CAPITAL ASSET PRICING MODEL (CAPM): THE THEORY AND EVIDENCE IN INDONESIA STOCK EXCHANGE (IDX) AT THE PERIOD 2004-2009

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Abstract

This research aims to examine the validity of the CAPM theory that were developed by Sharpe (1964), Litner (1965), and Mossin (1966). The samples of this study used monthly stock returns from 213 companies listed on Indonesia Stock Exchange (IDX) at the period 2004 to 2009. Individual returns, stock price index, and certificate of Bank Indonesia were used as analyzed variables. The findings of this research were not supporting the basic theory of CAPM, that the higher risk (beta) is related with higher level of returns.

Keywords: *CAPM theory, risk, return,*

Many strategies and methods can be used to estimate the return of a security; it can be determined what level of benefits and risk of the stock. Capital Asset Pricing Model (CAPM) is one of the many theories that explain the relationship between risks and return level. Perold (2004) said that a fundamental question in finance is how the risk of an investment should affect its expected return. The Capital Asset Pricing Model (CAPM) provided the first coherent framework for answering this question. The CAPM is based on the idea that not all risks should affect asset prices. In particular, a risk that can be diversified away when held along with other investments in a portfolio is, in a very real way, not a risk at all. The CAPM gives us insights about what kind of risk is related to return.

CAPM theory developed by Sharpe (1964), Litner (1965), and Mossin (1966) became a major model used in the discussion of financial management to estimate the return based on its risk.CAPM suggests that highexpected returns are associated with high levels of risk. Simply stated, CAPM postulates that theexpected return on an asset above the risk-free rate is linearly related to the systematic risk/ market risk asmeasured by the asset's beta.Unsystematic risk or unique risk of each asset is assumed can be eliminated with diversification.

Many empirical studies conducted to test the validity of the CAPM model.Black,Jensen and Scholes (1972), using monthly return data tested whether the cross-section of expected returns is linear in beta. The author found that the relation between the average return and beta is very close to linear and that portfolios with high (low)betas have high (low) average returns. Fama and MacBeth (1973)examined that there is a positive linear relation between average returns and beta. They investigated that the squared value of beta and the volatility of asset returns can explain theresidual variation in average returns across assets that are not explained by beta alone.While unsystematic risk or unique risk of each asset is assumed to be eliminated because diversify.

This research will reexamine the validity of CAPM model by Sharpe (1964), Litner (1965), dan Mossin (1966) in the capital market of Indonesia. The samples that used are the

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companies listed in Indonesia Stock Exchange (IDX) during the period 2004-2009. Based on previous research about the validity of CAPM theory, this research will reexamine the validity of CAPM theory with Indonesia Capital Market as sample. The purpose of this study is to re-test the validity of CAPM model. Is the CAPM model developed by Sharpe (1964), Litner (1965), and Mossin (1966) still consistent inIndonesia capital market?

THEORITICAL BACKGROUND

Return

Return can be a realized return has happened and the expected return that have not happened, but is expected to occur in the future. In measure return, the realization of widely used measurement of total return, this is the overall return from an investment in a period. The calculation of return is also based on historical data. This realized return can be used as one measure of company perfor mance and can be as basic determinants of return expectations and risk in future (Brigham and Daves, 2004).

Brigham and Daves (2004) said that realized return is the return that has occurred and is calculated based on historical data. Return the realization of these can function both as one measure of company performance as well as the basis for determining the risk and expected return in the future. One type of measurement that is often used realization of return is total return, ie the overall return from an investment in a given period.

The percentage of portfolio's total value that are invested in each portfolio asset are referred to as *portfolio weights*, which we will denote by "w". The combined portfolio weights are assumed to sum to 100 percent of total investable funds or 1.0, indicating that all portfolio funds are invested, that is:

$$w1 + w2 + \cdots + wn = \sum_{i=1}^{n} w_i = 1.0$$

If we multiply each possible outcome by its probability of occurrence and then sum the products, we have a *weighted average* of outcomes. The weights are the probabilities, and the weighted average is *expected return*, $E(r_i)$. The expected rate of return calculation can also be expressed as an equation:

$$E(r_i) = w_1 r_1 + w_2 r_2 + \cdots . + w_n r_n$$

$$E(r_i) = \sum_{i=1}^{n} w_i \, r_i$$

Risk

Risk is defined as the uncertainty about the actual return that will be earned on an investment (Jones, 2007). The remaining computation in investment analysis is that of the risk of the portfolio. Brigham and Daves (2004) measure portfolio risk by the standard deviation of its return with probability distribution. One such measure is the standard deviation, the symbol for which is σ, pronounced "sigma". The smaller the standard deviation, the tighter the probability distribution, and accordingly the less risky the stock.

Brigham and Daves (2004) said that the one assumption of capital market theory is that investors can borrow and lend at the risk free rate. Investors can invest part of their wealth in this asset and the remainder in any of the risky portfolios in the Markowitz efficient set. This allows Markowitz portfolio theory to be extended in such away that the efficient frontier is completely changed, which in turn leads to a general theory for pricing assets under uncertainty.

Variance

Covariance is a measure that combines the variance (or volatility) of stock's return with the tendency of those returns to move up or down at the same time other stocks move up or down. This equation defines the covariance between stocks A and B.

$$cov(AB) = \sigma_{AB} = \sum_{i=1}^{n} (r_{Ai} - E(r_A))x(r_{Bi} - E(r_B))w_i$$

Correlation Coefficient

It is difficult to interpret the magnitude of the covariance term, so a related statistic, the correlation coefficient, is generally used to measure the degree of co movement

between two variables. The correlation coefficient standardizes the covariance by dividing by a product term, which facilitates comparisons by putting things on a similar scale. The correlation coefficient, ñ, is calculated as follows for variables A and B.

$$correlationcoefficient(AB) = \rho_{AB} = \frac{covAB}{\sigma_A \sigma_B}$$

Capital Asset Pricing Model

The CAPM builds on the model of portfolio choice developed by Harry Markowitz (1952). In Markowitz's model, an investor selects a portfolio at time t-1 that produces a stochastic return at t. The model assumes investors are risk averse and, when choosing among portfolios, they care only about the mean and variance of their one-period investment return. As a result, investors choose "mean-variance-efficient" portfolios, in the sense that the portfolios 1) minimize the variance of portfolio return, given expected return, and 2) maximize expected return, given variance. Thus, the Markowitz approach is often called a "mean-variance model" (Fama and French, 2004).

$$E(r_i) = \sum_{i=1}^{n} w_i r_i$$

Capital asset pricing model is an important tool to analyze the relationship between risk and rates of return. The primary conclusion of the CAPM is this: the relevant risk of an individual stock is its contribution to the risk of a well-diversified portfolio.

The model was developed to explain the differences in the risk premium across assets. According tothe theory these differences are due to differences in the riskiness of the returns on the assets. Themodel states that the correct measure of the riskiness of an asset is its beta and that the risk premiumper unit of riskiness is the same across all assets. Given the risk free rate and the beta of an asset, theCAPM predicts the expected risk premium for an asset (Michailidis,*et al.,*2006).

Zhang and Wihlborg (2004), the CAPM states that there is a positive, linear relationship between the stock's expected returns and its systematic risk, beta, and that beta is a sufficient variable to explain cross sectional stock returns. The empirical evidence from the developed equity markets generally shows only a weak relationship between betas and returns (Fama and French 1992).

The CAPM predicts a positive linear relation between risk and expected return of a risky asset of the form :

$$E(r_i) = r_f + \beta_i(r_m - r_f) \quad (1)$$

Next, based on the method of Fama and MacBeth (1973), beta estimated by regression model:

$$r_{it} - r_{ft} = a_i + \beta_i(r_{mt} - r_{ft}) + e_{it} \quad (2)$$

The $r_{it}$is the return on stock i, $r_{ft}$is the rate of return on a risk-free asset, r_{mt} is the rate of return on the market indexis the estimate of beta for the stock i , and $e_{it}$is the corresponding random disturbance term in the regression equation. Equation 1 could also be expressed using excess return notation, where$\{(r_{it} - r_{ft}) = R_{it}\}$and $\{(r_{mt} - r_{ft}) = R_{mt}\}$ (Michailidis,*et al.,*2006).

The unconditional relationship between the beta and return is estimated as:

$$r_{it} - r_{ft} = \gamma_{0t} + \gamma_{1t}\beta_p + e_{it} \quad (3)$$

Where the regressions model from Eq. (2) and Eq. (3), γ_{0t} and $\gamma_{it}$are first estimated by OLS. Then, they are averaged by the *t,* respectively. The average value, or is tested whether they are significantly different from zero using the *t*-test of Fama and MacBeth (1973). Based on Eq. (2), should be equal to zero and should be significantly positive for a positive risk premium.

Pettengill *et al*. (1995) in Zhang and Wihlborg (2004)propose a different methodology to estimate the relationship between betas and returns. Their argument is that since the CAPM is estimated with realized returns as proxies for expected returns, it is likely that negative realized risk premium will be observed in some periods. The model of Pettengill *et al*. is conditional on the realized risk premium, whether it is positive or negative. When the realized risk premium is positive, there should be a positive relationship between the beta and return, and when the premium is negative, the beta and return should be negatively related. The reason is that high beta stocks will be more sensitive to the negative realized risk

Figure 1. CAPM model by Sharpe (1964), Lintner (1965) and Mossin (1966)

premium and have a lower return than low beta stocks. According to the methodology of Pettengill *et al*., the conditional relationship between the beta and return is estimated as :

$$r_{it} - r_{ft} = \gamma_{0t} + \gamma_{1t} D\beta_p + \gamma_{2t}(1 - D)\beta_p + e_{it} \quad (4)$$

Where *D* is the dummy variable that equals one (1) if the realized premium is positive and zero (0) if it is negative, is the estimated risk premium in the up market period (with positive risk premia) and is the estimated risk premium in the down market period (with negative premium risk). The average values, , , are tested for whether they are significantly different from zero using the same *t*-test of Fama and MacBeth (1973). Thus, the null hypotheses can be tested, against , . Pettengill et al. (1995) point out that in order to guarantee a positive risk and return tradeoff, two conditions should be met: *i*) the average risk premium should be positive, and *ii*) the distribution of the up market periods and down market periods should be symmetric.

RESEARCH METHOD

This research will test the validity of CAPM model by Sharpe (1964), Lintner (1965) and Mossin (1966), Figure 1.The CAPM states that there is a positive linear relationship between the stocks's expected returns and its systematic risk (â) and that beta is a sufficient variable to explain cross sectional stock returns (Zhang and Wihlborg, 2004). CAPM suggests that highexpected returns are associated with high

levels of risk (Michailidis*et al*.,2006).From this theory, the author proposes hypothesis:

H1: There is not a positive linear relationship between the stock's expected returns and its systematic risk (beta).

The Sharpe-Lintner CAPM says that the expected value of an asset's excess return (the asset's return minus the risk-free interest rate,) is completely explained by its expected CAPM risk premium (its beta times the expected value of). This implies that "*Jensen's alpha*", the intercept term in the time-series regression, is zero for each asset (Fama and French, 2004).From this theory, the author proposes hypothesis:

H2: The intercept (expected excess return on a zero beta portfolio) is not equal to zero based on CAPM model ($\gamma_0 \neq 0$).

Fama and MacBetch (1973) said, based on CAPM model, in a market of risk-averse investors, higher risk should be associated with higher expected return, that is .

$$(r_m - r_f) > 0.$$

From this theory, the author proposes hypothesis:

H3: The intercept of remium risk (is not significantly positive)

$$r_{it} - r_{ft} = a_i + \beta_i (r_{mt} - r_{ft}) + e_{it}$$

Pettengill *et al*. (1995) argue that when the realized risk premium is positive, there should be a positively relationship between the beta and return, while if the premium is negative, the beta and return should be negatively related since high beta stocks will be more sensitive to the negative risk premium and have a lower return than low beta stocks. Based on the validity test of CAPM procedure, the author proposes hypothesis 4 and 5:

H4: The intercept of premium risk is not significantly positive $(\gamma_1 > 0)$when up market (excess return is positive).

H5: The intercept of premium risk is not significantly negative $(\gamma_1 < 0)$ when down market (excess return is negative).

This research is a case study research that has objective to retest the validity of the theory of CAPM on the stock market in Indonesia with the object of research all companies listed in Indonesia Stock Exchange and qualified as a sample. The observation uses monthly data from December 2003 to December 2009.

The first step is to estimate a beta coefficient for each stock using monthly returns during the periodof January 2004 to December 2009. The beta is estimated by regressing each stock's monthly returnagainst the market index according to the following equation:

(1)

The next step is to compute the average of portfolio excess returns of stocks(r_{pt}) ordered according totheir beta coefficient computed by Equation 1. Let,

$$r_{pt} = \frac{\sum_{i=1}^{k} R_{it}}{k}$$

Where, k is the number of stocks included in each portfolio, p is the number of portfolio, and is the excess return on stocks that form each portfolio comprised of k stocks each. The procedure used is by dividing all samples to 10 portfolios, so the author gets 22/21 for each portfolio. By forming portfolios, the spread in betas across portfolios is maximized so that the effect of beta onreturn can be clearly examined. The most obvious way to form portfolios is to rank stocks intoportfolios by the true beta. But, all that is available observes beta. Ranking into portfolios byobserved beta would introduce selection bias. Stocks with high-observed beta (in the highest group)would be more likely to have a positive measurement error in estimating beta. This would introduce apositive bias into beta for high-beta portfolios and would introduce a negative bias into an estimate ofthe intercept (Elton and Gruber (1995), p. 333 in Michailidis*et al.*, 2006).

To find hypothesis 1, the first step is compare the relationship of beta and the return on each portfolio and the second step see a scatter plot of linearity beta and return portfolio.

The following equation is used to estimate portfolio betas:

$$r_{pt} = a_p + \beta_p . R_m + e_{pt} \quad (2)$$

Whereis r_{pt} the average excess portfolio return, β_p is the calculated portfolio beta.The study is continued by estimating the ex-post Security Market Line (SML) by regressing

theportfolio returns against the portfolio betas obtained by Equation 3. The relation examined is thefollowing:

(3)

Where, r_p is the average excess return on a portfolio p (the difference between the return on the portfolioand the return on a risk-free asset); is an estimate of beta of the portfolio p; is the market price of risk, the risk premium for bearing one unit of beta risk;is the zero-beta rate, the expected return on an asset which has a beta of zero, and is random disturbance term in the regression equation.

Pettengill *et al*. (1995) argued that the CAPM models the expected returns, yet, in empirical research the realized returns are used as proxies for the expected ones. Realized returns on the market portfolio often fall below the returns of the risk-free asset, so that negative ex post premium risk are observed in some periods. They propose an alternative methodology to estimate the relationship between betas and returns. Their model is conditional on whether the realized risk premium is positive or negative. When the realized risk premium is positive, there should be a positive relationship between the beta and return, while when the premium is negative, the beta and return should be negatively related since high beta stocks will be more sensitive to the negative risk premium and have a lower return than low beta stocks(Zhang and Wihlborg, 2004). According to the methodology of Pettengill *et al*, the conditional relationship between the beta and return is estimated as:

(4)

RESULT AND DISCUSSION

The main objective of this research is to reexamine the validity of CAPM model by Sharpe (1964), Litner (1965), and Mossin (1966). This research uses Fama and McBeth (1973) procedure. First step is to estimates a beta coefficient for each stock using monthly returns during the periodof December 2003 to December 2009. For calculating beta we need to know the realized return, the market return and the risk free rate.

To calculate the stock return, we need the stock price at the end ofmonthly period. This paper uses 213 sample companies listed in Indonesia Stock Exchange during the period of 2004 -2009. Table 1. shows the value of the stock price 213 companies listed in Indonesia Stock Exchange during the years 2004 - 2009.

One form of the financial instrument that can be invested in Indonesia and has risk free is Certificate of Bank Indonesia (SBI). Certificates of Bank Indonesia are issued by the government so it obtains assurance. Risk obtained by investors when investing in this asset is 0 because the certificates are issued and guaranteed by the government (Bank Indonesia), so the possibility of Bank Indonesia is not able to pay interest on the certificates is very small. Return to be received by the investors in accordance with the amount of the interest rate is set by the government. To calculate the return from risk-free asset uses SBI interest rate monthly. The following tables show the value in monthly SBI during the period of 2004 -2009. The value of monthly will be shown in table 1.

The market risk can be represented by assessing the average Composite Stock Price Index. By looking at the rise and decline in market indices, we can say whether the market in a state of bullish (up) or bearish (weak). This market indicts to help investors as an analysis tool in the decision whether to invest in the stock market or not.We can calculate the market return using the value of the stock price index (IHSG). The monthly Stock Price Index (IHSG) was shown in table 1.

From the average value of r_m and r_f, we can see that the average value of risk free asset is (0.7432%) par month. That islower than the average value of (market return) which amounted to 2.1858%. The difference between these two values is at 1.4426%. This shows that investing in the period 2004-2009 in the Indonesia Stock exchange would be more profitable than investing in certificate of Bank Indonesia.

Equation 1

The first part of the methodology requires the estimation of betas for individual

Table 1.The average of return $(E(r_i))$, market risk (r_m), and risk free asset (r_f)

Period	$E(r_i)$	r_m	r_f	Period	$E(r_i)$	r_m	r_f
Dec-09	0.037409	0.026737	0.005383	Dec-06	0.120633	0.075134	0.008125
Nov-09	0.004754	0.004105	0.005392	Nov-06	0.029412	-0.06571	0.008958
Oct-09	-0.02362	0.053403	0.005408	Oct-06	0.013296	0.097879	0.008542
Sep-09	0.055655	0.041731	0.0054	Sep-06	0.068069	0.026368	0.009792
Aug-09	-0.00428	-0.05866	0.005483	Aug-06	0.042432	0.042593	0.009375
Jul-09	0.07565	0.069834	0.005592	Jul-06	0.004709	0.091894	0.010208
Jun-09	0.063345	0.089552	0.005792	Jun-06	-0.01816	0.051667	0.010417
May-09	0.126381	-0.02366	0.006042	May-06	-0.05264	-0.00927	0.010417
Apr-09	0.138879	0.030162	0.006325	Apr-06	0.128536	-0.02673	0.010617
Mar-09	0.104117	0.04906	0.006842	Mar-06	0.055255	0.050356	0.010608
Feb-09	0.003455	0.020332	0.007283	Feb-06	-0.00253	0.086141	0.010617
Jan-09	-0.03798	-0.04048	0.007917	Jan-06	0.016136	0.031291	0.010625
Dec-08	0.034771	0.053832	0.009025	Dec-05	0.07064	0.072209	0.010625
Nov-08	-0.01327	0.007877	0.009367	Nov-05	-0.00505	0.058898	0.010208
Oct-08	-0.14662	0.146271	0.00915	Oct-05	0.008662	0.031589	0.009167
Sep-08	-0.09747	0.05736	0.008092	Sep-05	0.007098	-0.01484	0.008333
Aug-08	-0.02395	0.112644	0.007733	Aug-05	-0.07755	-0.09178	0.007925
Jul-08	-0.02608	0.201315	0.007692	Jul-05	0.021489	0.106911	0.007075
Jun-08	0.032887	0.115591	0.007275	Jun-05	0.022655	0.075009	0.006875
May-08	0.182882	-0.03541	0.006925	May-05	0.034282	-0.00135	0.006625
Apr-08	-0.04526	-0.01478	0.006858	Apr-05	-0.05359	-0.05983	0.006417
Mar-08	-0.03331	0.091717	0.006633	Mar-05	0.128937	0.060184	0.0062
Feb-08	0.013364	-0.01206	0.006608	Feb-05	0.038094	0.028531	0.006192
Jan-08	-0.04249	-0.31422	0.006667	Jan-05	0.038617	-0.0121	0.006183
Dec-07	0.022656	-0.15394	0.006667	Dec-04	0.034603	0.027798	0.006192
Nov-07	0.01623	-0.06013	0.006875	Nov-04	0.081977	-0.11182	0.006175
Oct-07	0.043097	-0.01898	0.006875	Oct-04	0.083323	0.053387	0.006175

Source: Bank Indonesia Data and www.yahoofinance.com (data are processed)

Table 2.Average excess portfolio returns and betas

Portfolio	r_p	intercept (α)	B	R^2	sig.
Portfolio1	0.034517	0.038	-0.265	0.070	0.025
Portfolio2	0.031161	0.028	0.269	0.072	0.022
Portfolio3	0.035579	0.010	0.286	0.082	0.015
Portfolio4	0.028538	0.021	0.415	0.172	0.000
Portfolio5	0.020516	0.012	0.651	0.424	0.000
Portfolio6	0.023093	0.011	0.651	0.424	0.000
Portfolio7	0.019968	0.006	0.760	0.577	0.000
Portfolio8	0.019255	0.003	0.818	0.669	0.000
Portfolio9	0.014108	-0.003	0.883	0.779	0.000
Portfolio10	0.019178	0.003	0.882	0.779	0.000

Source: Data are processed by SPSS

stocks by using observations on rates of return for a sequence of dates. Useful remarks can be derived from the results of this procedure, for the assets used in this study.The range of the estimated stock betas is between -0.92 the minimum and 0.88 the maximum.

Based on the table 1., it can be concluded that the 213 companies sampled, all companies are the companies that have defensive stock because they have the value (β< 1). The minimum value of beta in this sample is -0.92, the maximum is 0.88 and the average is 0.2726.

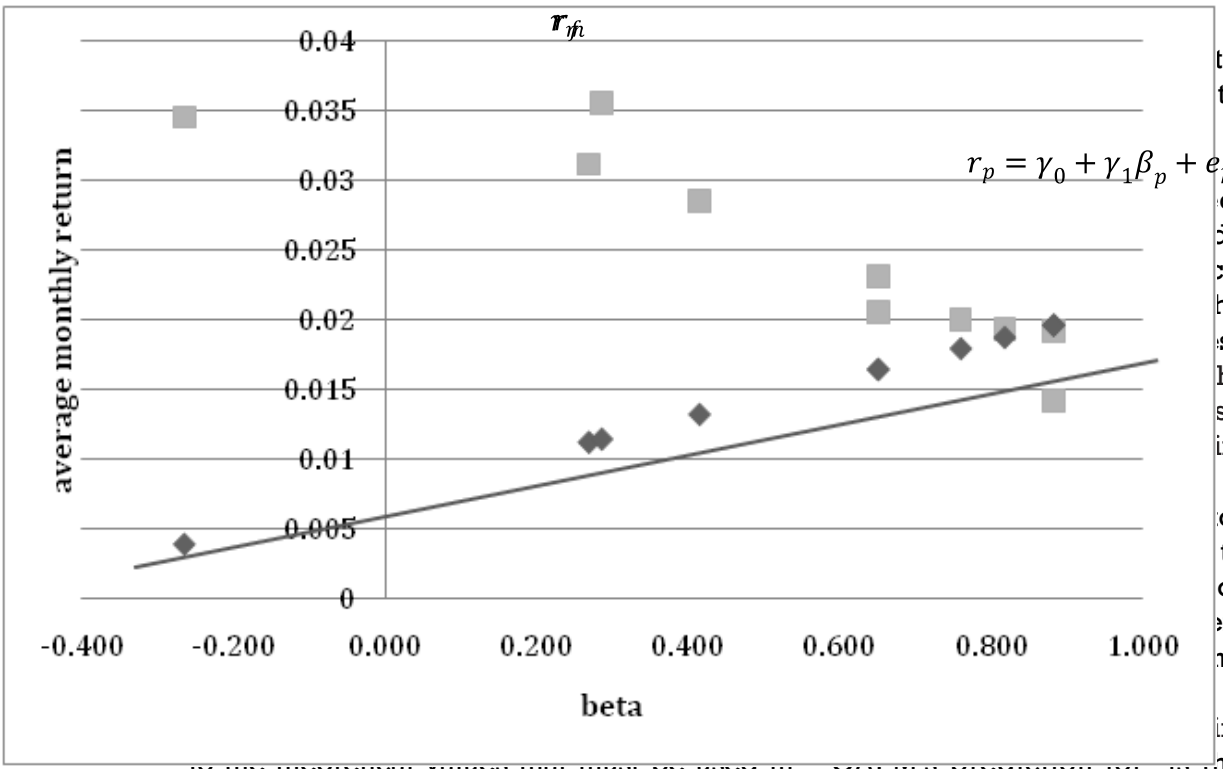
Investors who are rational will choose the investment that is less risky if they are faced with two investment options that provide the same return with a different risk. Investors can assess the relationship between risk and return by using the approach of Capital Assets Pricing Model (CAPM) to assess the appropriate investment choices. Measure ment of risk in the CAPM uses a â from the previous calculation, while the return is measured by summing the risk-free asset return with the excess of the average market return and return risk-free asset. Difference in average market return and return risk-free asset is also called the Risk Premium.

In order to diversify away most of the firm-specific part of returns, thereby enhancing the precisionof the beta estimates, the securities are previously combined into portfolios. This approach mitigatesthe statistical problems that arise from measurement errors in individual beta estimates. Theseportfolios are created for several reasons: (i) the random influences on individual stocks tend to belarger compared to those on suitably constructed portfolios (hence, the intercept and beta are easier toestimate for portfolios) and (ii) the tests for the intercept are easier to implement for portfolios becauseby construction their estimated coefficients are less likely to be correlated with one another than theshares of individual companies

Equation 2

The article argues that certain hypotheses can be tested no matter of whether one believes in the validity of the simple CAPM or in any other version of the theory. Firstly, the theory indicates that higher risk (beta) is associated with a higher level of return. However, the results of the study do not support this hypothesis. The beta coefficients of the 10 portfolios do not indicate that higher beta portfolios are related with higher returns. For example the portfolio 1 with beta value -0.265 has return 0.034517 and portfolio 2 who has lower return 0.031161, in contras has higher beta 0.269. And portfolio 4 who has lower return 0.019933 than portfolio 2, it has higher beta value of portfolio 2 0.415. These contradicting results can be partially explained by the significant fluctuations of stock returns over the period examined (table 2). The intercept in all of portfolio is not equal to zero too.

Figure 2. Average Monthly Return vs Beta for Value Weight Portfolios Formed



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equal to zero. The calculated value of the intercept is small (0.034) but it is not significantly different from zero (the p value is not greater than 0.005). Based on the

Table 3. Statistics of the estimation of the SML by Fama and MacBeth (1973) Model

Coefficient	γ_0	γ_1
Value	0.034	-0.018
p-value	0.000*	0.000*
R^2	0.811	

Source: Data are processed by SPSS

Table 4.Statistics of the estimation of the SML by Pettengill *et al.* (1995) Model

Coefficient	γ_1	γ_2
γ_0	0.066	0.038
Value	0.134	-0.026
p-value	0.037	0.016
R^2	0.777	

Sorce: Data are processed by SPSS

intercept criterion the CAPM hypothesis 2is clearly rejected. Based on CAPM model, intercept (expected excess return on a zero beta portfolio) is not equal to zero.

According to CAPM the intercept of beta, (risk premium) should be positive. The value of is -0.018 (negative), so we can conclude that based on Fama and MacBeth (1973) model, we reject the hypothesis 3 that the intercept of premium risk (is not significantly positive).

From the hypothesis 2 and 3 we conclude that we can not accept the base theory CAPM that intercept is equal to zero and premium risk is positive.

Equation 4

The last test, we test the propose methodology from Pettengill et al. (1995) to estimate the relationship between betas and returns. Their model is conditional on the realized risk premium, whether it is positive or negative. When the realized risk premium is positive, there should be a positive relationship between the beta and return, and when the premium is negative, the beta and return should be negatively related. The reason is that high beta stocks will be more sensitive to the negative realized risk premium and have a lower return than low beta stocks.

The results in table 4 indicate that the coefficients for (0.134)is positive and these for (-0.026) is negative. All the coefficients are significant. These results indicate that shares with higher betas have higher returns when the local market excess return is positive and lower returns when the local market excess return is negative. So, I can conclude that I can accept hypothesis 4 and 5, based on CAPM model by Pettengill *et al*. (1995), intercept of premium risk is significantly positive (when up market (excess return is positive) with p value 0.037, and intercept of premium risk is significantly negative (when down market (excess return is negative) with p value 0.016. The intercept , is not equal to zero too.

This research examines the validity of the CAPM for the all of stock in Indonesia Stock Index (IDX). The study uses monthly stock returns from 213 companies listed on the Indonesia Stock Exchange from December 2003 to December 2009. The data of return individual and stock price index for measure market risk are obtained from www.yahoo finance.com. And for variable risk free asset we use certificate of Bank Indonesia and get data from library online of Bank Indonesia.

From the average value of and , we can see that the average value of risk free asset (0.7432%) par month islower than the average

value of (market return) which amounted to 2.1858%. The difference between these two values is at 1.4426%. This shows that investing in the period 2004-2009 in the Indonesia Stock exchange would be more profitable than investing in certificate of Bank Indonesia.

Based on the result of the betas value from each enterprise, we can conclude that the 213 companies sampled, all companies, are the companies that have defensive stock because they have the value (â < 1). The minimum value of beta in this sample is -0.92, the maximum is 0.88 and the average is 0.2726.

The findings of this research are: we don't accept hypothesis 1, 2, 3. From the result we can see that the beta coefficients of the 10 portfolios do not indicate that higher beta portfolios are related with higher returns.The CAPM's prediction for is that it should be equal to zero. Based on CAPM model, intercept (expected excess return on a zero beta portfolio) is not equal to zero, and based on the intercept criterion of the CAPM the hypothesis is clearly rejected.

According to CAPM the intercept of beta, (risk premium) should be positive. The result is based on Fama and MacBeth (1973) model, we reject the hypothesis 3 that premium risk (is not significantly positive (.

The last, the result of hypothesis 4 and 5 indicate that the coefficients for is positive and these for is negative. All the coefficients are significant. So, I conclude that I can accept hypothesis 4 and 5.

LIMITATION AND ADVICE

This study has limitation in the selection of Certificate of Bank Indonesia (SBI) as variable of risk free asset. Bank Indonesia Certificates less able to represent the risk free asset because it has volatility, so it hasn't variance 0. In the future studies researchers should use other types of risk-free investment that can represent more risk free rate such as government bonds interest rates that relatively has stable value. And for the future studies researchers could test CAPM model that is being developed by researchers and financial practitioners with multi-beta model also. In the multi-beta model market risk is measured against the risk factors that determine the behavior of asset returns, while the CAPM only measure the risks associated with market returns. Risk factors in a multi-beta model include all the risks that can not be diversified.

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