0257		
December - 2008	35,511,515,639	18,699,720	1,899	0.0765		
January - 2009	36,278,117,920	18,666,874	1,943	0.0234	Return (Average)	0.0812
February - 2009	37,177,632,514	18,666,874	1,992	0.0248	Std Dev	0.1285
March - 2009	40,451,534,405	18,583,493	2,177	0.0929	Covariance (Rp; Rm)	0.0078
April - 2009	55,376,017,202	18,519,621	2,990	0.3737	Coefficient Correlation (Rp; Rm)	0.8614
May - 2009	70,615,141,182	18,488,589	3,819	0.2773	Beta (β) = Covariance/Variance	1.3161
June - 2009	65,888,201,710	16,999,932	3,876	0.0148	Sharpe = (Rp - Rf)/σp	0.5848
July - 2009	75,591,836,595	16,887,124	4,476	0.1549	Treynor = (Rp - Rf)/βp	0.0571
August - 2009	71,717,370,828	15,999,666	4,482	0.0014	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0112
September - 2009	78,046,086,081	16,574,914	4,709	0.0505		
October - 2009	76,201,522,771	17,566,632	4,338	(0.0788)		
November - 2009	74,908,111,482	17,254,201	4,341	0.0008		
December - 2009	76,400,796,095	16,934,506	4,512	0.0392		

2005 to 2009	
Return (Average)	0.0254
Std Dev	0.1035
Covariance (Rp; Rm)	0.0071
Coefficient Correlation (Rp; Rm)	0.9034
Beta (β) = Covariance/Variance	1.1907
Sharpe = (Rp - Rf)/σp	0.1710
Treynor = (Rp - Rf)/βp	0.0149
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0046

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APPENDIX 14 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Rencana Cerdas

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	28,922,128,096	12,124,125	2,386			
January - 2005	30,378,556,309	12,206,699	2,489	0.0433	Return (Average)	0.0226
February - 2005	30,294,148,819	11,624,710	2,606	0.0471	Std Dev	0.0475
March - 2005	35,095,206,569	13,520,657	2,596	(0.0040)	Covariance (Rp; Rm)	0.0022
April - 2005	38,295,223,461	15,091,472	2,538	(0.0224)	Coefficient Correlation (Rp; Rm)	0.9444
May - 2005	46,289,364,573	17,088,982	2,709	0.0675	Beta (β) = Covariance/Variance	0.7760
June - 2005	47,366,216,504	16,675,313	2,840	0.0486	Sharpe = (Rp - Rf)/σp	0.3145
July - 2005	53,539,958,399	17,517,578	3,056	0.0760	Treynor = (Rp - Rf)/βp	0.0193
August - 2005	49,071,926,078	17,789,021	2,759	(0.0974)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0101
September - 2005	47,737,282,437	16,876,127	2,829	0.0254		
October - 2005	44,877,614,237	15,811,861	2,838	0.0034		
November - 2005	44,717,565,304	15,086,641	2,964	0.0443		
December - 2005	32,843,318,627	10,661,214	3,081	0.0393		
January - 2006	31,542,557,505	9,504,281	3,319	0.0773	Return (Average)	0.0401
February - 2006	31,336,594,707	9,236,875	3,393	0.0222	Std Dev	0.0539
March - 2006	33,744,102,999	9,168,706	3,680	0.0848	Covariance (Rp; Rm)	0.0026
April - 2006	32,814,924,576	8,068,317	4,067	0.1051	Coefficient Correlation (Rp; Rm)	0.9665
May - 2006	30,466,917,569	8,310,795	3,666	(0.0986)	Beta (β) = Covariance/Variance	0.8669
June - 2006	29,353,011,618	8,090,563	3,628	(0.0103)	Sharpe = (Rp - Rf)/σp	0.5612
July - 2006	30,466,737,650	8,131,178	3,747	0.0328	Treynor = (Rp - Rf)/βp	0.0349
August - 2006	31,251,353,855	8,049,454	3,882	0.0362	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0048
September - 2006	33,427,426,624	8,063,667	4,145	0.0677		
October - 2006	34,691,682,120	8,048,811	4,310	0.0397		
November - 2006	37,145,787,843	8,008,879	4,638	0.0761		
December - 2006	42,133,694,224	8,667,801	4,861	0.0481		
January - 2007	41,396,586,643	8,908,498	4,647	(0.0440)	Return (Average)	0.0349
February - 2007	32,879,047,743	7,329,741	4,486	(0.0347)	Std Dev	0.0600
March - 2007	33,970,432,109	7,285,924	4,662	0.0394	Covariance (Rp; Rm)	0.0028
April - 2007	32,045,161,610	6,343,958	5,051	0.0834	Coefficient Correlation (Rp; Rm)	0.9263
May - 2007	38,764,988,794	7,233,159	5,359	0.0610	Beta (β) = Covariance/Variance	0.9311
June - 2007	46,509,044,057	8,196,350	5,674	0.0588	Sharpe = (Rp - Rf)/σp	0.4628
July - 2007	49,949,881,404	8,310,599	6,010	0.0592	Treynor = (Rp - Rf)/βp	0.0298
August - 2007	48,483,884,560	8,746,581	5,543	(0.0777)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0007
September - 2007	54,322,942,288	9,091,203	5,975	0.0780		
October - 2007	61,370,209,700	9,072,148	6,765	0.1321		
November - 2007	56,425,248,718	7,982,972	7,068	0.0449		
December - 2007	58,308,565,939	8,094,571	7,203	0.0191		
January - 2008	57,301,680,559	8,297,199	6,906	(0.0413)	Return (Average)	(0.0459)
February - 2008	59,696,099,779	8,254,449	7,232	0.0472	Std Dev	0.1197
March - 2008	52,441,706,269	8,342,228	6,286	(0.1308)	Covariance (Rp; Rm)	0.0103
April - 2008	50,202,749,789	8,355,500	6,008	(0.0442)	Coefficient Correlation (Rp; Rm)	0.9552
May - 2008	55,488,222,747	8,318,026	6,671	0.1103	Beta (β) = Covariance/Variance	1.0624
June - 2008	53,225,889,467	8,087,622	6,581	(0.0134)	Sharpe = (Rp - Rf)/σp	(0.4473)
July - 2008	49,112,987,027	8,088,639	6,072	(0.0774)	Treynor = (Rp - Rf)/βp	(0.0504)
August - 2008	46,287,653,670	8,082,928	5,727	(0.0569)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0084
September - 2008	37,656,345,768	8,029,100	4,690	(0.1810)		
October - 2008	26,212,266,559	8,025,069	3,266	(0.3036)		
November - 2008	26,954,311,830	8,027,882	3,358	0.0279		
December - 2008	29,681,267,941	7,947,093	3,735	0.1124		
January - 2009	29,916,337,832	7,927,903	3,774	0.0104	Return (Average)	0.0602
February - 2009	28,673,766,327	7,916,068	3,622	(0.0401)	Std Dev	0.0758
March - 2009	31,948,426,170	7,916,789	4,036	0.1141	Covariance (Rp; Rm)	0.0052
April - 2009	37,389,217,733	7,818,219	4,782	0.1851	Coefficient Correlation (Rp; Rm)	0.9718
May - 2009	41,740,052,557	7,834,864	5,327	0.1140	Beta (β) = Covariance/Variance	0.8757
June - 2009	43,780,624,443	7,840,744	5,584	0.0481	Sharpe = (Rp - Rf)/σp	0.7134
July - 2009	51,304,275,203	7,758,643	6,613	0.1842	Treynor = (Rp - Rf)/βp	0.0617
August - 2009	50,246,045,649	7,557,483	6,649	0.0054	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0115
September - 2009	51,618,151,699	7,387,773	6,987	0.0509		
October - 2009	50,052,744,984	7,443,582	6,724	(0.0376)		
November - 2009	51,083,963,497	7,392,303	6,910	0.0277		
December - 2009	54,002,805,690	7,374,220	7,323	0.0597		

2005 to 2009	
Return (Average)	0.0224
Std Dev	0.0819
Covariance (Rp; Rm)	0.0060
Coefficient Correlation (Rp; Rm)	0.9586
Beta (β) = Covariance/Variance	0.9999
Sharpe = (Rp - Rf)/σp	0.1794
Treynor = (Rp - Rf)/βp	0.0147
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0037

APPENDIX 15 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for Schroder Dana Prestasi Plus

	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
December - 2004	1,316,206,666,543	286,141,763	4,600			
January - 2005	1,498,821,491,158	312,141,065	4,802	0.0439	Return (Average)	0.0153
February - 2005	1,808,451,622,257	365,518,827	4,948	0.0304	Std Dev	0.0494
March - 2005	2,480,339,014,595	490,353,561	5,058	0.0224	Covariance (Rp; Rm)	0.0022
April - 2005	2,450,170,228,259	506,037,148	4,842	(0.0428)	Coefficient Correlation (Rp; Rm)	0.9344
May - 2005	2,739,555,254,416	530,941,316	5,160	0.0657	Beta (β) = Covariance/Variance	0.7982
June - 2005	2,775,885,322,442	515,470,451	5,385	0.0437	Sharpe = (Rp - Rf)/σp	0.1545
July - 2005	2,928,687,997,369	513,572,483	5,703	0.0589	Treynor = (Rp - Rf)/βp	0.0096
August - 2005	2,975,503,082,153	580,634,465	5,125	(0.1014)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0026
September - 2005	2,917,195,059,800	564,636,413	5,167	0.0082		
October - 2005	2,720,984,658,821	542,255,756	5,018	(0.0288)		
November - 2005	2,672,081,725,711	515,445,114	5,184	0.0331		
December - 2005	2,468,337,595,246	453,429,403	5,444	0.0501		
January - 2006	2,146,798,479,736	374,181,877	5,737	0.0539	Return (Average)	0.0398
February - 2006	2,067,369,519,557	361,811,259	5,714	(0.0041)	Std Dev	0.0508
March - 2006	1,893,999,208,418	306,103,203	6,187	0.0829	Covariance (Rp; Rm)	0.0025
April - 2006	2,018,893,695,867	294,286,301	6,860	0.1087	Coefficient Correlation (Rp; Rm)	0.9891
May - 2006	1,976,958,957,522	314,850,409	6,279	(0.0847)	Beta (β) = Covariance/Variance	0.8361
June - 2006	2,114,261,550,730	336,602,990	6,281	0.0003	Sharpe = (Rp - Rf)/σp	0.5893
July - 2006	2,227,165,195,435	343,067,910	6,492	0.0336	Treynor = (Rp - Rf)/βp	0.0358
August - 2006	2,312,090,792,047	334,500,572	6,912	0.0647	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0054
September - 2006	2,516,075,059,898	343,041,023	7,335	0.0611		
October - 2006	2,663,837,614,373	350,670,019	7,596	0.0357		
November - 2006	3,056,660,521,861	373,853,493	8,176	0.0763		
December - 2006	3,487,031,238,217	406,657,465	8,575	0.0488		
January - 2007	3,840,452,749,826	468,946,172	8,190	(0.0449)	Return (Average)	0.0392
February - 2007	3,928,619,015,200	488,625,032	8,040	(0.0182)	Std Dev	0.0574
March - 2007	4,248,473,724,831	504,892,878	8,415	0.0466	Covariance (Rp; Rm)	0.0028
April - 2007	4,083,796,201,439	451,752,871	9,040	0.0743	Coefficient Correlation (Rp; Rm)	0.9701
May - 2007	4,222,207,716,037	442,614,343	9,539	0.0552	Beta (β) = Covariance/Variance	0.9330
June - 2007	4,700,995,640,479	471,822,769	9,963	0.0445	Sharpe = (Rp - Rf)/σp	0.5582
July - 2007	6,080,189,326,359	550,604,569	11,043	0.1083	Treynor = (Rp - Rf)/βp	0.0344
August - 2007	6,862,919,299,100	650,697,766	10,547	(0.0449)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0049
September - 2007	7,643,033,784,726	676,741,512	11,294	0.0708		
October - 2007	8,496,510,826,895	658,639,043	12,900	0.1422		
November - 2007	8,951,588,951,501	682,094,410	13,124	0.0173		
December - 2007	9,475,089,524,275	708,176,742	13,380	0.0195		
January - 2008	9,564,700,287,264	739,214,699	12,939	(0.0329)	Return (Average)	(0.0387)
February - 2008	9,556,127,361,063	714,547,362	13,374	0.0336	Std Dev	0.1027
March - 2008	9,037,014,902,707	756,917,588	11,939	(0.1073)	Covariance (Rp; Rm)	0.0089
April - 2008	8,626,277,170,728	767,136,157	11,245	(0.0582)	Coefficient Correlation (Rp; Rm)	0.9568
May - 2008	9,162,854,359,867	763,287,975	12,004	0.0676	Beta (β) = Covariance/Variance	0.9135
June - 2008	8,769,528,430,611	764,337,269	11,473	(0.0442)	Sharpe = (Rp - Rf)/σp	(0.4511)
July - 2008	8,491,315,415,600	745,250,190	11,394	(0.0069)	Treynor = (Rp - Rf)/βp	(0.0507)
August - 2008	8,190,979,998,468	747,719,939	10,955	(0.0386)	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0069
September - 2008	7,194,121,349,594	753,540,844	9,547	(0.1285)		
October - 2008	5,022,218,353,728	735,563,690	6,828	(0.2848)		
November - 2008	5,289,489,667,031	747,926,998	7,072	0.0358		
December - 2008	5,836,806,701,306	750,268,050	7,780	0.1000		
January - 2009	5,865,102,863,517	751,167,058	7,808	0.0036	Return (Average)	0.0620
February - 2009	5,643,483,028,149	754,276,491	7,482	(0.0418)	Std Dev	0.0764
March - 2009	6,197,570,130,313	742,788,646	8,344	0.1152	Covariance (Rp; Rm)	0.0053
April - 2009	7,497,285,107,211	757,903,484	9,892	0.1856	Coefficient Correlation (Rp; Rm)	0.9729
May - 2009	8,440,164,033,774	771,085,690	10,946	0.1065	Beta (β) = Covariance/Variance	0.8835
June - 2009	9,077,023,954,431	774,292,969	11,723	0.0710	Sharpe = (Rp - Rf)/σp	0.7317
July - 2009	10,525,148,219,097	755,027,742	13,940	0.1891	Treynor = (Rp - Rf)/βp	0.0632
August - 2009	10,227,941,490,530	730,238,625	14,006	0.0048	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0130
September - 2009	10,974,821,253,997	733,780,941	14,957	0.0678		
October - 2009	10,918,070,190,069	752,609,333	14,507	(0.0301)		
November - 2009	11,247,998,254,908	760,295,931	14,794	0.0198		
December - 2009	11,533,499,612,796	741,016,583	15,564	0.0521		

2005 to 2009	
Return (Average)	0.0235
Std Dev	0.0762
Covariance (Rp; Rm)	0.0056
Coefficient Correlation (Rp; Rm)	0.9693
Beta (β) = Covariance/Variance	0.9410
Sharpe = (Rp - Rf)/σp	0.2076
Treynor = (Rp - Rf)/βp	0.0168
Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0055

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APPENDIX 16 CALCULATIONS OF SHARPE, TREYNOR, AND JENSEN ALPHA RATIO for TRIM Kapital

	TOTAL NAV	JUMLAH UN	NAV (SATUA	RETURN		
December - 2004	19,200,194,329	13,930,961	1,378			
January - 2005	23,556,834,069	16,807,905	1,402	0.0169	Return (Average)	0.0266
February - 2005	29,755,903,939	19,691,506	1,511	0.0782	Std Dev	0.0671
March - 2005	64,386,825,890	44,029,603	1,462	(0.0323)	Covariance (Rp; Rm)	0.0028
April - 2005	60,871,078,962	42,664,984	1,427	(0.0244)	Coefficient Correlation (Rp; Rm)	0.8535
May - 2005	64,551,770,640	41,060,153	1,572	0.1019	Beta (β) = Covariance/Variance	0.9898
June - 2005	65,094,926,116	40,012,811	1,627	0.0348	Sharpe = (Rp - Rf)/σp	0.2831
July - 2005	86,480,430,557	48,570,868	1,780	0.0944	Treynor = (Rp - Rf)/βp	0.0192
August - 2005	140,836,495,407	91,016,105	1,547	(0.1309)	Jensen = Rp – [Rf + βp (Rm – Rf)	0.0128
September - 2005	146,565,372,942	90,474,051	1,620	0.0469		
October - 2005	137,895,601,115	85,112,780	1,620	0.0001		
November - 2005	134,184,144,625	75,930,219	1,767	0.0908		
December - 2005	106,939,278,139	58,009,698	1,843	0.0432		
January - 2006	91,034,066,107	45,838,076	1,986	0.0773	Return (Average)	0.0470
February - 2006	104,371,089,935	50,969,279	2,048	0.0311	Std Dev	0.0442
March - 2006	119,873,704,400	53,570,957	2,238	0.0928	Covariance (Rp; Rm)	0.0021
April - 2006	142,931,578,163	57,920,071	2,468	0.1028	Coefficient Correlation (Rp; Rm)	0.9291
May - 2006	177,726,771,366	75,445,548	2,356	(0.0454)	Beta (β) = Covariance/Variance	0.6836
June - 2006	195,910,043,525	83,162,362	2,356	0.0000	Sharpe = (Rp - Rf)/σp	0.8409
July - 2006	213,628,094,730	87,254,803	2,448	0.0393	Treynor = (Rp - Rf)/βp	0.0544
August - 2006	236,771,889,786	93,490,479	2,533	0.0344	Jensen = Rp – [Rf + βp (Rm – Rf)	0.0171
September - 2006	268,110,450,034	97,584,797	2,747	0.0848		
October - 2006	303,829,039,986	107,637,710	2,823	0.0274		
November - 2006	380,197,977,994	123,421,963	3,080	0.0913		
December - 2006	464,626,607,936	146,675,820	3,168	0.0283		
January - 2007	556,868,316,806	182,617,515	3,049	(0.0374)	Return (Average)	0.0461
February - 2007	557,547,389,232	192,250,943	2,900	(0.0490)	Std Dev	0.0744
March - 2007	643,000,704,238	205,302,664	3,132	0.0799	Covariance (Rp; Rm)	0.0035
April - 2007	587,340,650,669	170,023,009	3,454	0.1030	Coefficient Correlation (Rp; Rm)	0.9368
May - 2007	577,472,026,785	156,968,914	3,679	0.0650	Beta (β) = Covariance/Variance	1.1670
June - 2007	617,738,217,162	161,015,470	3,837	0.0428	Sharpe = (Rp - Rf)/σp	0.5233
July - 2007	746,450,652,592	173,636,710	4,299	0.1205	Treynor = (Rp - Rf)/βp	0.0334
August - 2007	804,285,757,360	205,904,193	3,906	(0.0914)	Jensen = Rp – [Rf + βp (Rm – Rf)	0.0049
September - 2007	950,106,257,678	220,808,304	4,303	0.1016		
October - 2007	1,006,760,129,733	203,709,053	4,942	0.1486		
November - 2007	1,130,792,521,961	214,843,814	5,263	0.0650		
December - 2007	1,256,753,563,413	237,725,930	5,287	0.0044		
January - 2008	1,251,521,627,951	251,143,985	4,983	(0.0574)	Return (Average)	(0.0589)
February - 2008	1,325,409,000,670	259,675,470	5,104	0.0242	Std Dev	0.1275
March - 2008	1,164,150,119,584	270,314,812	4,307	(0.1562)	Covariance (Rp; Rm)	0.0110
April - 2008	1,085,551,713,686	268,202,706	4,048	(0.0602)	Coefficient Correlation (Rp; Rm)	0.9540
May - 2008	1,160,210,827,961	256,667,475	4,520	0.1168	Beta (β) = Covariance/Variance	1.1303
June - 2008	1,084,477,570,830	250,426,156	4,331	(0.0420)	Sharpe = (Rp - Rf)/σp	(0.5219)
July - 2008	1,042,917,556,884	249,265,345	4,184	(0.0338)	Treynor = (Rp - Rf)/βp	(0.0589)
August - 2008	970,485,396,895	248,942,292	3,898	(0.0682)	Jensen = Rp – [Rf + βp (Rm – Rf)	(0.0007)
September - 2008	780,204,196,650	245,562,925	3,177	(0.1850)		
October - 2008	491,355,022,956	239,102,103	2,055	(0.3532)		
November - 2008	504,131,788,080	240,834,995	2,093	0.0186		
December - 2008	544,223,892,362	238,615,290	2,281	0.0896		
January - 2009	535,455,072,404	235,062,627	2,278	(0.0012)	Return (Average)	0.0636
February - 2009	513,138,164,594	233,769,167	2,195	(0.0364)	Std Dev	0.1010
March - 2009	571,261,212,552	234,440,706	2,437	0.1101	Covariance (Rp; Rm)	0.0068
April - 2009	713,705,070,348	229,247,085	3,113	0.2777	Coefficient Correlation (Rp; Rm)	0.9546
May - 2009	840,137,785,349	227,358,860	3,695	0.1869	Beta (β) = Covariance/Variance	1.1464
June - 2009	852,876,744,708	225,698,624	3,779	0.0226	Sharpe = (Rp - Rf)/σp	0.5696
July - 2009	958,897,911,177	219,207,829	4,374	0.1576	Treynor = (Rp - Rf)/βp	0.0502
August - 2009	937,563,358,633	213,361,132	4,394	0.0045	Jensen = Rp – [Rf + βp (Rm – Rf)	0.0019
September - 2009	889,919,061,741	190,720,441	4,666	0.0619		
October - 2009	822,562,199,512	187,720,536	4,382	(0.0609)		
November - 2009	805,690,000,141	185,264,799	4,349	(0.0075)		
December - 2009	769,856,881,444	168,883,892	4,558	0.0482		

2005 to 2009	
Return (Average)	0.0249
Std Dev	0.0953
Covariance (Rp; Rm)	0.0068
Coefficient Correlation (Rp; Rm)	0.9442
Beta (β) = Covariance/Variance	1.1463
Sharpe = (Rp - Rf)/σp	0.1805
Treynor = (Rp - Rf)/βp	0.0150
Jensen = Rp – [Rf + βp (Rm – Rf)	0.0046

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IDX	PRICE	RETURN	
January - 2010	2,611	0.0302	Return (Average)
February - 2010	2,549	(0.0237)	0.0335
March - 2010	2,778	0.0898	
April - 2010	2,972	0.0699	Var Mkt Rtn
May - 2010	2,797	(0.0589)	0.0029
June - 2010	2,913	0.0416	
July - 2010	3,070	0.0540	
August - 2010	3,081	0.0037	
September - 2010	3,501	0.1362	
October - 2010	3,636	0.0384	
November - 2010	3,531	(0.0288)	
December - 2010	3,704	0.0491	

SBI	p.a. for 1 month (%)	Interest (monthly)	
January - 2010	6.45	0.0054	Interest (Average)
February - 2010	6.41	0.0053	0.0053
March - 2010	6.32	0.0053	
April - 2010	6.32	0.0053	
May - 2010	6.32	0.0053	
June - 2010	6.32	0.0053	
July - 2010	6.32	0.0053	
August - 2010	6.32	0.0053	
September - 2010	6.32	0.0053	
October - 2010	6.32	0.0053	
November - 2010	6.32	0.0053	
December - 2010	6.32	0.0053	

Bahana Dana Prima	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	315,903,773,910	34,284,481	9,214	0.0212	Return (Average)	0.0242
February - 2010	341,966,101,426	38,322,800	8,923	(0.0316)	Std Dev	0.0549
March - 2010	359,533,319,911	37,159,401	9,675	0.0843	Covariance (Rp; Rm)	0.0027
April - 2010	361,268,739,765	35,437,056	10,195	0.0537	Coefficient Correlation (Rp; Rm)	0.9830
May - 2010	365,590,915,316	38,446,237	9,509	(0.0672)	Beta (β) = Covariance/Variance	0.9120
June - 2010	355,249,982,533	35,994,844	9,869	0.0379	Sharpe = (Rp - Rf)/σp	0.3440
July - 2010	357,238,693,790	33,983,087	10,512	0.0651	Treynor = (Rp - Rf)/βp	0.0207
August - 2010	369,705,805,802	35,882,306	10,303	(0.0199)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0068)
September - 2010	410,716,905,945	35,850,137	11,456	0.1119		
October - 2010	415,834,927,804	34,976,231	11,889	0.0378		
November - 2010	409,697,322,189	36,173,413	11,326	(0.0474)		
December - 2010	376,508,086,398	31,834,060	11,827	0.0443		

Batavia Dana Saham	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	120,633,421,629	4,033,822	29,905	0.0237	Return (Average)	0.0255
February - 2010	130,894,462,313	4,468,512	29,293	(0.0205)	Std Dev	0.0552
March - 2010	144,429,049,049	4,529,876	31,884	0.0885	Covariance (Rp; Rm)	0.0027
April - 2010	156,385,935,613	4,600,116	33,996	0.0663	Coefficient Correlation (Rp; Rm)	0.9802
May - 2010	111,541,784,017	3,518,271	31,704	(0.0674)	Beta (β) = Covariance/Variance	0.9146
June - 2010	103,905,453,860	3,135,641	33,137	0.0452	Sharpe = (Rp - Rf)/σp	0.3658
July - 2010	109,658,106,041	3,114,532	35,209	0.0625	Treynor = (Rp - Rf)/βp	0.0221
August - 2010	99,371,170,844	2,860,234	34,742	(0.0132)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0056)
September - 2010	109,461,407,104	2,835,459	38,604	0.1112		
October - 2010	116,373,306,313	2,934,079	39,663	0.0274		
November - 2010	113,865,082,965	3,037,094	37,491	(0.0547)		
December - 2010	134,803,019,501	3,467,209	38,879	0.0370		

BNI Reksadana Berkembang	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	41,925,124,213	24,978,789	1,678	0.0062	Return (Average)	0.0235
February - 2010	38,446,430,692	23,894,648	1,609	(0.0414)	Std Dev	0.0535
March - 2010	39,593,667,023	23,458,974	1,688	0.0490	Covariance (Rp; Rm)	0.0020
April - 2010	41,632,849,720	22,956,629	1,814	0.0745	Coefficient Correlation (Rp; Rm)	0.7649
May - 2010	33,719,469,174	20,743,868	1,626	(0.1037)	Beta (β) = Covariance/Variance	0.6908
June - 2010	35,126,769,911	20,700,342	1,697	0.0439	Sharpe = (Rp - Rf)/σp	0.3406
July - 2010	31,159,147,373	17,392,830	1,791	0.0557	Treynor = (Rp - Rf)/βp	0.0264
August - 2010	27,553,166,472	15,334,854	1,797	0.0029	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0013)
September - 2010	26,406,248,408	13,689,350	1,929	0.0736		
October - 2010	8,075,682,421	3,896,287	2,073	0.0745		
November - 2010	33,103,832,874	15,367,984	2,154	0.0393		
December - 2010	34,057,068,800	15,695,735	2,170	0.0073		

BNP Paribas Ekuitas	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	6,313,716,555,555	619,474,820	10,192	0.0289	Return (Average)	0.0295
February - 2010	6,541,130,942,545	653,695,368	10,006	(0.0182)	Std Dev	0.0557
March - 2010	6,341,330,648,023	582,597,890	10,885	0.0878	Covariance (Rp; Rm)	0.0027
April - 2010	6,678,831,260,359	573,272,963	11,650	0.0704	Coefficient Correlation (Rp; Rm)	0.9885
May - 2010	6,540,039,508,293	605,440,178	10,802	(0.0728)	Beta (β) = Covariance/Variance	0.9305
June - 2010	5,927,357,081,363	526,532,500	11,257	0.0421	Sharpe = (Rp - Rf)/σp	0.4346
July - 2010	5,708,813,816,555	477,119,837	11,965	0.0629	Treynor = (Rp - Rf)/βp	0.0260
August - 2010	5,504,307,569,281	460,714,852	11,947	(0.0015)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0020)
September - 2010	5,927,903,892,824	443,466,897	13,367	0.1188		
October - 2010	6,248,061,455,483	450,525,971	13,868	0.0375		
November - 2010	6,395,032,022,470	483,772,331	13,219	(0.0468)		
December - 2010	7,109,049,635,541	514,631,242	13,814	0.0450		

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APPENDIX 17 CALCULATIONS OF IDX, SBI, SHARPE, TREYNOR, AND JENSEN ALPHA RATIO FOR 2010 (Cont)

Manulife Dana Saham	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	1,946,864,872,501	276,057,425	7,052	0.0147	Return (Average)	0.0257
February - 2010	1,913,655,379,433	276,626,750	6,918	(0.0191)	Std Dev	0.0501
March - 2010	1,972,043,193,686	262,463,843	7,514	0.0861	Covariance (Rp; Rm)	0.0024
April - 2010	2,034,252,352,397	257,489,182	7,900	0.0515	Coefficient Correlation (Rp; Rm)	0.9827
May - 2010	1,996,509,991,140	266,284,519	7,498	(0.0510)	Beta (β) = Covariance/Variance	0.8319
June - 2010	2,011,328,042,866	257,070,001	7,824	0.0435	Sharpe = (Rp - Rf)/σp	0.4076
July - 2010	1,964,006,265,509	237,825,112	8,258	0.0555	Treynor = (Rp - Rf)/βp	0.0245
August - 2010	1,889,254,405,135	231,214,772	8,171	(0.0106)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0030)
September - 2010	2,115,743,661,908	232,574,513	9,097	0.1133		
October - 2010	2,263,284,462,364	239,995,053	9,431	0.0367		
November - 2010	2,312,318,990,567	256,622,063	9,011	(0.0445)		
December - 2010	2,540,515,577,800	273,129,909	9,301	0.0323		

Panin Dana Maksima	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	587,138,882,848	22,357,622	26,261	0.0815	Return (Average)	0.0620
February - 2010	608,413,343,770	23,151,996	26,279	0.0007	Std Dev	0.0618
March - 2010	741,857,473,245	25,290,727	29,333	0.1162	Covariance (Rp; Rm)	0.0027
April - 2010	910,638,708,255	27,214,596	33,461	0.1407	Coefficient Correlation (Rp; Rm)	0.8814
May - 2010	1,077,310,553,121	33,766,274	31,905	(0.0465)	Beta (β) = Covariance/Variance	0.9205
June - 2010	975,042,303,347	29,208,699	33,382	0.0463	Sharpe = (Rp - Rf)/σp	0.9184
July - 2010	1,016,259,468,056	27,976,688	36,325	0.0882	Treynor = (Rp - Rf)/βp	0.0617
August - 2010	1,199,605,288,351	30,290,705	39,603	0.0902	Jensen = Rp – [Rf + βp (Rm – Rf)]	0.0308
September - 2010	1,361,433,356,149	29,800,524	45,685	0.1536		
October - 2010	1,626,019,813,334	33,606,815	48,384	0.0591		
November - 2010	1,787,039,414,617	37,440,814	47,730	(0.0135)		
December - 2010	2,170,074,915,500	44,222,205	49,072	0.0281		

Phinisi Dana Saham	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	111,123,311,233	8,775,002	12,664	0.0162	Return (Average)	0.0249
February - 2010	108,680,185,817	8,772,148	12,389	(0.0217)	Std Dev	0.0482
March - 2010	117,781,035,486	8,760,299	13,445	0.0852	Covariance (Rp; Rm)	0.0023
April - 2010	123,263,164,096	8,759,063	14,073	0.0467	Coefficient Correlation (Rp; Rm)	0.9715
May - 2010	117,751,942,271	8,759,086	13,443	(0.0447)	Beta (β) = Covariance/Variance	0.7908
June - 2010	122,873,698,239	8,758,530	14,029	0.0436	Sharpe = (Rp - Rf)/σp	0.4070
July - 2010	120,996,123,317	8,165,632	14,818	0.0562	Treynor = (Rp - Rf)/βp	0.0248
August - 2010	119,671,435,511	8,164,144	14,658	(0.0108)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0027)
September - 2010	131,825,508,319	8,160,853	16,153	0.1020		
October - 2010	136,913,523,125	8,159,279	16,780	0.0388		
November - 2010	130,182,771,072	8,158,049	15,958	(0.0490)		
December - 2010	134,894,545,022	8,157,845	16,536	0.0362		

Reksa Dana AXA Citradinamis	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	2,103,328,212	727,702	2,890	0.0194	Return (Average)	0.0209
February - 2010	2,852,205,694	1,017,452	2,803	(0.0301)	Std Dev	0.0522
March - 2010	47,242,488,847	15,501,391	3,048	0.0872	Covariance (Rp; Rm)	0.0026
April - 2010	61,682,816,649	19,411,776	3,178	0.0426	Coefficient Correlation (Rp; Rm)	0.9852
May - 2010	58,600,130,323	19,736,239	2,969	(0.0656)	Beta (β) = Covariance/Variance	0.8695
June - 2010	62,082,271,929	20,094,061	3,090	0.0406	Sharpe = (Rp - Rf)/σp	0.2991
July - 2010	72,056,677,916	22,224,535	3,242	0.0494	Treynor = (Rp - Rf)/βp	0.0180
August - 2010	69,673,467,164	21,784,445	3,198	(0.0135)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0089)
September - 2010	78,510,543,670	22,156,436	3,543	0.1079		
October - 2010	78,559,901,139	21,507,708	3,653	0.0308		
November - 2010	75,672,851,053	21,786,313	3,473	(0.0491)		
December - 2010	81,126,855,881	22,646,118	3,582	0.0314		

Reksa Dana Nikko Saham Nusantara	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	5,523,333,329	3,896,944	1,417	0.0135	Return (Average)	0.0112
February - 2010	5,472,971,863	3,896,944	1,404	(0.0091)	Std Dev	0.0416
March - 2010	5,939,605,707	3,896,944	1,524	0.0853	Covariance (Rp; Rm)	0.0012
April - 2010	6,240,612,860	3,896,944	1,601	0.0507	Coefficient Correlation (Rp; Rm)	0.5832
May - 2010	5,857,746,878	3,896,944	1,503	(0.0614)	Beta (β) = Covariance/Variance	0.4102
June - 2010	5,974,090,836	3,896,944	1,533	0.0199	Sharpe = (Rp - Rf)/σp	0.1411
July - 2010	6,434,489,029	3,896,944	1,651	0.0771	Treynor = (Rp - Rf)/βp	0.0143
August - 2010	346,168,234	211,993	1,633	(0.0110)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0057)
September - 2010	271,578,219	167,492	1,621	(0.0070)		
October - 2010	268,271,416	166,714	1,609	(0.0076)		
November - 2010	266,074,232	166,714	1,596	(0.0082)		
December - 2010	254,897,516	161,025	1,583	(0.0082)		

Reksa Dana Schroder Dana Istimewa	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN		
January - 2010	1,011,690,339,899	291,940,232	3,465	0.0295	Return (Average)	0.0297
February - 2010	1,076,906,042,244	317,012,474	3,397	(0.0197)	Std Dev	0.0589
March - 2010	960,271,027,175	263,320,653	3,647	0.0735	Covariance (Rp; Rm)	0.0028
April - 2010	1,064,381,453,920	273,034,012	3,898	0.0690	Coefficient Correlation (Rp; Rm)	0.9713
May - 2010	1,109,640,757,838	303,071,994	3,661	(0.0608)	Beta (β) = Covariance/Variance	0.9672
June - 2010	966,888,599,489	254,747,795	3,795	0.0366	Sharpe = (Rp - Rf)/σp	0.4141
July - 2010	927,606,584,626	225,588,522	4,112	0.0834	Treynor = (Rp - Rf)/βp	0.0252
August - 2010	958,653,675,560	234,415,570	4,090	(0.0054)	Jensen = Rp – [Rf + βp (Rm – Rf)]	(0.0028)
September - 2010	1,094,064,040,912	235,439,482	4,647	0.1363		
October - 2010	1,298,148,215,776	270,246,698	4,804	0.0337		
November - 2010	1,418,345,199,605	314,794,051	4,506	(0.0620)		
December - 2010	1,677,658,002,727	357,279,297	4,696	0.0422		

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Reksadana Dana Pratama Ekuitas	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN			
January - 2010	75,641,748,072	16,369,956	4,621	0.0242	Return (Average)		0.0263
February - 2010	72,132,606,499	16,275,549	4,432	(0.0409)	Std Dev		0.0652
March - 2010	76,043,469,352	15,802,946	4,812	0.0857	Covariance (Rp; Rm)		0.0031
April - 2010	78,149,480,129	15,270,269	5,118	0.0635	Coefficient Correlation (Rp; Rm)		0.9701
May - 2010	68,344,625,563	15,001,345	4,556	(0.1098)	Beta (β) = Covariance/Variance		1.0691
June - 2010	67,851,913,810	14,678,983	4,622	0.0146	Sharpe = (Rp - Rf)/σp		0.3228
July - 2010	66,165,758,255	13,328,749	4,964	0.0739	Treynor = (Rp - Rf)/βp		0.0197
August - 2010	58,791,672,564	11,881,278	4,948	(0.0032)	Jensen = Rp – [Rf + βp (Rm – Rf)]		(0.0091)
September - 2010	64,163,208,698	11,396,533	5,630	0.1378			
October - 2010	62,730,574,023	10,762,654	5,829	0.0353			
November - 2010	53,991,767,002	9,459,240	5,708	(0.0207)			
December - 2010	57,524,256,137	9,547,974	6,025	0.0555			

Rencana Cerdas	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN			
January - 2010	54,425,171,820	7,307,524	7,448	0.0170	Return (Average)		0.0301
February - 2010	67,889,110,326	9,332,385	7,275	(0.0233)	Std Dev		0.0531
March - 2010	73,957,149,214	9,369,510	7,893	0.0851	Covariance (Rp; Rm)		0.0026
April - 2010	77,871,288,679	9,270,788	8,400	0.0641	Coefficient Correlation (Rp; Rm)		0.9851
May - 2010	72,514,436,893	9,243,881	7,845	(0.0661)	Beta (β) = Covariance/Variance		0.8839
June - 2010	65,768,236,565	7,991,568	8,230	0.0491	Sharpe = (Rp - Rf)/σp		0.4674
July - 2010	69,171,252,676	7,893,544	8,763	0.0648	Treynor = (Rp - Rf)/βp		0.0281
August - 2010	68,940,616,260	7,972,021	8,648	(0.0131)	Jensen = Rp – [Rf + βp (Rm – Rf)]		(0.0001)
September - 2010	77,023,546,323	7,959,819	9,677	0.1190			
October - 2010	80,279,276,397	8,015,598	10,015	0.0350			
November - 2010	78,585,103,181	8,025,372	9,792	(0.0223)			
December - 2010	90,346,769,710	8,770,995	10,301	0.0519			

Schroder Dana Prestasi Plus	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN			
January - 2010	11,500,070,585,975	722,381,226	15,920	0.0228	Return (Average)		0.0257
February - 2010	11,663,046,030,043	751,402,159	15,522	(0.0250)	Std Dev		0.0503
March - 2010	12,024,466,689,389	721,346,931	16,669	0.0739	Covariance (Rp; Rm)		0.0025
April - 2010	12,503,646,021,460	707,486,855	17,673	0.0602	Coefficient Correlation (Rp; Rm)		0.9908
May - 2010	12,064,951,652,254	720,427,322	16,747	(0.0524)	Beta (β) = Covariance/Variance		0.8415
June - 2010	11,894,110,141,776	683,656,168	17,398	0.0389	Sharpe = (Rp - Rf)/σp		0.4054
July - 2010	12,141,470,550,816	661,476,639	18,355	0.0550	Treynor = (Rp - Rf)/βp		0.0242
August - 2010	12,035,177,712,073	660,892,775	18,210	(0.0079)	Jensen = Rp – [Rf + βp (Rm – Rf)]		(0.0033)
September - 2010	13,235,104,625,968	651,942,082	20,301	0.1148			
October - 2010	13,675,428,536,377	655,532,236	20,862	0.0276			
November - 2010	13,393,802,627,280	672,765,987	19,909	(0.0457)			
December - 2010	14,441,248,538,414	693,716,832	20,817	0.0456			

TRIM Kapital	TOTAL NAV	JUMLAH UNIT	NAV (SATUAN)	RETURN			
January - 2010	739,167,595,292	157,706,464	4,687	0.0282	Return (Average)		0.0297
February - 2010	717,972,949,217	157,064,497	4,571	(0.0247)	Std Dev		0.0673
March - 2010	693,421,465,979	140,700,012	4,928	0.0781	Covariance (Rp; Rm)		0.0031
April - 2010	674,478,386,029	127,704,008	5,282	0.0717	Coefficient Correlation (Rp; Rm)		0.9257
May - 2010	574,599,411,276	124,900,532	4,600	(0.1290)	Beta (β) = Covariance/Variance		1.0529
June - 2010	577,462,448,458	120,373,197	4,797	0.0428	Sharpe = (Rp - Rf)/σp		0.3626
July - 2010	545,456,386,934	105,642,169	5,163	0.0763	Treynor = (Rp - Rf)/βp		0.0232
August - 2010	463,318,872,457	90,491,528	5,120	(0.0084)	Jensen = Rp – [Rf + βp (Rm – Rf)]		(0.0053)
September - 2010	428,908,730,280	74,969,070	5,721	0.1174			
October - 2010	422,529,329,637	71,667,993	5,896	0.0305			
November - 2010	412,608,520,178	71,285,274	5,788	(0.0182)			
December - 2010	481,062,379,708	76,135,928	6,318	0.0916			

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