

ANALYSIS OF FAMA-FRENCH THREE FACTOR MODEL ON ITS INFLUENCE TOWARDS STOCK RETURN ON PROPERTY, REAL ESTATE, AND BUILDING CONSTRUCTION COMPANIES IN INDONESIA STOCK EXCHANGE ON 2014-2017

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ABSTRAK

Tujuan penelitian ini untuk membuktikan model penilaian aset yang di formulasikan oleh Fama dan French (1996) dengan mengkombinasikan faktor size dan book to market equity (BE/ME) dengan faktor premi risiko (beta) pada capital asset pricing model (CAPM) yang diformulasikan oleh Sharpe (1964), Lintner (1965), dan Black (1972) dan mengimplementasikannya pada perusahaan sektor property, real estate, dan konstruksi bangunan di Bursa Efek Indonesia pada periode 2014-2017.

Penelitian ini mengadaptasi dari metode Fama-French yang menggunakan variabel size dan book to market equity (BE/ME) lalu membentuk portofolio berdasar data return historis, kapitalisasi pasar, dan book value. Metode yang diusulkan menawarkan para investor untuk membangun strategi portofolio yang optimal, dan juga memberikan pandangan lain untuk manajer portofolio agar dapat meningkatkan return saham dengan menginvestasikannya pada perusahaan yang berkapitalisasi kecil.

Hasil yang diperoleh menunjukkan kekuatan dalam menjelaskan Fama-French Three Factor Model hanya berlaku secara signifikan pada premi risiko (beta) dan book to market equity (BE/ME), namun tidak pada size.

Kata Kunci: Capital Asset Pricing Model, Fama-French Three Factor Model, Portofolio, Return Saham

INTRODUCTION

According to Todaro (2005) economic growth is an output increasing process from time to another time, it become one important indicator to measure how successful the development of a country is. Therefore, identification from various influence factors including government role become interesting to study more deeply. Economic growth only influenced by capital stock, labor, and exogenous technology. The government is able to influence population growth that effected the availability of labor but it give no impact to economic growth. (Ma'ruf and Wihastuti, 2008)

The condition of global economic until quarter II year 2017 increased. This was caused by the economic condition of both developed country and developing country generally getting better. (Central Bureau of Statistic, 2017).

International Monetary Fund (IMF) estimated the economic growth of Indonesia in 2018 reach out to 5,3 percent, one of the strongest causes is export and investation contribution has increased. (Arifin, 2017).

This time, Indonesia is working on MRT and LRT projects and will finished the projects by 2019, it become a couragement in construction and investation as written in Bank of Indonesia data. Surely, all the investors would not miss the chance to participate on giving funds to the projects, because the projects are quite big. An increasingly rapid economy requires investors to make the right investment, so that the rate of return which is the main goal of each investor can be achieved in accordance with what has been targeted. Every investment must first look at factors of economic conditions and factors things that affect the economic conditions themselves, as well as the condition of the company or organization that will be used as a place to invest funds. (Sutisman, 2013).

Portfolio analysis is very important for every investment because it can be used as a basis for diversifying shares so that it can produce an efficient composition which produce maximum expected return at the level of risk or minimal risk level that produces a certain return.

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Investors invest their capital by buying shares of companies that have gone public. Investors sometimes find it difficult to predict which stocks will make big profits with little risk. Calculate the level of profit with the risk of securities. The method used is to use the Capital Asset Pricing Model (CAPM) method. The CAPM method describes the balance between the level of systematic risk and the level of profit required by portfolio securities. The purpose of using CAPM is to provide precise predictions about the relationship between the risk of an asset and the expected return, also determine the price of an asset. Therefore the CAPM can be used to estimate the benefits of a security that is considered very important. The use of the CAPM concept is based on the assumption that the capital market is efficient, that all assets can be divided perfectly and can be traded at any time, meaning that investors can buy and sell shares at any time. (Hidayati, 2014).

In 1992 an economist named Eugene Fama and his colleague Kenneth French suggested another factor in evaluating stock returns in companies other than market risk (beta), that are size effect and value effect. The size effect refers to small-cap stock and large-cap stock where these factors will determine which level of return is greater, then there is a value effect that refers to companies that have high to book market ratio and low to book market ratio. Fama & French uses three factors that explain the stock portfolio return that made based on the size of the company and book to market equity. As described by Miller (1999) that Fama & French suggested that companies with high book to market equity (value stocks) provided higher returns compared to low book to market equity (growth stocks) in 12 capital markets, and companies with small stocks provide higher returns than large stocks in 11 capital markets. Fama and French believe that these three independent return dimensions will give more accurate expected return compared to the previous pricing model which is considered not always giving concrete results. It has also been proven by observations of companies in America to reflect portfolio exposure with positive results.

Fama and French (1992) studied the combined role of beta, size, E/P, leverage, and book to market equity in a cross-section on average stock returns. They find that without or in combination with other variables, beta (the slope in stock return regression on market returns) has less information about average returns. If it combined, size and book to market equity (BE / ME) seems explained a clear role of leverage and E/P in average returns. Research by Fama and French (1992) on NYSE, Amex, and NASDAQ for the 1963 to 1990 resulted two variables that were empirically determined, which was size and book to market equity, explaining the cross-section of average returns NYSE, Amex, and NASDAQ well.

1.1 Research Problems

Over the past two decades, economic and financial experts have documented many anomalies in finance. One of the anomalies that has been researched a lot is about the Capital Asset Pricing Model (CAPM). CAPM was initiated by Sharpe (1964) and Lintner (1965). CAPM is widely used to calculating capital costs and evaluating portfolio performance. Unfortunately, many empirical studies show that the CAPM cannot explain returns (Fama & French, 1995). Fama-French 3 Factor Model includes other factors, they are firm size and book to market equity ratio, which are considered to be able to predict expected return accurately.

1.2 Formulation of the Problems

Based on the background of the problems that have been described, the main issues in this study are as follows:

1. In the Fama-French 3 Factor Model, does risk premium factor (beta) has a positive effect on the expected return?
2. In the Fama-French 3 Factor Model, does premium size factor (SMB) have a positive effect on the expected return?
3. In the Fama-French 3 Factor Model, does book to market equity ratio / value premium (HML) has a positive effect on the expected return?

THEORITICAL BASIS

A study by Fama and French (1993) describes a comparison between traditional asset pricing models that has been applied for years known as the CAPM with Fama and French Three

Factor Models. They argue that the CAPM which only uses market factors as a whole is not better than the Fama and French Three Factor Models in which this model uses three variables.

2.1 Efficient Market Hypothesis (EMH)

EMH (Efficient Market Hypothesis) is an investment theory which states that it is impossible for investors to be able to "beat the market" because the efficiency of the stock market will cause the existing stock price to combine and reflect all relevant information. According to EMH, stocks are always traded in fair value on the stock exchange, making it impossible for investors to buy shares that are undervalued or sell shares at a high prices. Thus, it is not possible to outperform the entire market through expert stock selection or market timing, and the only way for investors to obtain higher returns is to buy risky investments (Efficient Market Hypothesis, 2017).

Research by (Fama, 1970) reviewed theoretical and empirical literature on Efficient Market Models (EMH), he proposed two concepts that have been used in efficient markets. First, Fama (1970) suggests that there are three types of efficiency:

1. Strong Form

This form involves all information, including personal or unpublished information, published information, and historical information and then put it in a price trend. This form can be related to whether investors or certain groups can have monopolistic access to any relevant information in the price formation review. In this form there is no investor who can get an abnormal return (excess return)

2. Semi-strong Form

Forms that reflect historical information and also published information. In this form all public information is listed in the company's announcement or annual report but what needs to be considered according to Fama (1969) is the consideration of whether prices can adjust the public information efficiently and also that information is absorbed or responded quickly by the market.

3. Weak Form

In this form, the price is set as a predictable historical price from the historical price trend. Therefore, historical information can no longer be used to predict future price changes, because it has been reflected in current prices. (Tandelilin, 2010, p. 221-224).

2.2 Signaling Theory

Signaling theory appears largely consistent with their advocacy of greater disclosure. It is posted in signaling theory that firms with undisclosed "good news" information attempt to distinguish themselves from firms not having "good news" by informing the market of their situations. The market, in turn rewards these firms by favorable price effects on their securities. The nondisclosing firms that are assumed to have "bad news" are then subject to price declines. Signaling theory is generally consistent with the semistrong form of the efficient market hypothesis. Forms of signaling include dividends and stock repurchases as well as specific accounting disclosure. Dividends and stock repurchases require cash outflows, but they protect against the dispensing of important proprietary information, of course prefers disclosure of information relative to new products, research and development, and capital budgeting programs.

Economic incentives to report (even bad news) are the core of argument signaling theory for voluntary financial reporting. There is asymmetry information between companies and insiders. because insiders know more about the company and its future prospects than outsiders (investors). Given the information uncertainty situation, outsiders protect themselves by offering a lower price to the company. However, the value of the company can be increased if the company voluntarily reports or provides credible personal information about the company and this will reduce the uncertainty of outsiders about the company's future prospects. (Wolk et al., 2016, p. 254)

2.3 Fama-French Three Factor Model

A study by Fama and French (1993) describes a comparison between traditional asset pricing models and has been applied for years known as the CAPM with Fama-French Three Factor Models. They argue that the CAPM that only uses market factors as a whole is no better than the Fama and French Three Factor Models in which this model uses three variables.

Fama and French (1992), developed a stock pricing model by combining CAPM and APT. According to Fama and French (1992), that stock beta as an indicator of market risk is unable to explain stock returns, while size and book-to-market ratio (B / M ratio) are more capable. In subsequent developments, Fama and French (1996) expanded the CAPM model by adding firm size and book to market ratio (B / M) factors to market risk factors in the CAPM.

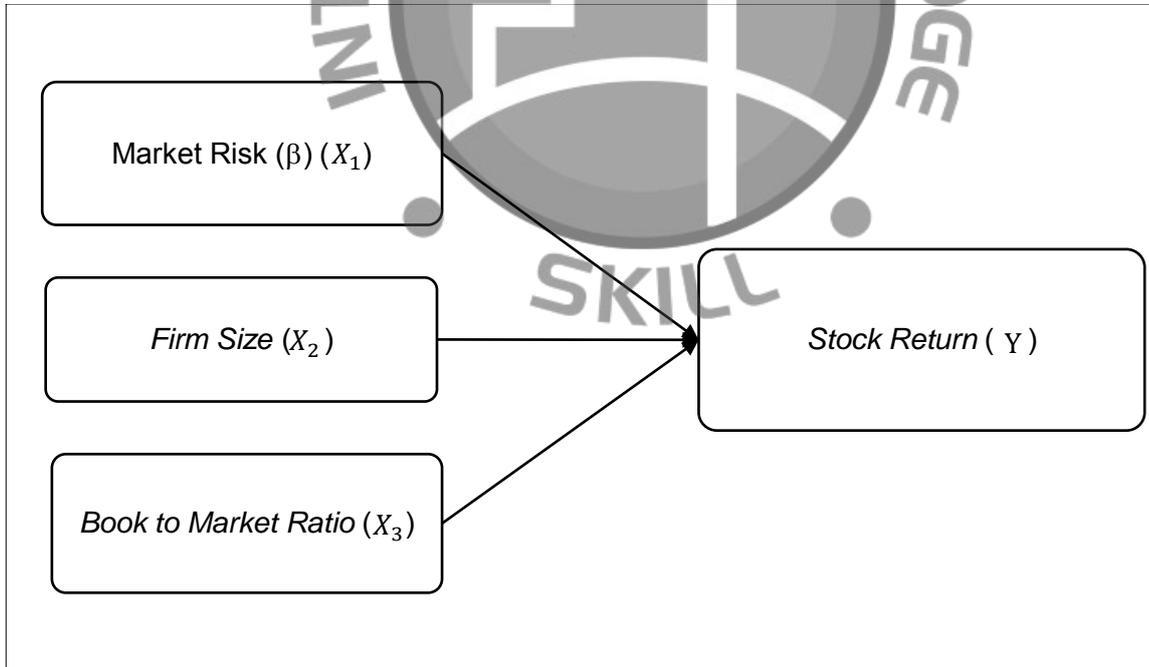
Fama and French developed the CAPM in a Three Factor Model to accumulate empirical evidence that the CAPM is not good enough in analyzing risk relations with returns. They added two risk factors, there are size and book to market equity (BE/ME). Both of them have a significant relationship with returns. Fama and French emphasized that this model has better capabilities than CAPM. Firm size can be an indicator of negligence risk and book to market can be an indicator for the company's relative prospects (Rakhmawati, 2015). Here are the Fama-French Three Factor Model equations formulated by Fama and French (1992):

$$R_{(t)} - R_{f(t)} = \alpha + b [R_{M(t)} - R_{f(t)}] + s [SMB_{(t)}] + h [HML_{(t)}] + \varepsilon_{(t)}$$

- $R_{(t)} - R_{f(t)}$ = Excess Return
- $R_{M(t)} - R_{f(t)}$ = Premi Risiko
- $SMB_{(t)}$ = Small Minus Big (Market Capitalization)
- $HML_{(t)}$ = High Minus Low (Book to Market Equity)
- α = Constant
- b, s, h = Stock regression coefficient on market beta, SMB, HML
- $\varepsilon_{(t)}$ = Error term

2.4 Thinking Framework

Based on the existing problems and theories that have been described previously, a thinking framework can be made regarding the analysis of the effect of market risk, size, and book to market ratio on stock returns.



Source: Processed by The Author (2018)

Picture 1
Thinking Framework

2.4.1 Influence between Market Risk Premium (β) and Stock Return

Stock returns of a securities have a positive relationship to market risk premiums (β). The rational choice theory supports the relationship, where an investor or prospective investor will certainly pay attention to actions related to the stock market, it is beta to make a rational decision to obtain profit (Septiani and Supadmi, 2014).

H_{01} : Market risk premium (β) does not have a positive effect on the company's Stock Return.

H_{a1} : Market risk premium (β) has a positive effect on the company's Stock Return.

2.4.2 Influence between Market Capitalization and Stock Return

Size or size of the company is one indicator that can positively influence the level of stock returns because each company has a large or small market capitalization so that it will affect the profits that can be obtained by the company. This study symbolizes the variable size with Big Minus Big (SMB) which will act as a value added in historical returns which will later become a consideration for investors. Small companies have a tendency to have a higher rate of return compared to other large companies.

H_{02} : Size does not have a positive effect on the company's Stock Return.

H_{a2} : Size has a positive effect on the company's Stock Return.

2.4.3 Influence between Book to Market Equity (BE / ME) and Stock Return

Book to market equity (BE / ME) has a positive relationship in influencing stock returns. Book to market equity is a comparison of the book value of a company with its market value. This study symbolizes the variable book to market equity with High Minus Low (HML). This reflects the existence of financial distress in a company and is believed to provide a higher risk.

H_{03} : Book to market ratio does not have a positive effect on the company's Stock Return.

H_{a3} : Book to market ratio has a positive effect on the company's Stock Return.

RESEARCH METHODOLOGY

3.1 Research Objects

The objects in this study are property, real estate and building construction companies in the Indonesia Stock Exchange in 2014-2017. Based on purposive sampling, the number of observations are 45 listed companies.

3.2 Population and Sample

The population used as objects in this study are the property, real estate, and building construction companies in the Indonesia Stock Exchange in 2014-2017. Samples in this study has the following criteria:

1. Listed as a property, real estate, and building construction company in the Indonesia Stock Exchange in 2014-2017.
2. Property, real estate and building construction companies that publish monthly financial reports on the Indonesia Stock Exchange website during the period.
3. Provide book value data in the financial statements.
4. Provide stock return data from 2014-2017.

Based on the purposive sampling method with the criteria mentioned above, there are 45 real estate and building construction companies that listed on the Indonesia Stock Exchange in 2014-2017.

3.3 Analysis of Multiple Regression

To test the hypothesis of the independent variable on the excess return is used a multiple regression analysis model. The form of the model is as follows:

$$R_{(t)} - R_{f(t)} = \alpha + b [R_{M(t)} - R_{f(t)}] + s [SMB_{(t)}] + h [HML_{(t)}] + \varepsilon_{(t)}$$

Where:

$R_{(t)}$ = Historical stock return

$R_{f(t)}$ = Return of historical risk-free assets
 α = Constant
 b = Market beta or regression coefficient
 $R_{M(t)}$ = Return or historical market profit
 s = Regression coefficient of stock i to return SMB
 h = Regression coefficient of stock i to return HML
 $SMB_{(t)}$ = Small Minus Big, it is the difference between the return of a small stock portfolio with a large stock portfolio
 $HML_{(t)}$ = High Minus Low, it is the difference between the return of the stock portfolio and the high BE/ME with a stock portfolio with a low BE/ME.
 $\varepsilon_{(t)}$ = Error term
 t = Time regression

3.4 Data Analysis Methods

The analysis technique in this study is using a multiple linear regression analysis with Eviews 10. The method is used to determine the relationship between each independent variable to the dependent variable. The process of forming a portfolio S/L, S/M, S/H, B/L, B/M, B/H are as follows:

3.4.1 Market Risk (β)

Market risk premiums can be defined as the difference between the average per month of the IDX Composite with a monthly risk free rate. Market risk premium can be obtained from historical data (Sudiyatno and Irsad, 2010). Calculation of the risk premium variable uses historical data of the IDX Composite with the following calculations:

$$\text{Market Risk } (\beta) = \frac{(P_t - P_{t-1})}{P_{t-1}}$$

Where:

P_t = IDX Composite t
 P_{t-1} = IDX Composite $t-1$

3.4.1 Size (Market Capitalization)

$SMB = (\text{Monthly average return } S/L + S/M + S/H) - (\text{Monthly average return } B/L + B/M + B/H)$

Where:

SMB = (Small Minus Big) the difference between monthly average return of small companies and big companies.

S/L = Small portfolio divided by low book to market equity

S/M = Small portfolio divided by medium book to market equity

S/H = Small portfolio divided by high book to market equity

B/L = Big portfolio divided by low book to market equity

B/M = Big portfolio divided by medium book to market equity

B/H = Big portfolio divided by high book to market equity

The steps in establishing the SMB portfolio are:

1. Determine large and small size companies using total market equity.

Total market equity = The number of shares outstanding in a company in a given year multiplied by the stock price in a company in a given year.

2. Total market equity = the average of all companies in a given year

3. Determine the middle value to categorize large and small companies by dividing into two groups, 50% of shares with small (S) market capitalization and 50% of shares with big (B) market capitalization.

3.4.2 Book to Market Equity (BE/ME)

$$\text{HML} = (\text{Monthly average return S/H+B/H}) - (\text{Monthly average return S/L+B/L})$$

Where:

HML = (High Minus Low) the difference between monthly average return of high book to market ratio and low book to market ratio

S/H = Small portfolio divided by high book to market equity

B/H = Big portfolio divided by high book to market equity

S/L = Small portfolio divided by low book to market equity

B/L = Big portfolio divided by low book to market equity

The steps in establishing the SMB portfolio are:

1. Determine the company with high, medium, and high book to market ratio
Book value = Shareholder's Equity / number of shares outstanding
Book to market equity = book value / stock price
2. Book to market equity is sorted from the smallest to the largest
3. Determine the low, medium and high with the number of observations in a given year, bottom 30%, median 40%, and top 30%.

After the position of each company is determined based on market capitalization and book to market equity, then the next procedure is to classify the results of the market capitalization sequence and book to market equity into the following portfolio:

- a. S/L = A stock portfolio with small (S) sized company and low (L) book to market ratio
- b. S/M = A stock portfolio with small (S) sized company and medium (M) book to market ratio
- c. S/H = A stock portfolio with small (S) sized company and high (H) book to market ratio
- d. B/L = A stock portfolio with big (B) sized company and low (L) book to market ratio
- e. B/M = A stock portfolio with big (B) sized company and medium (M) book to market ratio
- f. B/H = A portfolio of shares with big (B) sized company and high (H) book to market ratio

ANALYSIS AND DISCUSSION

4.1 Portfolio Formation

Table 1
Number of Companies in the Portfolio Forms

Year	Month	S/L	S/M	S/H	B/L	B/M	B/H	Total
2014	January	6	6	10	11	9	3	45
	February	4	6	9	16	8	2	45
	March	4	8	8	17	6	2	45
	April	4	5	11	15	8	2	45
	May	4	6	10	14	9	2	45
	June	5	6	10	12	10	2	45
	July	4	7	9	15	9	1	45
	August	3	8	8	15	10	1	45
	September	5	6	8	14	11	1	45
	October	5	6	8	14	11	1	45
	November	5	6	8	12	13	1	45
	Desember	4	6	8	13	13	1	45
2015	January	4	6	8	17	9	1	45
	February	3	6	8	20	7	1	45
	March	3	5	9	18	9	1	45
	April	5	5	9	12	13	1	45
	May	4	6	9	12	13	1	45

Year	Month	S/L	S/M	S/H	B/L	B/M	B/H	Total
2015	June	4	6	9	12	13	1	45
	July	4	8	8	10	14	1	45
	August	4	10	8	9	12	2	45
	September	4	7	11	8	13	2	45
	October	4	8	11	9	12	1	45
	November	4	6	13	9	11	2	45
	Desember	4	7	12	9	12	1	45
2016	January	4	8	12	9	11	1	45
	February	4	8	11	9	11	2	45
	March	4	9	9	8	13	2	45
	April	4	9	9	8	12	3	45
	May	4	6	11	8	12	4	45
	June	3	6	11	9	13	3	45
	July	2	7	11	9	13	3	45
	August	2	8	11	9	12	3	45
	September	2	7	12	9	11	4	45
	October	1	8	11	8	13	4	45
	November	0	8	13	9	10	5	45
	Desember	1	4	16	9	11	4	45
2017	January	1	9	11	9	10	5	45
	February	1	8	11	9	10	6	45
	March	1	9	11	7	12	5	45
	April	1	8	11	7	13	5	45
	May	1	8	12	7	11	6	45
	June	1	9	11	7	11	6	45
	July	2	7	12	6	12	6	45
	August	1	7	12	7	11	7	45
	September	1	7	12	7	11	7	45
	October	2	7	12	6	10	8	45
	November	2	7	13	6	11	6	45
	Desember	2	5	17	6	10	5	45
	Average		3	7	11	10	11	3

Source: The Data is processed by The Author (2018)

Table 1 above shows portfolio of 45 companies. Small sized companies with high book to market ratio (S/H) and companies with big sized with medium book to market ratio (B/M) has the highest average value, that is 11. It means that the highest number of property, real estate and building construction companies in 2014-2017 is in the S/H and B/M portfolios. Whereas small sized companies with low book to market ratio (S/L) and big sized companies with high book to market ratio (B/H) has the lowest average value, that is 3. It means that in property, real estate, and building construction companies in 2014-2017 has the lowest S/L and B/H portfolios.

Table 2
Descriptive Statistics

	Excess Return	Market Risk	SMB	HML
Mean	0,002794	-0,068445	-10,20996	-23,97414
Maximum	0,105954	0,002693	-6,905300	-16,65545
Minimum	-0,116545	-0,152425	-15,07506	-29,29585
Std. Dev	0,043968	0,032341	1,752509	2.843338
Observations	48	48	48	48

Source: The Data is processed by The Author (2018)

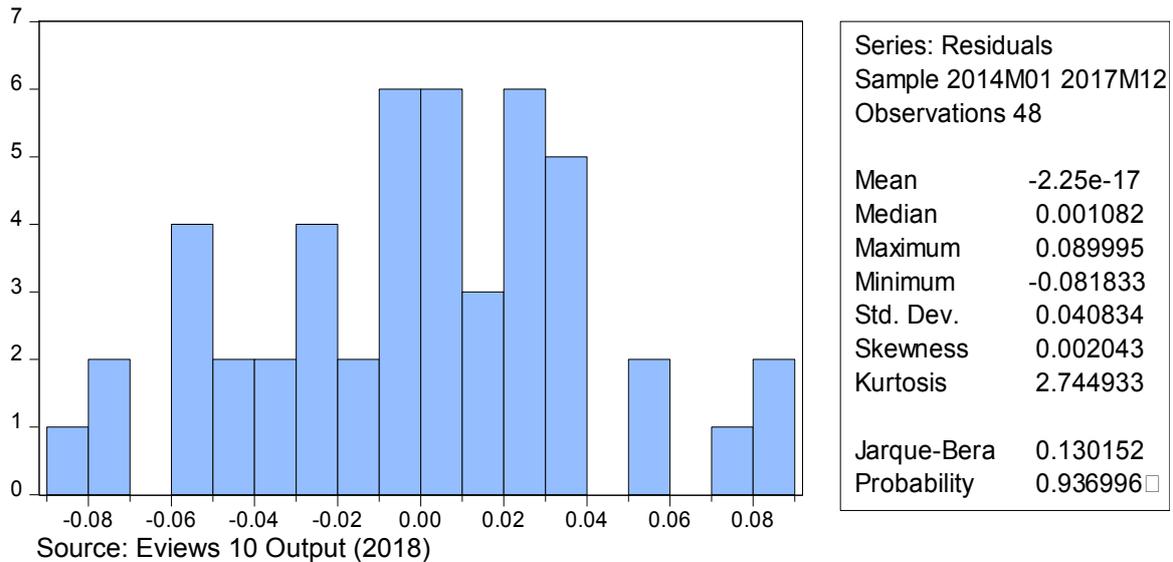
Table 2 is the result of descriptive statistics for 48 months. The dependent variable in this study is stock return. Stock return variable is proxied by the excess return value ($R_i - R_f$) on the Fama-French Three Factor Model. Based on the results of descriptive statistics in Table 2 above, it is known that the property, real estate, and building construction companies have an average (mean) excess return are 0.002794 in 2014-2017 which means the tendency of excess return values from all samples are at the number 0.002794. The maximum value of 0.105954 in July 2014 which coincided with the start of Mass Rapid Transit (MRT) construction commissioned by the government, the minimum value of -0.116545 in August 2015 may be caused by property companies that experienced outperform between 2014 and 2017 (Kontan Financial News, 2017), and the standard deviation value that shows the spread of excess return data is 0.043968.

Risk premium is the difference from the average monthly return of the IDX Composite with monthly risk free rate. It can be seen from Table 2, that the risk premium has a minimum value of -0.152425 indicating that the IDX Composite has the lowest average return value in March 2015 and the maximum value of 0.002693 shows the lowest weighted return value of the IDX Composite is in November 2017, the mean value of the risk premium are -0.068445 which means the trend of the value of market return are at the point -0.068445 and the standard deviation value shows the spread of risk premium data of 0.032341.

The size variable of this study is proxied by small minus big (SMB) by calculating the market capitalization value, the market capitalization value is obtained by stock price (close price) multiplied by the number of outstanding shares. Based on Table 2, it is explained that the minimum value of the SMB variable is -15.07506 means that from the 45 sample companies, the majority were in the high market capitalization category in February 2015 and the maximum value is -6.905300. The mean value of the size variable are -10.20996 indicating the tendency of the SMB value from the sample companies are at the point -10.20996 and the data distribution of the SMB variable is 1.752509.

Book to Market Equity is a book value of a company divided by its close price and is proxied by a high minus low (HML). Book to market equity has a minimum value at -29.29585, which means that the majority of property, real estate and building construction companies have a low book to market equity (Low BE/ME) value in September 2017 and a maximum value at -1,362725. The mean value are -23.97414 shows that the tendency of the HML value of the sample companies are at the point -23.97414 and the standard deviation shows the spread of data is 2.843338.

4.2 Normality Test



Picture 2
Normality Test Results

H_0 = Residuals are normally distributed

H_1 = Residual are not normally distributed

Normality test is needed to know whether the data distribution is normal or not. In this study the normality test used the Jarque-Bera test (JB test). The analysis results show that the value of the probability is 0.936996. Data distribution is normal if the probability value $> \alpha$, the significance level that is used is 5%. On the output above the probability value is $0.936996 > 0.05$, thus H_0 cannot be rejected, which means the distribution of residual data used in this study is normal or qualify the assumption of normality.

4.3 The Classical Assumptions Test

4.3.1 Multicollinearity Test

Table 3
Multicollinearity Test Results

	Market Risk	SMB	HML
Market Risk	1.000000	0.162730	0.073005
SMB	0.162730	1.000000	0.334746
HML	0.073005	0.334746	1.000000

Source: Eviews 10 Output (2018)

Multicollinearity test aims to determine a correlation between independent variables. In this study, multicollinearity test uses a correlation matrix. If the correlation value between variables exceeds 0.90, then there are symptoms of multicollinearity (Wiyono, 2011). Based on the results of all the independent variables in this study, the value of the correlation between the market risk and SMB is 0.162730, the correlation value between the market risk and HML is 0.073005, the correlation value between the SMB and HML is 0.334746. All values of the correlation between each variables above are less than 0.90, so there is no multicollinearity.

4.3.2 Heteroskedasticity Test

Tabel 4
Heteroskedasticity Test Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.769690	Prob. F(3,44)	0.1669
Obs*R-squared	5.168124	Prob. Chi-Square(3)	0.1599

Source: Eviews 10 Output (2018)

H_0 : There are no heteroskedasticity occurs

H_1 : There are heteroskedasticity occurs

Heteroscedasticity test shows the existence of variance inequality from residuals for all observations in the regression model (Wiyono, 2011). This study is using Breusch-Pagan-Godfrey method. The results of Prob. Chi-Square(3) on Obs*Squared is $0.1599 > 0.05$. Thus H_0 cannot be rejected, which means that there is no heteroskedasticity occurs or also called homoskedasticity.

4.3.3 Autocorrelation Test

Table 5
Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	1.432639	Prob. F(2,42)	0.2501
Obs*R-squared	3.065474	Prob. Chi-Square(2)	0.2159

Source: Eviews 10 Output (2018)

H_0 : There are no autocorrelation occurs

H_1 : There are autocorrelation occurs

Autocorrelation test is to determine a correlation among all variables in this study. This study is using Breusch-Godfrey Serial Correlation LM Test. The results of Prob. Chi-square(2) on Obs*Squared is $0.2159 > 0.05$. Thus H_0 cannot be rejected, which means that there is no autocorrelation occurs.

4.4 Analysis Results

The results of the Ordinary Least Square (OLS) regression analysis generated multiple linear regression equations as follows:

$$R_i - R_f = 0,087527 + 0,382636 (R_m - R_f) - 0,003515 \text{ SMB} + 0,003939 \text{ HML}$$

(0,0536)
(0,3561)
(0,0936)

Adjusted R-squared : 0,078659

Prob(F-statistic) : 0,086591

4.5 t-Test

4.5.1 Influence between Market Risk (β) and Excess Return

Based on the results of partial analysis (t test) that the market risk regression coefficient is 0.382636 and the probability is 0.0536. Thus, it can be concluded that H_0 is rejected, which means that the market risk has a significantly positive influence on stock returns at 10% significance level. The higher the risk premium, the higher the return, and vice versa.

4.5.2 Influence between SMB (Small Minus Big) and Excess Return

Based on the results of t test analysis that SMB (Small minus big) regression coefficient is -0.003515 and the probability is 0.3561. So that it can be concluded that H_0 cannot be rejected. A negative sign on the coefficient of the variable SMB (Small minus big) shows a negative influence on stock returns but not significant at 10% significance level. Thus, the higher the market capitalization of a company, the smaller the return, and vice versa.

4.5.3 Influence between HML (High Minus Low) and Excess Return

Based on the results of t test analysis that HML (High Minus Low) regression coefficient is 0.003939 and the probability is 0.0936. So it can be concluded that H_0 is rejected which means that the HML (High Minus Low) variable has a significantly positive influence on stock returns at 10% significance level. Thus, the higher the book to market equity (BE / ME), the higher the return, and vice versa.

4.6 The Adjusted R^2

The Adjusted R^2 is one of the statistical values that can be used to measure how far the model is able to reflect dependent variables and independent variables connection the regression equation. Based on the results, the coefficient of Adjusted R^2 is 0.078659, it shows that the market risk, SMB (Small minus big), and HML (High Minus Low) can explain its influence on stock returns 7,86%, while the rest 92.14% is explained by other variables that is not used in this research model. Other variables can be an external or internal factors, such as momentum, profitability, and others. This study only uses 3 factors formulated by Eugene Fama and Kenneth French (1992) there are market risk, the size of the company, and book to market ratio (BE / ME).

4.7 Managerial Implications

Based on the results of the analysis and discussion about "Fama-French Three Factor Analysis Model in Affecting Stock Return on Property, Real Estate, and Building Construction Companies in the Indonesia Stock Exchange in 2014-2017". Hypothesis testing is done by looking at the results of the calculation of t_{Statistic} values and probabilities. Based on the results of the t test it can be explained as follows:

4.7.1 Influence between Market Risk (β) and Excess Return

The risk premium coefficient is 0.087527 and the probability 0.0536 there is a significantly positive effect on stock returns at a significance level of 10%. Risk premiums on market portfolios reflect the size of the risk, Investors are more concerned with risk as a more accurate factor to predict stock returns. A positive coefficient means that if the risk premium is higher, then the risk faced by investors is high so that the stock returns will be high, and vice versa. Therefore, the positive relationship that occurs is because the higher the risk the higher stock return will be. This supports the concept of the Capital Asset Pricing Model (CAPM). Mass Rapid Transit (MRT) development planning existed before 2014, but at the end of 2017 companies engaged in property, real estate, and building construction experienced a negative growth of 4.3% due to the government's assignment to build Mass Rapid Transit (MRT) transportation that causes pressure on stock prices and triggers the decline in the prospects of the company's performance in the short term, even so with the completion of the project, the property, real estate and building construction companies will get high earnings, of course it will be an opportunity despite all the risks during development but in the long run these companies will provide benefits for investors. The results of this research are consistent with the results of research by Fama & French (1995), Sudyatno & Irsad (2011), Pasaribu (2009), Trimech et al. (2009), who found that the risk premium had a significantly positive effect on stock returns.

4.7.2 Influence between SMB (Small Minus Big) and Excess Return

The size coefficient proxied by SMB (Small Minus Big) is -0.003515 and the probability 0.3561. The results of this analysis indicate that in this study size (SMB) does not have a positive

effect but not significant on stock returns at a significance level of 10%. The coefficient value of SMB (Small Minus Big) which is negative indicates that the tendency of the influence of SMB (Small minus big) variables on stock returns are opposite. Size relates to the level of profitability (Fama, 1993). Companies with small capitalization tend to have low income, this makes small capitalization companies have a high risk compared to companies with large capitalization. Companies with a low level of profitability certainly trigger investor concerns, but the insignificance of the market capitalization value on stock returns indicates that investors do not use the size indicator as an investment decision making but rather consider the market risk factor. This is because investors prioritize capital gains rather than dividend yield (Sudiyatno and Irsad, 2011). The results of this study are not in suitable with the results of research conducted by Fama & French (1995), Nartea et al. (2009), Bhatnagar et al. (2012), who found that SMB had a positive effect on stock returns. But the results of this study are in accordance with the research of Bambang and Sudiyatno (2011) and Rakhmawati (2015).

4.7.3 Influence between HML (High Minus Low) and Excess Return

The book to market equity (BE/ME) coefficient proxied by HML (High Minus Low) is 0.003939 and the probability 0.0936 indicates there is a significantly positive influence on stock returns at the level of significance of 10 %. The negative coefficient indicates that the HML (High Minus Low) variable has a same direct relationship with stock returns. If the book to market equity (BE / ME) rises, then the stock return will rise and if book to market equity (BE/ME) falls, the stock return will decrease. The high value of book to market equity (BE/ME) means that the stock price is lower than the book value, it also known as value stock, it will have lower earnings, on the contrary, if the value of book to market equity (BE/ME) is low it is means that the stock price is higher than the book value, also known as growth stock, it will have higher earnings. The value stock condition shows that the company has a higher risk, with the concept of common risk, that is high risk high return, the HML indicator is used by an investor for long-term decision making and is believed to provide high returns in the future. The results of this study are consistent with the results of research conducted by Fama & French (1992) who have argued that the level of low profitability (distressed) is associated with the level of risk sensitivity that is closely related to stock returns, so the stock returns will be higher.

CONCLUSIONS, SUGGESTIONS, AND LIMITATONS

5.1 Conclusions

Based on the analysis and discussion above, the influence of all independent variables has been generated, there are risk premium, book to market equity (BE/ME), and size (market capitalization) on the dependent variable, stock returns, the results of the research can be concluded as follows:

1. Risk premium variable have a positive influence on the company's stock returns in the real estate, property, and building construction sectors listed on the Indonesia Stock Exchange in 2014-2017. This study is in accordance with the theory described by Fama and French (1995) in previous research using samples of the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), and the NASDAQ Stock Market in 1963-1992 implies beta that was proxied by a risk premium can explain stock returns well.
2. Size (market capitalization) variable of companies proxied by SMB (Small Minus Big) brings no positive influence but insignificant on stock returns in the real estate, property, and building construction sectors listed on the Indonesia Stock Exchange in 2014-2017. The results of this study are not likely with the research conducted by Fama-French (1995) in previous research using samples of the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), and the NASDAQ Stock Market in 1963-1992 which explained that there was a positive influence between size and estimated stock returns, the lower the market capitalization of a company, the higher the return can obtained.
3. Book to market equity (BE/ME) variable proxied by HML (High Minus Low) has a significantly positive influence with a significance level of 10% on the company's stock returns in the real estate, property, and building construction sectors listed on the Indonesia Stock Exchange in 2014-2017. The results of this study are consistent with the research conducted by Fama and

French (1992) in previous research using samples of the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), and the NASDAQ Stock Market in 1963-1992 which explained that the book to market equity (BE/ME) variable has a strong and significant influence to estimate stock returns.

5.2 Suggestions

In order to improve the results of future research there are some suggestions that can be given based on the results of this study:

1. For Investors

This research can be used as a reference by investors in making the right decision to choose potential shares in companies in the real estate, property, and building construction sectors. Investors can choose a company that has a high book to market equity (BE/ME) and also a company that has a high risk premium referring to the influence of both variables which have a significant positive effect on stock returns.

2. For the Company

This research is expected to give an idea for companies in the real estate, property, and building construction sectors regarding factors that have potential to affect stock returns, referring to the results of this study, factors that have positively influence on stock returns are risk premiums and book to market equity (BE/ME) or companies that have value stock (book value > stock prices). Therefore, stakeholders can increase the book value and tend to have risk assets in their company.

5.3 Limitations

In compiling this research there are still many limitations experienced by the author. These are the limitations of this study:

1. This study uses only 3 factors formulated by Eugene Fama and Kenneth French, there are the risk premium, company size (market capitalization), and book to market equity (BE/ME). Thus, for the next researchers are able to add other external and internal factors such as momentum factor as formulated by Carhart (1997) in Carharts Four-Factor Model, or add 2 (two) other factors i.e. profitability and investment factors as formulated in the Five-Factor Asset Pricing Model.
2. The object of research used in this study is the property, real estate and building construction companies. In order to the better result, researchers can add other sectors, such as infrastructure sector and so on so that it can be compared using the Fama French Three Factor Model.

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