International Journal of Business and Management Invention
ISSN (Online): 2319 – 8028, ISSN (Print): 2319 – 801X
www.ijbmi.org || Volume 6 Issue 9 || September. 2017 || PP—75-90

Fama and French Five-Factors Pricing Model Testing in Indonesia

Said Djamaluddin [1], Achemad Rofii[2] and Djumarno[3]
[1]*Postgraduate Lecturer of MercuBuana University, Jakarta Indonesia*
[2]*Postgraduate Alumni of MercuBuana University, Jakarta Indonesia*
[3]*Postgraduate Lecturer of MercuBuana University, Jakarta Indonesia*

ABSTRACT:*This research empirically test the three asset pricing model in Indonesia's stock market. Capital Asset Pricing Model (CAPM), Fama and French Three-Factors Pricing Model, and Fama and French Five-Factors Pricing Model. Testing against stock return of LQ-45 group at Indonesia Stock Exchange, using data over the period 2011-2015. Fama and French (2015) introduced Fama and French Five-Factors Pricing Model of which is a development of the earlier models, namely Fama and French Three-Factors Model Pricing by adding two new factors; profitability and investment. The main objective of this study was to provide evidence that will contribute to the effort to explain Fama and French Five-Factors Pricing Model can be used to predict stock return that may occur in the future. The result of research has also shown that Fama and French Five-Factors Pricing Model give a better estimation in predicting stock return compared with the Capital Asset Pricing Model and Fama and French Three-Factors Pricing Model.*

Keywords: ***F****ama and French, Five-Factors Model, Stock return*

Date of Submission: 15-09-2017 Date of acceptance: 28-09-2017

I. INTRODUCTION

The World Bank report (2015) stated that the world economic growth slowed resulted in the revelation of the prices of Indonesia's several commodities, besides also zoom out from the presence of new opportunities. But the growth estimate had shrunk this can be reversed direction, when investment exceeds expectations in 2015. By weakening the growth of investment and exports, economic growth in Indonesia in 2015 is estimated to reach 5.2 percent, a little under the World Bank projections released July 2014, of 5.6 percent. Economic growth in the year 2014 is estimated to reach 5.1 percent less than 5.2 percent previously estimated. So it was revealed on the report *Indonesia Economic Quarterly*, December Edition 2014, issued by the World Bank.

Rudiyanto (2015) perform analysis of the countries have share investment most beneficial if done long-term investment during the last 15 years, the period of the data used is 31 December 1999 - 31 December 2014. The result put Indonesia as the country with the highest return as 721.37 percent for 15 years. While in Japan the squalor contrary goes down as -10.69 percent.

While the condition of investment in Indonesia, the Investment Coordinating Board (ICB) convey the results of the achievement of investment realization 2015 Rp 545,4 trillion or 17.8 percent compared to the same period a year earlier. The investment realization achievements target rally snapped 2015 Rp 519,5 trillion or 105 percent. The composition of investment realization consists of Domestic Invesment increased 15 percent or Rp 179.5 trillion, while Foreign Investment also increased 19.2 percent or Rp 365,9 trillion (ICB, 2016).

Forbes (2016) issued the annual report about the best state rank as business investment destinations 2015, the report placed Denmark on the first position. The ratings are determined by the assessment of 144 countries in 11 different factors; property rights, innovation, tax technology, corruption, freedom (personal, trade and monetary), bureaucracy, investor protection and stock market performance. Position of Denmark as the country with the best condition for the purpose of business investment also supported in other ratings such as described in the list of the World Bank concerning the easiest way negate the country for business, where Denmark once again get the highest scale in between the European countries. While Indonesia occupies the stages to-93 in the list of the best country as the purpose of business investment. While Bespoke Investment Group (2016) in the report best performing global markets 2015, placing Argentina as the best stock market with the value of 37.48%, while Indonesia only occupying the stages to 68 with value -5.93%.

In the world of share investment, there is a belief that the price of the stock market is a reflection of the performance of the fundamentals of a company. But other market players are varied, there is a rational person is also not rational, there that do short-term investments, there is a long-term and also not efficient market information is to understand the condition of the company, there who do not understand, then the market price of a share can not reflect the price naturally. Many factors that affect the share price, which in the end will affect

the return on the stock. In the capital market trading, shares is one of the investment instrument is much interested in trade. On the General condition states that the higher the Risk, the higher also potential spider. Tandelilin (2001:47) stated that "Return is one of the factors that motivates investors interact and also is the rewards courage investors in risk for investment that he did".

But if you see the data condition return market and the performance of the stock market in Indonesia is the incompatibility that raises the question of actually what factors affect the return of stocks and market conditions. The basic idea is that gives the idea that melatar mendasara for writing this research. But before answering the fundamental question, will be described about the development of modern portfolio theory as a basic foundation that will be used as a reference to understand the problem.

Markowitz (1952) develop a theory which is called with the Markowitz Portfolio Theory (MPT). The Theory is using some basic statistics measurements to develop a portfolio plan, including was expected return, standard deviation, securities portfolios and the correlation between return. The basic principles of MPT get return on optimum level at minimum risk. To minimize the risk that need to be done in the diversification investing, forming portfolios or upgrading the invest not only one asset but to many assets. This theory formulating the existence of return and risk in an investment where risk can be minimised through diversification and combine the various investment instruments into portfolios. The MPT is based upon the approach mean and variance , where mean is the measurement of the level of return and variants is the measurement of risk level. Markowitz Portfolio theory is also referred to as the Mean-variance Model, which emphasized on the efforts to maximize return expectations (mean) and minimize uncertainty/risk (variants) to select and arrange the optimal portfolio.

Sharpe (1963) develop Single Index Models (SIM) which is a simplification of the Index model that has previously developed by Markowitz. Single Index Model to explain the relationship between the return of each individual securities with return market index. This model provides an alternative method to calculate the variants of a portfolio that is more simple and more easily calculated if compared with calculation of Markowitz method. This alternative approach can be used as the basis to solve problems in the formulation of the portfolio.

Sharpe (1964), Lintner (1965) and Mossin (1966) research separately to successfully create the formulation of general equilibrium model that is almost the same, which is known as the Capital Asset Pricing System (CAPM). Research results of them is the theory of capital markets balance, essentially thinking that if all investors in investing do the same thing as Markowitz theory, then asset traded in the capital market will be consumed divided purchased by investors and the proportion of each bonds that held by investors will be identical with asset's market capitalization in the capital market. The conclusion, a typical efficiency and optimal portfolio is the market portfolio itself. Thus the investors in investing does not need to form the efficient and optimal portfolio as Markowitz theory, but just formed portfolios that is identical with the market portfolio. The proportion of each share in the portfolio is identical with the market capitalization of the shares. Fluctuation of portfolio value will be comparable and revelat with market return . The investment risk that allows on this theory, is the risk caused by fluctuations in the price of capital markets, or market risk (systematic). The others risk that is not related to the fluctuations in capital market's price will be the same with zero. This is in line with diversification in balance of the market's theory that involves all the bonds that traded capital markets. So the risk that should be considered is systematic risk (beta), because this risk could not be removed even if through diversification.--

CAPM using mean-variance in Markowitz's context and has been used in both academic and practitioners in analyzing the relationship between risk and return. CAPM application used to make calculations among others, the cost of capital and to evaluate portfolio performance. But CAPM can be declared valid when the implications for market equilibrium, making beta is the only factor that can reveal stock return and its related positively to beta. But in fact empirical studies occurs the contradictions in CAPM is there are a few cases that could not be explained by the model. The incompatibility between the other is explanation about how the influence of earning price ratio, dividend, firm size, and book-to-market equity to stock return.

Ross (1976) formulate a theory which is called as Arbitrage Pricing System Theory (APT). This theory predicts the relationship level return a protfolio and return from single assets through a combination of many macro-economic variables independently. CAPM and APT is balance model that is often used to determine the relevant risk of an asset and the relationship between risk and expected return . CAPM using volatility of a security return or portfolio return against the r market return as measuring line risk. While APT using many variables as measurement which is often referred to as factors model. Reilly (2002) there are three the assumptions underlying APT capital market in the condition of perfect competition, investors always prefer the wealth more than less with certainty and income asset can be considered to follow the k factor model. The merger CAPM and APT allows to optimal portfolio by entering portfolio return's volatility against market return and macroeconomic variables as risk measuring.

Basu (1977) This research states, stocks that have a low Price Earning Ratio (PER) produce return is higher than stock have a high PER, and also concluded that PER does not fully reflect stock market prices

conditions. The research using company data samples industry on the New York Stock Exchange (NYSE) during period of April 1957-March 1971. Basu (1981) to do further research using revenue and firm size factor. Test results confirmed previous tests result, but in the research also mentioned that the company is small in size (market capitalization low) have return higher compared than large companies (market capitalization higher). Banz (1981) CAPM model using firm size variables . This research also found that small company stocks (low) give return is higher than stock market capitalization of large companies (high). In addition research also concluded that the CAPM model is less able to explain stock return.

Rosenberg, Reid and Lanstein (1985) using period data 1980-1984, stock price most in NYSE, and some prices in ASE, other regional exchanges or the NASDAQ. Studies have found that there is a positive relationship between expected return with book-to-market equity ratio. It is empowered with the research done by Chan, Hamao and Lakonishok (1991) who also found that book-to-market equity has an important role in explaining was expected return s in Tokyo Stock Exchange Japan, using data period 1971-1988.

Fama and French (1992) also find that size (market capitalization) and book-to-market equity is the variables that can explain average return on a cross section in the New York Stock Exchange (NYSE). While relationship between market risk and stock return is not significant. They argue that the variables size and book to market equity can explain stock average return in cross section. The study also stated that market beta less explain stock return, rather firm size and book-to-market equity.

Fama and French (1993) introduces the Fama and French Three-Factors Pricing Model. In this model, in addition to market return, firm size and book to market equity is a proxy for the risk. Variables affect significantly to portfolio stock return. Fama and French (1996) using three factors that explain portfolio return stock namely market risk, firm size risk, and book-to-market ratio risk. Fama and French (1998) proposed that the company has high book-to-market equity to give return which is higher than company has low book-to-market equity in 12 capital markets and the company with small give return is higher than the large in 11 capital market.

Fama and French (2015) add two variables on the previous model, profitability and investment factors. Where the study concludes that companies have high operating profit will be better performance compared with the company have low operating profit and for investment factor concluded that the company with high total assets with growth have low average returns and company that has low total asset growth have high average return. Add two-factor is a big step after more than twenty years since Fama and French Three-Factors Pricing Model. Do the estimation using the Fama and French Five-Factors Pricing Model is one way to predict and identify the stock return movement on the company with firm size and book to market ratio is different. Many research that produce different conclusions where the research object and research period greatly affected the validity of Fama and French Five-Factors Pricing Model. There was a pattern in average returns related to market risk factors, firm size risk, book-to-market equity, profitability and investment. Testing The Fama and French Five-Factors Pricing Model that is directed to prove patterns , by comparing the validity of model, the model will be compared with Capital Asset Pricing Model and Fama and French Three-Factors Pricing Model.

II. STUDY THEORY

Capital Assets Pricing System (CAPM) is a model that has been developed to explain a balance state of relationship between the risk of each asset when the capital market is located in the balance. Treynor (1961), Sharpe (1964), and Litner (1965) which develop the formulation of mean-variance. The formulation is then developed and be clarified in by Lintner (1965), Mossin (1966), and Fama (1968). According to this research, CAPM provides the theory where there is no tax costs or transaction cost, all investors have the same investment line, all investors have the same opinion about the return that it is expected that the volatility in investment return is expected. This model also describes relationship between risk and expected return that is used in the price assessment of risky assets.

CAPM calculate assets sensitivity or non-diversifiable risk (also known as systematic risk or market risk) is often represented by beta quantity (β) in the financial industry and return is expected from the market and expected return from return risk free assets. Thus beta is measuring security systematic risk or a portfolio against market risk. The volatility can be defined as the fluctuations of security return in a certain period of time. If fluctuations in return or securities portfolios is statistically follow the fluctuations from market return, then beta from securities or portfolios allegedly worth 1.

A Securities that have a *beta* smaller than 1 said the risk of smaller than market portfolio risk. On the contrary, a securities that have a *beta value* greater than 1 is said to have the systematic risk is greater than market risk. If a securities have the same beta with the market portfolio beta, then it is expected that this securities have *return* expectations the same with expected market return or *E(Rm)*. For individual securities that have a *beta* more small, it is expected to *return* expectations are smaller than the market portfolio expectations.

On the contrary, individual securities that have a greater beta, then is expected to *return* greater expectations from the market portfolio expectations.

CAPM is also a model to assess the securities or portfolios of individuals. For individual securities, CAPM using the security market line (SML) and its relationship with expected return and systematic risk (beta) to show how the market to assess the risk of individual Securities in connection with the risk level of their securities. SML can be used to calculate the reward to risk ratio for any Securities in connection with the overall market. Therefore, when level return is expected for any securities reduced with beta coefficient, reward to risk ratio of each individual in the market is the same with the reward to risk ratio, then obtained CAPM model:

$$\boldsymbol{E(R_i) = R_f + \beta_i(E(R_m) - R_f)} \quad \text{... (1)}$$

Where:

E(Ri) = Expected return of investment
Rf = Rate risk-free
Bi = The sensitivity of asset excess return which is expected on the excess return of the market expected
$E(R_m)$ = Expected market return

Fama and French Three-Factors Pricing Model

Black, Jensen & Scholes (1972) and Fama & MacBeth (1973) to test the validity of CAPM empirically and from this testing shows that there is a positive relationship between beta portfolios or systematic risk with return portfolios. This empirical testing encourage other researchers to test the CAPM with samples of different, but with the same methodology. Reinganum (1981) find no significant relationships between risk and return. For that, need another variable to find a significant relationship between risk and return. Pettengill et. al (1995) successfully shows the inconsistency of beta testing to return because of the failure to separate the market conditions at the time of positive (up market) or negative (down market) or known as the conditional market.

Fama and French (1992) do empirical testing to prove a significant influence beta against stock return. As a result of not found significant relationships between beta with return. Furthermore Fama and French add other factors namely firm size measured from equity market that illustrated in Security Market Line (SML). Firm Size is the size of a company calculated because the smaller companies will have higher stock risk than larger companies, therefore, investors will expect greater return on a smaller companies. In addition to firm size, other factors that affect the return is the book to market ratio. If the market value is higher than book value so investors will be optimistic about the outlook for stocks future. So, if the market value is lower than book value so investors will become more pessimistic about the outlook for stocks future. Therefore the book to market ratio is high have a higher risk compared with the book to market ratio is low and investors will expect return a proportional.

Fama and French (1993) introduces the Fama and French Three-Factors Asset Pricing Model (TFM) as an alternative model in estimate return expectations. This model is attempting to break that accuracy of market beta as the only variable application descriptor CAPM in mengestimasi return expectations. If in the CAPM and the risk of return behavior is determined by market risk, TFM add fundamental factors namely firm size and book to market ratio. Thus variables in the estimation of return expectations include market risk, firm size and book to market ratio. Then stocks return regress against market risk, firm size and book to market ratio is formulated in the following equation:

$$\boldsymbol{R_i - Rf = \alpha_i + \beta_i(Rm_t - Rf_t) + \gamma_i SMB_t + \delta_i HML_t + e_{it}} \text{ ... (2)}$$

Where,

Ri = Stock return
Rf = Rate Risk-free
Rm = Market Return
α_I = In Intercept
β_I = Market Beta regression coefficient
SMB = Small Minus Big, the difference in return portfolios of small stocks (firm size small) with large stock portfolio (firm size large)
γ_I = Stock regression coefficient against SMB return
HML = High Minus Low, the difference in stocks return portfolios with book to market ratio is high and stocks return portfolio with book to market ratio is low.
δ_I = Stock regression coefficient against HML return
e_I = Epsilon term

Fama and French Five-Factors Pricing Model

Fama and French (2014) research result shows that value of excessive HML factors to illustrate average return when profitability factors and investment has been added in the equation and for the application that is the only significance back to normal, four or five factor model can be used. The results also show that the Fama and French Five- Factors Asset Pricing Model explains between 71% and 94% from rainbird varians expected return to firm size, book to market, profitability and portfolio investments. Has proven that the Fama and French Five-Factors Asset Pricing Model that is directed to catch the pattern of firm size, book to market, profitability and investment in average stocks return perform better explanation than Fama and French Three-Factors Model that reduce anomaly average return . This new model shows that return the highest expectations achieved by company a small benefit and the value of companies with growth prospects (Fama and French, 2014).

Fama and French Three-Factors Asset Pricing Model is designed to reveal the relationship between average return stocks and firm size (based on market capitalization) and the relationship between average return stocks price ratio as book-to-market ratio. The assessment model shows that there is a possibility of a more complete model to get return expectations for three factors less explain relationship between return to profitability and investment. The previous model states book-to-market ratio is a noisy proxy explains return expectations for market value also reflect expected profitability and investment.

Fama and French (2015) introduces asset pricing model known as the Fama and French Five-Factors Asset Pricing Model where the model is trying to explain relationship between the new variable and expected return from perspective of dividend discount model and theory of valuation. In this research Fama and French recommends to use profitability and investment factors, in addition to tfactors already exists (market risk, firm size and book to market) to catch the pattern in the average stock return. Thus, it seems absurd that we are better able to isolate information in stock price of return expectations with add profitability and investment factors for the model of the three-factor,

$$\boldsymbol{R_i - Rf = \alpha_i + \beta_i(Rm_t - Rf_t) + \gamma_i SMB_t + \delta_i HML_t + r_i RMW_t + c_i CMA_t + e_{it}} \ldots (3)$$

Where,

Ri =	Stock Return
Rf =	Rate Risk-free
Rm =	Market Return
α_I =	In Intercept
β_I =	Market Beta regression coefficient
SMB =	Small Minus Big, the difference in return portfolios of small stocks (firm size small) with large stock portfolio (firm size large)
γ_I =	Stock regression coefficient against SMB return
HML =	High Minus Low, the difference in return stock portfolios with book to market ratio is high and stock portfolio with book to market ratio is low.
δ_I =	Stock regression coefficient against HML return
RMW =	Robust Minus Weak, the difference in return with high profitability shares portfolio with stocks portfolio with low profitability.
Ri =	Stock regression coefficient against RMW return
CMA=	Minus Aggressive Conservative, the difference in return stock portfolios with high investment growth with stock portfolio with low investment growth.
Ci =	Stock regression coefficient against CMA return
e_I =	Epsilon term

In the equation above RMW_t is the difference between return of stock portfolio diversification with strong and weak profitability, and CMA_t is the difference between return of stock portfolio diversification with high and low investment, which is called as conservative and aggressive. If the sensitivity to the five factors, β_i , γ_i, δ_i, *ri* and *ci*, revealed all variation in return expectations, intercepα_i zero for all securities and portfolios.

Research Method

The research will also test different using ANOVA test (*analysis of variants*) which is a form of statistical hypothesis test where conclusion is taken based on data or statistics inferentif groups. ANOVA tests aimed to difference between significant model or not. Although the t test is statistics often used, only test t is restricted to hypothesis test of two groups. ANOVA tests developed to allow researchers to do hypothesis test

comparison of more than two groups. This research examines the influence of the variables in *asset pricing models* and perform comparatively ability models of *asset pricing system* in explaining the *excess return* share.

III.RESEARCH METHODS

a. The dependent variables

This research is dependent variables return expectations of single shares E(Ri), which is return expected level by investors on the shares i. Sharpe (1964) and Fama (1996) in research regression model asset pricing model, dependent variable value being estimated as excess return from a single securities, the difference between return shares i (Ri) and interest rate risk-free level or risk free rate (R_f). Fama and French (1996) counting method return using weighted value so that can minimize return variance. So stock closing price will be multiplied by the number of shares in circulation to eliminate differences in value due to event stock split and as such.

Risk free rate (R_f) is the rate of return desired by investors from a investment risk-free. In Indonesia risk free rate used is the interest rate Sertifikat Bank Indonesia (SBI). SBI is the most government securities likuid where investors get return from the government equal par value (face value) or investment principle value received the investment fall due plus interest, so that it can be said that the return was received by the investor does not contain the risk.

b. Independent variables

Independent variables used in linear regression includes the return of the premium market all the shares are stated in the IHSG and portfolio reflects stock return based on firm size, book-to-market, profitability and investment.

The first independent variable is the excess return market was closing price composite stock index t period divided the index closing share price period t-1. Independent variables used in linear regression includes premium return all the shares that is stated in the index closed in BEI.

The second variable is the small minus big (SMB). Fama and French (1992) stated that size related to profitability level. Fama and French (1996), firm size or company size in this study is measured by market capitalization. Market capitalization is the result of multiplication between shares number and stock closing price. The determination of capitalization limit is done by using an average of all the shares of an issuer that has the capitalisation above average are classified as Big (B) and issuers that have the capitalisation under the average are classified as Small (S).

The determination with sort stocks which is based on market capitalization into two groups, 50% shares with small market capitalization or small (S) and 50% shares with large market capitalization or big (B). SMB is difference in stock return average small company reduced stock return average big company with assumption that small company return portfolio greater than return portfolio of big companies. The proportion of SMB will be divided into three groups based on the book to market, profitability and investment. So that obtained with the formula as follows:

$$SMBBE/BM = 1/3(S/L + S/M + S/H) - 1/3(B/L + B/M + B/H) \quad ..... (4)$$
$$SMBOP = 1/3(S/W + S/M + S/R) - 1/3(B/W + B/M + B/R)$$
$$SMBINV = 1/3(S/A + S/M + S/C) - 1/3(B/A + B/M + B/C)$$

SMB calculation that used to *Fama and French Five-Factors Model* will use the formulation as follows:

$$SMB = 1/3(SMBBE/BM + SMBOP + SMBINV) \quad ..... (5)$$

Where,

SMB = The Difference each month between stock return average on small stocks portfolio and average return on big stock portfolio.
S/L = return portfolios size small low
S/W = return portfolios size small had weak eyes.
S/A = return portfolios size small aggresive
S/M = return portfolio size small medium (B/M Profitability, and Investment)
S/H = return portfolios size small high
S/R = return portfolios size small robust
S/C = return size small conservative portfolio
B/L = return portfolios size big low
B/W = return portfolios siz big had weak eyes
B/A = return portfolios size big aggresive
B/M = return portfolio size big medium (B/M Profitability, and Investment)
B/H = return portfolios size big high

B/R = return portfolios size big robust
B/C = return size big conservative portfolio

The third variable is high minus low (HML). Fama (1992) documenting the ratio of book to market related to the economic fundamentals where company that has high book to market or share price is relatively low compared to book value will have a lower income and company with low book market or stock market price higher relative compared to book value will have higher incomes.

The formation of HML portfolio done with equates total equity units of all companies in the form of thousands rupiah. When there is a total equity company in unit of the dollar, then identified using the middle rate that occurred in the period, multiplying total equity with middle rate obtained from addition exchange rate and rate buy divided into two. Then sort the data based on the ratio of book to market on the group companies small and big separately. The book to market ratio obtained from the equity book value per share at the end of the period t-1 divided share price (ME) at the end of the year t-1. The book to market equity value are grouped into 3 groups high (H) is 30 percent ratio top, medium (M) is 40% value ratio next and the remaining 30% ladder is a group of low (L).

The data of the *cross section firm size* and *book to market equity* formed 6 (six) portfolios to get SMB portfolio (*small minus big*) and HML (*high minus low*): *small-high* (SH), *small-medium* (SM), *small-low* (SL) and *big-high* (BH), *big-medium* (BM), and *big-low* (BL). HML calculations obtained with the formula as follows:

$$\boldsymbol{HML = 1/2(S/H + B/H) - 1/2(S/L + B/L)} \quad .....(6)$$

Where,
HML = the difference each month between average stock *return* on stock portfolio in high (B/H and S/H) and average stock *return* on stock portfolio of low (S/L and B/L).
S/L = *return* portfolios *size small low*
S/H = *return* portfolios *size small high*
B/L = *return* portfolios *size big low*
B/H = *return* portfolios *size big high*

The fourth variable is the profitability factors that proxy as *Robust Minus Weak* (RMW) factor value is built in the same way as HML, but the two types of operation profitability (strong minus weak). As HML, then the calculation RMW variables can be interpreted as average profitability factors using the *operating profit* for the shares of small and large. RMW is the difference between the *return* on stock portfolio diversification with *robust profitability* (Strong) and *Weak profitability* (low) or can be formulated as follows:

$$\boldsymbol{RMW = 1/2(S/R + B/R) - 1/2(S/W + B/W)} \quad .....(7)$$

Where,
RMW = The Difference each month between the average stock *return* strong or *robust* (B/R and S/R) and the average *return* on the portfolio weak (S/W and B/W).
S/W = *return* portfolios *size small had weak eyes*
S/R = *return* portfolios *size small robust*
B/W = *return* portfolios *size big had weak eyes*
B/R = *return* portfolios *size big robust*

The fifth variable is the investment factor which then diproksikan as Conservative Minus Aggressive (CMA). This factor is the result of total assets operation in previous period with total asset running period divided total assets of previous period, so that obtained asset growth value. Variables CMA calculated the average investment factor for small and large stocks. CMA is produced from difference between stock return portfolio investment company conservative and aggressive, which is called by the conservative and aggressive (CMA), or can be formulated as follows:

$$\mathbf{CMA = 1/2(S/C + B/C) - 1/2(S/A + B/A)} \quad .....(8)$$

Where :
CMA = The Difference each month between return average on the portfolio of conservative shares (B/C and S/C) and the average return on the portfolio of aggressive stocks (S/R and B/R).
S/C = return size small conservative portfolio
S/A = return portfolios size small aggresive
B/C = return size big conservative portfolio
B/A = return portfolios size big aggresive

Population and Sample

The population in this research is entire LQ-45 index which listing performance in Bursa Efek Indonesia (BEI) during the period of 2011-2015. The sample of this research is done by using non random sampling means sampling that not all members of the population selected to be samples, its use purposive sampling where sampling from population based on certain criteria (Ferdinand, 2006). Criteria used can be based on specific considerations or certain quota. The determination of samples in this research is to apply some criteria, such as:

1. Shares of research material is included in The LQ45 index that consistently during period from 2011-2015 and including the issuer listed in BEI.
2. Consistent shares is shares that have never delisting of shares recorded in the BEI during the period 2011-2014.
3. Publishing performance of *Initial Public Offering* (IPO) and provide an annual report and quarterly report.
4. The data can be accessed.

Data Analysis Methods

Descriptive Analysis

Sugiyono (2004:169) descriptive analysis is the statistics used to analyze the data with how to describe or illustrate the data that has been collected as is without the means to make the conclusion that apply to the general public or generalisations. This analysis discusses descriptive in the secondary data that has been collected. The analysis result used to know characteristics of variables examined, as mean, median, standard deviation, maximum and minimum value. Descriptive statistics does not include decision making or making the conclusion.

The Classical Assumption Test

The classic assumption test is that statistics requirements must be met on multiple linear regression analysis based on *ordinary least square* (OLS). So multiple regression analysis which is not based on OLS does not require the classic assumption requirements. The classical assumption test also does not need to be done for linear regression analysis which aims to calculate values in a particular variable. As a prerequisite before using regression equation, required done classical assumptions test at first. This research uses four classic assumptions tests include normalitas test, multikolinearitas, autokorelasi, and heterokedastisitas. The explanation of each classical assumptions test will be described as below.

a. Normalitas Test

Normalitas tests used to test whether independent and dependent variables in the regression model normal distribution or not. Normalitas tests can be done with histogram test, P Plots, Chi Square, Skewness and Kurtosis or Kolmogorov Smirnov test.

Normalitas test on this research uses non parametrik statistics Kolmogorov Smirnov (K-S) test. The K-S test done by making hypothesis, if value Asymp. Sig. (2 - tailed) consecutive patients 0.05 its mean normal distributed, but if value Asymp. Sig. (2 - tailed)<0.05 data not normal distributed. But if distance from normal values, so it can be performed with data transformation into logaritma natural form. So the approach that is used in this research normalitas tests remain through graph normal curve.

b. Multikolinearitas Test

Multikolinearitas test aims to test whether on regression model found a correlation existence between independent variables. A good regression model should not be multikolinearitas. Multikolinieritas occurs if the correlation coefficient between independent variable is greater than 0.50. Not happen multikolinieritas said if the correlation coefficient between independent variable is smaller or equal to 0.50 ($r < 0.50$). The other way to determine multikolinieritas, with tolerance value is a great error level is justified by statistics (α) and variance inflation factor (VIF) is raw deviation kuadarat inflation factors. The existence of multikolinearitas indication is when VIF > 10.

c. Autokorelasi Test

Autokorelasi is a correlation on the adjacent and cause consequences, confidence interval becomes width and standard error varians will be estimated too low. If an error in executing mutual observation correlates with one another or happen interdependence, autokorelasi happen.

Autokorelasi test aims to test whether in a linear regression model there is a correlation between disturbing error at period t with an error at period t-1. If there is a correlation, then there is a problem with autokorelasi (Ghozali, 2006). Run Test will be used in this research to see whether residual data occurs by random or not. If between a residual there is no correlation relationship it can be concluded that a residual is random or random.

d. Heterokedastisitas Test

Heterokedastisitas tests aimed at testing whether regression model happens other irregularities variance from a residual one observation to other observations. If residual variance from one observation to other observations remain, then there are homokedastisitas and if different called heterokedastisitas. The statistical tests that can be used is *Glejser* test, Park or White test. This research will use Glejser tests which is a hypothesis test to determine whether a regression model have an indication of how regress heterokedastisitas with absolud residual (UbsUt).

A good regression model is that there is homokedastisitas or is not happening heterokedastisitas. The method used to test whether or not heterokedastisitas using Graphics *Scatterplots* (Ghozali, 2006). analytical base is:

1) If there are specific patterns, like the points form the specific patterns that regularly (waves, dilate and constrict), then there is an indication that there had been heterokedastisitas.
2) If there is no clear pattern as well as the point spread above and below number 0 (zero) on the Y axis, then not occur heterokedastisitas.

This research on heteroskedastisitas detection done by *scatter plots* method with do plot *ZPRED value* prediction with residualnya *SRESID value*. A good model is obtained if there is no specific patterns on graphs, as deposited in the middle, constrict and then dilate or dilate and constrict.

If the model of offenses against assumption heteroskedastisitas then data will be transformed into distric form, which can only be done if all positive value data. Or can be done by dividing all variables with a variable experience heteroskedastisitas disorders.

Multiple Regression Analysis

This research is *hypothesis testing* and proper test model with multiple regression analysis so the test tool is able to fulfill the design of this research. double regression analysis this covers simultaneous test test, drag coefficient determination, and partial test,.

a. The simultaneous test (F test)

F statistics test indicates whether all independent variables entered into model covers influence together against dependent variables. F Test Results appear on ANOVA table. In this research used the degree of belief of 1 percent and 5 percent, and 10%, testing criteria based on probability, significant model when probability (*sig.*) $\leq$ column $\alpha = 0.01$ to degree of belief of 1%, when probability (*sig.*) $\leq$ column $\alpha = 0.05$ to degree of belief of 5%, when probability (*sig.*) $\leq$ column $\alpha = 0.10$ to degree of belief of 10%. F Test results simultaneous means independent variables together influence dependent variables.

b. The determination coefficient (R^2)

The best model determination from the three models of *asset pricing model* in this research followed research criteria done, Porras (1998) and Bartholdy (2004) by using the determination coefficient (R^2) in comparison to model performance.

The core of this research is to *goodness of fit* test of asset pricing model that has been developed by observing determination coefficient. This coefficient is used to describe the ability of model to explain variation that happens. The determination coefficient is indicated by the number of R-Square in the model summary produced by program, in this case used SPSS software.

R-Square value is between zero and one. The best estimate model is that have the highest coefficient, because the greater of coefficient determination means larger models can explain various existing variations. The Weakness of determination coefficient was additional variables will increase the R^2 although variable is not significant, then in this research used Adjusted R^2.

c. Individual parameters significance test (t-Test)

The tests t aims to see each individual independent variables greatness influence against dependent variables. SPSS test results can be seen on table greatly enhanced. In this research used degree of belief are 1% , 5%, and 10%, this aims to avoid p-value very near significant but test result revealed not significant at all.

Independent variables affect the dependent variables when when p-value (*sig.*) each independent variables $\leq \alpha = 0.01$ to the degree of belief of 1%, p-value (*sig.*) each independent variables $\leq$ trust 5%, p-value (*sig.*) $\alpha = 0.05$ for degree of each independent variables $\leq \alpha = 0.10$ to degree of belief of 10%.

Analysis of Variant (ANOVA) Test

The ANOVA test done to know whether there is a significant difference between three asset pricing model. In this research done varies test between the return stock estimation using CAPM, Fama and French Three-Factors Pricing Model, and Fama and French Five-Factors Pricing Model. How big is the accuracy of estimation is shown by abnormal return amount is the difference between return expectations estimated to by the model with actual return is obtained from residual unstandardized regression results.

The test will be done previously common variants (*homogenitas*) with Levene Test, this test is used to determine whether third variant of same class groups. The Data qualify is if same variant or the subject is derived from homogeneous groups. Analysis of different tests include:

a) Descriptive analysis

From a descriptive test varies, will appear large standard deviation a residual from each model. The smaller standard deviation model, means deviations estimated to return to actual return smaller then better model in estimates return expectations.

b) Homogeneity of variance Test

Varians Homogenitas conditions in ANOVA test. Levene statistic value shows smaller value then larger of homogenitas. And when probability is greater than alpha or not significant, homogenitas assumptions are met so that ANOVA test can be continued.

c) ANOVA test results

From ANOVA test result table will look great F value and significance. This different tests using $\alpha = 5\%$. This analysis hypothesis is:

- H0 : The average return results estimation of the third asset pricing model same.
- H1 : The average return results estimation of the third asset pricing model different.

When the probability or greater significance from *alpha*, then H0 received.

IV.RESULTS AND DISCUSSION

From selected sample, formed monthly portfolio based on market capitalization (size), book to market, profitability and investment growth so that obtained 20 portfolios every month. Return calculation result portfolios produce SMB, HML, RMW and CMA values as seen in table 1.

Table 1. A summary of the results of the calculation of the average excess return company shares LQ-45 BEI based on Size, Book-to-market, Profitability and Investment, data period January 2011 - December 2015.

		Low	*Mediun*	*High*
The Panel A : Size - B/M portfolios				
Small	Min	(0.166)	(0.201)	(0.177)
	Max	0.111	0.297	0.121
	Mean	0.021	(0.012)	0.005
	#Firms	3	3	4
Big	Min	(0.107)	(0.188)	(0.229)
	Max	0.148	0.123	0.178
	Mean	0.028	0.021	0.009
	#Firms	4	5	2
		Had weak eyes	*Medium*	*Robust*
The Panel B : Size - OP portfolios				
Small	Min	(0.182)	(0.144)	(0.210)
	Max	0.121	0.148	0.095
	Mean	0.007	0.001	-
	#Firms	6	4	0
Big	Min	(0.179)	(0.107)	(0.175)
	Max	0.042	0.100	0.133
	Mean	-	0.0214	0.0199
	#Firms	0	4	6
		Consrv.	*Medium*	*Aggresv.*
The Panel C : Size - Inv portfolios				
Small	Min	(0.181)	(0.179)	(0.229)
	Max	0.201	0.324	0.181
	Mean	(0.020)	0.001	0.015

	#Firms	3	4	3
Big	Min	(0.201)	(0.126)	(0.123)
	Max	0.116	0.116	0.133
	Mean	0.016	0.016	0.014
		3	4	3

Descriptive Analysis

From data that has been there, obtained descriptive statistics for variables used in this research, see Table 2. below .

Table 2. Summary Statistical Data Factors *Fama and French*
Use data Model Five-Factors LQ-45 BEI
The Panel A. Summary Statistical Data

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Ri-Rf	(0.17729)	0.01440	(0.05920)	0.04445
Rm-Rf	(0.15332)	0.01931	(0.05573)	0.03710
SMB	(0.11651)	0.07326	(0.02649)	0.03786
HML	(0.12460)	0.08185	(0.01384)	0.04464
RMW	(0.02851)	0.09716	0.01504	0.02879
CMA	(0.13494)	0.12814	(0.00774)	0.05960

The Panel B. Data correlation

Correlations

Variable	Ri-Rf	Rm-Rf	SMB	HML	RMW	CMA
Ri-Rf	1000					
Rm-Rf	.913**	1000				
SMB	.491**	.224	1000			
HML	.471**	.399**	.338*	1000		
RMW	-.317*	-.062	-.711**	-.199	1000	
CMA	-.183	-.251	.197	-.158	-.317*	1000

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Panel A is a descriptive analysis that shows average portfolio return have negative value for dependent variables Ri-Rf -(0.05920), independent variables Rm-Rf -(0.05573), SMB -(0.02649), HML -(0.01384) and CMA variable has average -(0.00774), while RMW variable has positive value of 0.01504. The smallest deviation independent variables owned by RMW indicated by standard deviation value about 0.02879, while largest owned by CMA value about 0.05960.

Panel B shows correlation between factors. Positive values and significant correlation between factor Rm-Rf, SMB and HML against excess return. Profitability (RMW) correlates negatively with all factors. There is a negative correlation and high between SMB and RMW, shows small businesses tend to have high profitability. Correlation also occur between SMB and HML, but both a positive with any greater than 0.05. It indicates that small businesses tend to have undervalue price compared with large companies.

Varies Test with ANOVA

This test is used to determine whether or not average difference for three asset pricing model. Data that will be used is expected return which is calculation of each model. The test will be done previously common

variants (homogenitas) with Levene Test, test this is used to determine whether third variant model at same class groups. Data qualify is if same variant or subject is derived from homogeneous groups.

a) Descriptive analysis

Table 3. Descriptive analysis of return expectations based on Asset Pricing Model

Descriptives

Model	Mean	Std. Deviation	Std. Error	Minimum	Maximum
CAPM	(0.06919)	0.04755	0.00614	(0.16970)	0.02113
TFPM	(0.06921)	0.04474	0.00578	(0.17217)	0.00373
FFPM	(0.07446)	0.04822	0.00623	(0.18745)	0.00224

Based on data Table 3. look average data expected return three asset model. While standard deviation a residual TFPM has most value about 0.04474. The smaller standard deviation, means deviations estimated to actual return smaller better in estimates return expectations.

b) Homogeneity of variance test

Table 4. Analysis of Homogeneity of Variances Test

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
.131	2	177	.877

From Table 4, probability value (significance) is 0.877 greater than 0.05 then H_0 accepted, so it can be concluded that the variant of third model has same data. Levene Statistic value shows smaller value then larger of homogenitas. *df1 value* = data groups number-1 or 3-1 = 2, while *df-2 value* = number of data - data groups number or 180-3 = 177. It can be concluded that met homogenitas assumption.

c) ANOVA test results

The results of the test One Way ANOVA outout expected return three models can be seen in table 5 below .

Table 5. Analysis of ANOVA Test Results

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.001	2	.001	.252	.778
Within Groups	.389	177	.002		
Total	.390	179			

Table 5. shows *F count value* < *F table* (0.252 < 3.0470), then Ho accepted, so it can be concluded that there is no difference between average expected return on three asset pricing models. It can be concluded that on average return estimation result of CAPM, Fama and French Three-Factors Model, and Fama and French Five-Factors Model is same.

V. THE DISCUSSION

From calculation result using SPSS above can be seen coefficient market return is 0.995 marked positive and *t value* of 18.468 with probability smaller than 0.05 then there is a positive and significant impact of variables market return to stock return. So then higher market value of return will be higher again stock return. This research proved influence of market beta coefficient value on three asset pricing models in this research positive value approaching one shows that there is quite a high correlation between return shares value with movement of market return direction. In other words, share price in Indonesia is very influenced by the market

price. On hypothesis of agreed that in the CAPM, market factors as the only variables application descriptor positive influence to stock return. These findings support research Sharpe (1964), Lintner (1965), and Bismark (2009) that behavior of risk averse investors until rising market beta as a proxy from the systematic risk encourage investors to increase risks amount required as compensation for increase in the degree of risk facing. While coefficient size that proxy as small minus big (SMB) was 0.259 marked positive and *t value* is 3.691 with probability of 0.001 or smaller than 0.05. From results analysis indicates that in this research size (SMB) have positive and significant impact on stock return on significance of 0.05. These findings also indicates that small size companies to give return greater shares of big size companies. Second hypothesis, researchers attempt to test contribution of SMB and HML factors in addition to market excess return in influencing stock return. This is in line with the opinion and French (1993) which proves that market beta is not the only driving share price formation and then add firm size and book to market variables.

Positive HML coefficient means return shares with high book to market is greater stock return than company with low book to market so that produces premium value positive. In other words, share price formation on the LQ-45 in Indonesia is dominated by company with book to market high. Fama and French (1993, 1995, and 1996) stated that HML portfolio obtained from return portfolios shares in the company with high book to market who is share price undervalue reduced return portfolios with shares book to market low which is overvalue stocks. The more dominant shares with book to market value and high HML will be more so that will move share price to go up. On the contrary if the movement of share price with low book to market more dominant then HML value will be less so that share price will tend to go down. Thus book to market related positively with return.

Based on this research data above also found that RMW coefficient negative value of 0.180, it means return shares with high profitability (robust) is smaller than return of company with low profitability (Weak) so that produces premium value negative. In other words, share price formation on the LQ-45 in Indonesia is dominated by company with low profitability.

So also found that negative value of CMA coefficient of -0.036, which means return company shares which invest conservatively (conservative) is smaller than return of company invest aggressively (aggresive) so that produces premium value negative. In other words, share price formation on the LQ-45 in Indonesia dominated by company which invest aggressively.

F tests Fama regression model and French Three-Factors Pricing Model significant on α=0.05. With discovery of influence significant positive variables market excess return, SMB and HML, then the second hypothesis which stated that the Fama and French Three Factors Pricing Model, market factors excess return, SMB and HML influence positively significant to stock return could be demonstrated.

Fama and French (1993) stated that share price using Three Factors Pricing Model better than CAPM, but on development still needed factors that can better explain stock return. Fama and French (2014) shows that the value of excessive HML factors to illustrate on average return when profitability factors and investment has been added to equation. With discovery of influence significant positive variables market excess return, SMB, HML, RMW and CMA then the third hypothesis which stated that in Fama and French Five-Factors Pricing Model, market factors excess return, SMB, HML, RMW and CMA influence positively significant for supported return.

F tests regression model Fama and French Five-Factors Pricing Model significant on α=0.05. It was concluded that variables market excess return, SMB, HML, RMW and CMA, influence positively significant to stock return and thus the third hypothesis which stated that in Fama and French Five-Factors Pricing Model, market factors excess return, SMB, HML, RMW and CMA, influence positively significant to stock return could be demonstrated. Then Fama and French Five-Factors Pricing Model can be an alternative model in stock return estimation in Indonesia.

The implications, that is received by this research found that besides influenced factors market, then factor firm size, book to market, profitability and investment to contribute to the formation of share price in Indonesia. The three models of asset pricing model; Capital Asset Pricing Model, Three Factors Pricing Model, and Five Factors Pricing Model can be an alternative model estimates of price and stock return in Indonesia. At next hypothesis is used to determine asset pricing model to better perform stock return estimation. Pierre and Bartholdy (2004) method is used to determine model is better than the other models is to see R-Square and standard deviation values, it said haigh R-Square value and lower standart deviation value.

The test results showed it said goodness of Fit, R Square of CAPM is 0.83081 and value of standard deviation 0.01828. While Fama and French Three Factors Pricing Model has R Square of 0.90555 with standard deviation 0.01366. Fama and French Three Factors Pricing Model produces R Square higher, and also standard deviation lower than CAPM. So hypothesis can be accepted that Fama and French Three Factor Model Pricing System better to estimate expected return than Capital Asset Pricing Model. The next hypothesis compared to fit and proper test and standard deviation Fama and French Three Factor Pricing Model and Fama and French Five Factor Pricing Model. Test results Goodness of Fit Fama and French Five Factors Pricing

Model has R Square of 0.92135 and standard deviation of 0.01247. Fama and French Five Factor Pricing Model produces higher R Square and lower standard deviation value then Fama and French Three Factor Pricing Model. Then the hypothesis can be accepted that Fama and French Five Factor Pricing Model better in to estimated expected return than Fama and French Three Factor Pricing Model.

It said R Square value differences between CAPM and TFPM, around 7.47%, while between the TFPM and FFPM is 1.58%. Then simply can be seen not found significant differences between three asset pricing models. Test vary a residual between three models with using ANOVA Test. A Residual from the regression equation to represent deviation of actual return with return expectations specified model. Different tests produce standard deviation more small for CAPM model to FFPM, but margins are less than 1 percent. ANOVA table also shows *F count* of 0.252 smaller than *F table* or (0.252 < 3.0470), and the value of the significance of 0.778 (greater than α). It can be concluded that the differences between the three models not significant. Although based on the proper test model of Fama and French Three Factor Pricing Model has it said the R Square is greater than the CAPM and Fama and French Five Factor Pricing Model has it said the R Square is greater than the Fama and French Three Factor Pricing Model, but the three did not have ability to explain and have differences that are not significant.

VI. CONCLUSION

This research aims to test the influence of the risk premium, size and book to market equity, profitability and investment to return company shares LQ45 in Indonesia Stock Exchange (BEI) in January 2011 and December 2015 to test the performance of the three models of asset pricing system, namely Capital Asset Pricing Model, Fama and French Three-Factors Pricing Model, and Fama and French Five-Factors Pricing Model. Based test analysis result it can be concluded some things as follows:

1. The research finds that in addition to specified by the market risk, stock return in Indonesia was also influenced by factors size, book to market, profitability and investment factors. In accordance with the hypothesis was this research found that market risk factors affect significant positive for stock return. Firm size positive influence to stock return, marked with the SMB that positive coefficient value, stocks with small market capitalization tend to have return is higher than big market capitalization shares. Book to market a positive effect against stock return marked HML have a positive although less significant coefficient so that it can be concluded that stocks overvalue tend to produce return is higher than undervalue share price. Profitability negative effect to stock return , marked with RMW negative coefficient value, shares with robust profitability tend to have a return lower than the shares with low profitability. On the coefficient CMA factors have a negative coefficient value. It can thus be conclued that aggressive companies do tend to have investment return greater than company shares with conservatives in investment.
2. Based on the contribution of independent variables constructors, statistical Capital Asset Pricing Model, Fama and French Three Factors Pricing Model, and Fama and French Five Factors Pricing Model can explain return expectations of index LQ45 in Indonesia Stock Exchange.
3. R Square and standard deviation then French Three Factors Pricing Model is better than Capital Asset Pricing Model. And also the Fama and French Five Factors Pricing Model proved better than Fama and French Five Factors Pricing Model, by R Square or standards deviation values. But from the third model found differences that are not significant so that benefits from models in return expectations estimation shares in Indonesia still needs to be examined back.

This study found that although based on the proper test model of Fama and French Five Factors Pricing Model has R Square most larger than Capital Asset Pricing Model. Fama and French Three Factors Pricing Model, but the three model have differences that do not significantly. This means that Capital Asset Pricing Model, Fama and French Three Factors Pricing Model, and Fama and French Five Factors Pricing Model still have weakness of predict stock return. However, advice for investors is among the three asset pricing models, investors can use Fama and French Five Factors Pricing Model as a guide in stock return estimation. Suggestions for further research is still necessary to find another method to better help to investors estimate stock return and investment decision. In addition, need to be considered to use profitability calculations, outside operating profit, or use investment calculation outside total asset in determining factors profitability and investment to get a more significant impact on stock return expectations.

REFERENCES

[1]. Abdullah, Faisal. 2005. *"Dasar-dasar Manajemen Keuangan, Edisi Kedua"*. Cetakan Kelima, Malang. Universitas Muhammadiyah Malang Press.
[2]. Ang, Robert.1997. *"Buku Pintar Pasar Modal Indonesia"*.Jakarta:Media Staff Indonesia.
[3]. Badan Koordinasi Penanaman Modal. 2016. *"Lampaui Target, Realisasi Investasi 2015 Rp 545,4 T"*. Siaran Pers.
[4]. Banz, Rolf W., 1981. *"The relationship between return and market value of common stocks"*. Journal of Financial Economics 9, 3-18.

[5]. Bartholdy, J. dan Peare, P. 2005. *"Estimation of expected return: CAPM vs Fama and French"*. International Review of Financial Analysis, 14, 407-427.

[6]. Basu, S. 1977. *"Investment Performance Of Common Stocks In Relation To Their Price-Earnings Ratios: A Test Of The Efficient Market Hypothesis"*. Journal of Finance Volume 32, Pages 663–682.

[7]. Bello, Zakrie. 2008. *"A Statistical Comparison Of The Capm To The Fama-French Three Factor Model And The Cahart's Model"*. Global Journal Of Finance And Banking 2 (2), 14-24.

[8]. Bespoke Investment Group. 2016. *"Best performing global markets, Stock markets worldwide have either rallied significantly or sold off sharply in 2015"*. http://money.cnn.com/interactive/investing/best-performing-global-markets/. (Diakses 10 Juni 2016)

[9]. Biro Analisa Anggaran dan Pelaksanaan APBN-SETJEN DPR-RI. 2014. *Pertumbuhan Ekonomi Indonesia Tahun 2015 Dan Kinerja Tahun 2014*.Working Paper

[10]. Black, Fisher. 1972. *"Capital Market Equilibrium with Restricted Borrowing"*. Journal of Business 45, 444-455.

[11]. Black, Fischer., Michael C. Jensen, and Myron Scholes. 1972. *"The Capital Asset Pricing Model: Some Empirical Tests"*, pp. 79–121 in M. Jensen ed., Studies in the Theory of Capital Markets. New York: Praeger Publishers

[12]. Bodie, Z.; Kane, A.; Marcus, A. J. 2008. *"Investments (7th International ed.)"*. Boston: McGraw-Hill. p. 303. ISBN 0-07-125916-3.

[13]. Chan, K. C., Nai-fu Chen and David Hsieh, 1985. *"An exploratory investigation of the firm size effect"*. Journal of Financial Economics 14, 451-471.

[14]. Charitou A., and N. Vafeas. 1998. *"The Association of Earnings and Cash Flow Information with Dividend Changes: An Empirical Investigatio"*, Journal of Business, Finance and Accounting, 1998, Vol. 25, No. 1&2, January-March), pp. 225-249.

[15]. Damodaran, Aswath. 2002. *"Investment Valuation Tools and Techniques for Determining the Value of Any Asset"*. New Jersey: John Wiley & Sons, Inc.

[16]. Drew, Michael E., Tony Naughton, Madhu Veeraraghavan.2003 . *"Firm Size, Book-to-Market Equity and Security Returns: Evidence from the Shanghai Stock Exchange"*. Australian Journal of Management vol. 28 no. 2 119-139.

[17]. Elton, E.J, Gruber, M.J, 2003, *"Modern Portfolio Theory and Investment Analysis, Sixth Edition"*, John Wiley and Sons, Inc, p. 131-132.

[18]. Fama, E.F. dan French, R.F. 1992. *"The Cross-Section Of Expected Stock Returns"*. Journal of Finance 47, 427-465.

[19]. Fama, E.F. dan French, R.F. 1993. *"Common Risk Factors In The Returns On Stocks And Bonds"*. Journal of financial Economics 33, 3-56.

[20]. Fama, E.F. dan French, R.F. 1995. *"Size and Book to Market Factors in earning and Return"*. Journal of Finance 50 (1), 131-155.

[21]. Fama, E.F. dan French, R.F. 1996. *"Multifactors Explanations of Asset Pricing Anomalies"*. Journal of Finance 51(1), 55-83.

[22]. Fama, E.F. dan French, R.F. 1996. *"The CAPM is wanted, dead or alive".* The Journal of Finance 51, 1947-1958.

[23]. Fama, E.F. dan French, R.F. 2004. *"The Capital Asset Pricing Model: Theory And Evidence"*. Working Paper, University of Chicago.

[24]. Fama, E.F. dan French, R.F. 2015. *"A five-factor asset pricing model"*. Journal of Financial Economics 116 (2015) 1–22.

[25]. Fama, Eugene F., MacBeth, James D. 1973. *"Risk, Return, and Equilibrium: Empirical Tests"*. Journal of Political Economy. 81 (3): 607–636.

[26]. Ferdinand, Augusty. 2006. *"Metode Penelitian Manajemen"*. Badan Penerbit Universitas Diponegoro.

[27]. Forbes. 2015. *Best Countries for Business:Rangking 2015*. http://www.forbes.com/forbes/welcome/?toURL=http://www.forbes.com/best-countries-for-business/list/&refURL=http://www.copenhagencvb.com/copenhagen/forbes-denmark-once-again-best-country-business&referrer=http://www.copenhagencvb.com/copenhagen/ forbes-denmark-once-again-best-country-business. (Diakses 20 Juni 2016)

[28]. Gitman, J. 2009. *"Principles of Managerial Finance Fifth Edition"*. Prentice Hall.

[29]. Graham, J.R dan Harvey, C.R. 2001. *"The theory and practice of corporate finance: evidence from the field"*. Journal of Financial Economic 60, 187-24.

[30]. Gruodis,Dominykas., 2015. *"The Fama-French Five-Factor Asset Pricing Model for the Swedish Stock Market"*. Stockholm School of Economics MSc Thesis in Finance.

[31]. Hartono, J. 2008. *"Teori Portofolio dan Analisis Investasi"*. Edisi Kelima, Yogyakarta: BPFE.

[32]. Huang, Ayat Hidayat. 2016. "*Perbedaan Analisis Faktor Eksploratori dan Konfirmatori dengan SPSS"*. http://www.en.globalstatistik.com/perbedaan-analisis-faktor-eksploratori-dan-konfirmatori-dengan-spss/ (Diakses 3 Oktober 2016)

[33]. Indriantoro, Nur dan Bambang Supomo. 2001. *"Metodologi Penelitian Bisnis"*. Yogyakarta: BPFE

[34]. Irawan, Richard; Murhadi, Werner R. 2012. *"Analisis Pengaruh Three Factor Model dan Persentase Kepemilikan Asing terhadap Tingkat Return di Bursa Efek Indonesia"*. Jurnal Akuntansi. Surabaya: Universitas Surabaya.

[35]. Irsad, Moch and Sudiyatno, Bambang and Subagyo, Herry and Thesiana, Dhevi Ayuning ,2012. *"Studi Model Tiga Faktor Fama And French Dan Return Saham"*. Laporan Penelitian, Universitas STIKUBANK.

[36]. Jogiyanto, H.M. 2011. *"Metodologi Penelitian Bisnis, Edisi Keempat"*. BPFE. Yogyakarta.

[37]. Jogiyanto. 2003. *"Teori Portofolio dan Analisis Investasi, Edisi Ketiga"*, BPFE. Yogyakarta.

[38]. Jones, Charles P. 2004. *"Investments: Analysis and Management, eight edition"*, John Wiley & Sons, Inc.

[39]. Lintner, John. 1965. *"Security Prices, Risk, and Maximal Gains from Diversification"*. Journal of Finance 4, 587-615.

[40]. Lipsey, Richard (1997). *"Microeconomics, growth and political economy"*. Elgar. p. xiv and footnote 4, page xxxv.

[41]. Mardiyah, Aida Ainul. 2001. *"Pengaruh Asimetri Informasi dan Disclosure Terhadap Cost of Capital"*. Simposium Nasional Akuntansi V (2): 787-819.

[42]. Markowitz, Harry. 1952. *"Portfolio Selection"*. The Journal of Finance 1, 77-91.

[43]. Mossin, Jan. (1966). *"Equilibrium in a Capital Asset Market"*, Econometrica, Vol. 34, No. 4, pp. 768–783.

[44]. Nguyen, Nhu. , Numan Ulku dan Jin Zhang, 2015. *" Fama-French Five-Factor Model In Vietnam: New Evidence On State Ownership"*, University of Otago Dunedin, New Zealand

[45]. Pettengill G, Sudaram S, Mathur I, 1995. *"The Conditional Relation Between Beta and Returns"*, Journal of Finance Quant Anal, 30:101-116.

[46]. Reilly Frank K., Brown, Keith C., 2002. *"Investment Analysis and Portfolio Management. 7th Edition"*. Southwestern College.

[47]. Reinganum, Marc R. 1981. *"Misspecification of capital asset pricing: Empirical anomalies based on earnings' yields and market values"*, Journal of Financial Economics 9, March, 19-46.

[48]. Rosenberg B., K. Reid and R. Lanstein, 1985. *"Persuasive evidence of market inefficiency",*The Journal of Portfolio Management , 11, pp. 9 – 16.

[49]. Ross, Stephen (1976). *"The arbitrage theory of capital asset pricing"*. Journal of Economic Theory. 13 (3): 341–360.

[50]. Rudiyanto, 2015, *"Trivia : Negara Mana Yang Investasi Sahamnya Paling Menguntungkan 15 Tahun Terakhir?"*. http://rudiyanto.blog.kontan.co.id/2015/05/18/trivia-negara-mana-dengan-hasil-investasi-saham-paling-merugikan-15-tahun-terakhir/. (Diakses 12 Juni 2016)

[51]. Securato, R. dan Rogers, P. 2007. *"Comparative Study of CAPM, Fama and French Model, and Reward Beta Approach in The Brazilian Market".* Working Paper. University of Sao Paulo, 1-18.

[52]. Sharpe, William F. 1963. *"A Simplified Model for Portfolio Analysis".* Management Science. 9 (2): 277–93.

[53]. Sharpe, William F. 1964. "*Capital Asset Prices: A Theory Of Market Equilibrium Under Conditions Of Risk".* Journal of Finance 19, 425-442.

[54]. Stattman, Dennis. 1980. *"Book Values and Stock Returns.",* The Chicago MBA: A Journal of Selected Papers. 4, pp. 25–45

[55]. Sudiyatno, Bambang., Moch. Irsad, 2012. *"Study Of Three Factors Model Fama And French In Indonesia Stock Exchange (Study On The Stock Lq 45)"*. Vol 2, No 1 (2012) .

[56]. Suryana, Bambang Ongki. , 2006. *"Pengaruh Market, Size, dan Book-to-Market Ratio Terhadap Return Saham di Indonesia: Sektor Keuangan dan Perusahaan Investasi Periode Juli 1994 s/d Juni 2005"*. Jakarta Petra Christian University.

[57]. Susanti, Neneng. 2013. *"Pengujian Fama French Three Factor Model Pada Perusahaan Di Indonesia Yang Sahamnya Terdapat Di Lq 45 Tahun 2005 – 2009"*. Prosiding Seminar Nasional , ISBN: 978-602-17225-1-0

[58]. Tandelilin, Eduardus dan Karambe. 2003. *"Validitas CAPM di Bursa Efek Indonesia"*. Jurnal Ekonomi dan Bisnis Indonesia, 261-268.

[59]. Tandelilin, Eduardus. 2010. *"Portofolio dan Investasi Teori dan Aplikasi. Edisi pertama"*. Yogyakarta : Kanisius

[60]. The World Bank. 2014. *"Indonesia:Menghindari Perangkap"*. Kajian Kebijakan Pembangunan 2014

[61]. The World Bank. 2015.*"Laporan Triwulanan Perekonomian Indonesia, Juli 2015: Maju Perlahan*". http://www.worldbank.org/in/news/feature/2015/07/08/indonesia-economic-quarterly-july-2015 (Diakses 19 Juni 2016)

[62]. Tjiptono, Fandy. 2001. *"Kualitas Jasa: Pengukuran, Keterbatasan dan Implikasi Manajerial"* Majalah Manajemen Usahawan Indonesia", Jakarta.

[63]. Van Horne, James C. , John Martin Wachowicz. 2005. *"Fundamentals of Financial Management, 12th Edition "*, Financial Times Prentice Hall.

[64]. Warsono, 2003, *"Manajemen Keuangan Perusahaan, Jilid Satu"*, edisi ketiga, penerbit Bayu Media, Jakarta.

[65]. Yuningsih, Isna., Rizky Yudaruddin, 2007. *"Pengaruh Model Tiga Faktor Terhadap Return Saham".* Akuntabilitas, September, Hal. 79-84.

[66]. Zubir, Zalmi. 2013. *"Manajemen Portofolio: Penerapannya dalam Investasi Saham"*. Jakarta: Salemba Empat.

Said Djamaluddin . "Fama and French Five-Factors Pricing Model Testing in Indonesia." International Journal of Business and Management Invention(IJBMI), vol. 6, no 9.PP 75- 90.