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EMPIRICAL STUDY ON EXPECTED STOCK RETURN OF PROPERTY AND REAL ESTATE COMPANIES USING CAPITAL ASSET PRICING MODEL IN INDONESIA STOCK EXCHANGE

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Abstract: *This research particularly observes the stock prices progression of property and real estate sector during the span of March 2013 until March 2016, compares theexpected return using Capital Asset Pricing Modelwith the actual stock return, and examines the relation between risk and return.T-test and correlation test are used to analyze the data. The research finds that mispricing does exist and underpriced dominate this sector which means that actual stock return is higher thanexpectedreturn based on the model. It happened due to the nature of property and real estate businesses that relies on trust upon high and promising return.We also find that the correlation between risk and return is negative significant.*

Keywords: *Capital Asset Pricing Model, Expected Return, Holding-Period Return, Overprice and Underprice Stock.*

INTRODUCTION

A firm's stock price reflects firm's value. Information related to a firm's stock price is significantly needed by investors as basis of consideration in making investment decisions. Meanwhile, the public perceives that the stock price of a firm always correctly represents its true value. However, market prices are not always correctly determined. Mispricing, in fact, often happens, mostly influenced by capital market efficiency in terms of information distribution and market expectation which affects its reaction to changes. Mispricing can happen in two ways, underpriced and overpriced, which is determined by conducting a quantitative comparison between stock return andexpected return. Overpricing happens when the actual stock return is less than the calculated expected return, and when stock is

clearly overpriced, it means that firm has higher stock price than its competitors. Whereas underpricing is indicated by the expected return being lower than the actual stock return.

In Indonesia capital market, the sector of property and real estate has been steadily improving in terms of market value and return for the past years. However, there has also been a general perception that this sector experiences bubbling, a situation which arises when market traders drive the price significantly higher than their supposed value. Property and real estate sector in Indonesia has been growing despite facing a lot of challenges. This has resulted in a quick increase and sudden drop in stock prices in property and real estate businesses, calling the need to analyze the intrinsic value of the firms to gain insights of how well and safe the stock progression is. Therefore, authors, in this research, aim to analyze whether the firms in the sector of property and real estate are truly mispriced. In addition, authors also intend to analyze whether the CAPM approach can be used to accurately measure the expected return and predict the relationship between risk and return of these real estate companies.

The firms which authors specifically research on are Alam Sutera Realty, Bumi Serpong Damai, and Summarecon Agung, as they are all located in Tangerang area and constantly growing and developing as property and real estate companies.

LITERATURE REVIEW

1. Theory

The objective of fundamental analysis is to identify stocks that are mispriced relative to some measure of true value that can be obtained from observable financial data. In practice, mispricing often happens in the capital market, so that stock price no longer an accurate representation to describe a firm's true value. True value can only be estimated, thereby, to estimate the fundamental value of a corporation's stock from observable market data and from the financial statements of the company, stocks analysts use the models(Bodie, Kane, andMarcus, 2013).

Several models can apply for assessing the value of a firm. The most popular model to assess the value of a firm as a going concern starts from the observation that the return on a stock investment comprises cash dividends and capital gains or losses. Furthermore, the model to predict stock return is capital asset pricing model(CAPM). CAP explains the relationship between the risk and returns on risky assets. CAPM was developed by Treynor, Sharpe, Lintner, and Mossin in the early 1960s, and further refined later. Based on capital

asset pricing model that when stock market prices are at equilibrium levels, the rate of return that investors can expect to earn on a security is $r_f + \beta [E(r_M) - r_f]$, and risk is measured by beta (β). Therefore, the CAPM will provide estimation of the rate of return an investor can reasonably expect to earn on a security given its risk, and this is the return that investors will require of any other investment with equivalent risk (Bodie, Kane, andMarcus, 2013).

Furthermore, when investors purchase stocks, their demand caused the prices move up, thereby the expected rates of return and risk premiums become lower. But, investors will move some of their funds from the risky market portfolio into the risk-free asset when risk premiums fall. In equilibrium, the difference between market return and risk free on the market portfolio must be just high enough to make investors holding the existing supply of stocks. If the risk premium is too high, prices will rise since there will be excess demand for securities, on the other hand, if it is too low, prices will fall since investors will not hold enough stock to absorb the supply.

Since the Security Market Line (SML) is the graphical description of the mean–beta relationship, fairly priced assets draw exactly on that line. The expected returns of those assets are equivalent with their risk. Whenever the CAPM applies, all securities must plot on the SML in equilibrium. Underpriced stocks lie above the SML, given beta, their expected returns are greater than is implied by the CAPM, while overpriced stocks plot below the line, given beta, their expected returns are lower than is indicated by the CAPM. So, if a stock is priced correctly, it will offer investors a fair return, that is, its expected return will equal its required return. An underpriced stock will give an expected return greater than the required return, and vice versa.

2. Previous Research Findings

A brief review of the earlier studies is given below on the estimation ofexpected returnand stock pricing by using CAPM and on the estimation risk-return relationship.

Kiranga (2013) conducted a study to examine whether there is any relationship between the intrinsic and market values of listed firms in the Nairobi Securities Exchange. The target units of analysis for the study were all the sixty one companies. The simple linear regression model was used to measure the relationship between the intrinsic value and market value which is explained in the model. The study revealed that there exists a positive relationship between intrinsic and market, and it is further confirmed by Pearson‟s Bivariate correlation.

The conclusion derived from the study is that an investor can use intrinsic value to determine whether a firm is underpriced, perfectly priced or overpriced when making investment decisions relating to a firm‟s stock.

Filho, Garcia, and Imoniana (2009) study aimed to create a basis for reflection CAPM the conditional model, comparing it with the static one. Tests of conditional models are examined with beta varying throughout the exercise. The study tested the conditional CAPM model borrowing a leaf from Jagannathan and Wang (1996) using macroeconomics and financial variables from the Brazilian, German and Argentinean markets. Also, the approach compared results with the American figures. Based on their findings, there is evidence that the conditional CAPM of Jagannathan and Wang (1996) for the North American market is perfectly applicable to the Brazilian, Argentinean and German markets.

Wang (2013)conducted a study and concluded that CAPM is not yet the right model in China's stock market, despite that, due to the fact that Markowitz's portfolio theory is included in the model, CAPM is still a significant model to risk analysis, portfolio analysis, and also the risk-return relation of China's stock market.

Köseoğlu and Mercangöz (2013) conducted a study to test the validity of Zero Beta Capital Asset Pricing Model or testing validity of the CAPM in an environment with no risk-free asset and with Zero Beta capital asset in Istanbul Stock Exchange. Analyses have been done by using common stocks within ISE 100. Before doing the validity test of Zero Beta CAPM, test has been done in Standard CAPM. According to the results obtained in the test that Zero Beta form is more valid. In both models, linearity relation between risk and return, provided by the models has been found valid for ISE.

Theriou, Aggelidis, and Spiridis (2004) tested the CAPM in the Athens Stock Exchange for the period between the 1stof July 1992 and the 30thof June 2001using the Black, Jensen and Scholes-BJS approach. Their results show that there is a linear relation between risk and portfolio returns. However, while testing the major hypothesis from the time series tests, that the intercept should be significantly equal to zero, and the hypothesis from the cross-sectional tests, that the intercept should be equal to zero and the beta coefficient should be equal to the mean excess return on the market.

Fama and French (2004) explained that despite the CAPM was seductive simplicity, the CAPM's empirical problems probably invalidate its use in applications.

Choudhary andChoudhary(2010)have made a study to examine the Capital Asset Pricing Model for the Indian Stock Market using monthly stock returns from 278 companies. The findings of the study are not substantiating the theory's basic result that higher risk (beta) is associated with higher levels of return. The model does explain, however, excess returns and thus lends support to the linear structure of the CAPM equation. Their results exhibit that residual risk has no effect on the expected returns of portfolios.

Susanti (2014) aimed to classify stocks from 11 companies into two categories, efficient and inefficient. Efficient stock means that the actual return is greater than the required rate of return and vice versa. Out of the 11 samples consist of AKRA, ASGR, ASII, DVLA, MLBI, SMSM, BATA, TBLA, TURI, UNVR, UNTR, only 2 firms were considered inefficient (ASII and TBLA).

Koo and Olson (2007) revisited the CAPM with empirical data for more than 288 publicly traded companies and categorized risk factors of the stocks into three categories, low (beta around point five), market (beta about one), and high (beta about two). Their results suggest that the systematic risk of a portfolio, as measured by its market model beta is not a relevant measure of risk and unreliablyrelated to the return of the portfolio.

3. Conceptual Framework

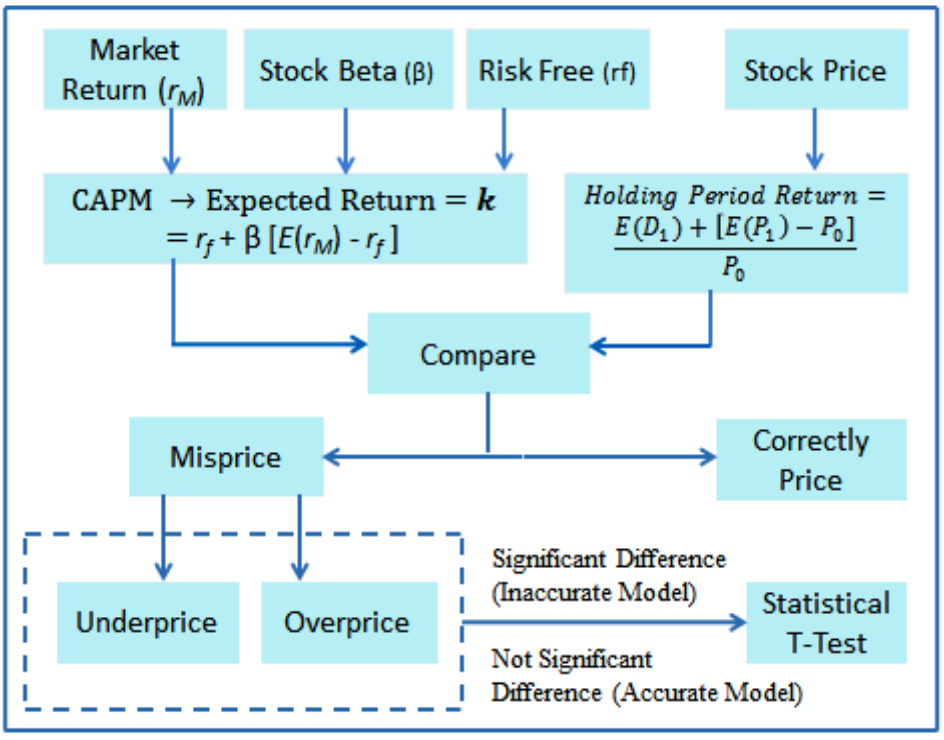

Figure 1 Conceptual Framework

4. Hypotheses

1. The stock prices of Alam Sutera Realty (ASRI), Bumi Serpong Damai (BSDE), and Summarecon Agung (SMRA) are hypothesized correctly priced, by comparing their holding-period return and expected return which is calculated through CAPM approach.
2. CAPM approach is an accurate model in calculating and predicting the stock return of Alam Sutera Realty, Bumi Serpong Damai, and Summarecon Agung.
3. Expected return of ASRI, BSDE, and SMRA are significantly related with risk of these stocks.

RESEARCH METHODOLOGY

1. Method of Data Collection

The data observed in this research is secondary data collected from IDX LQ45 Report, Bank Indonesia, and Pefindo. The data collected is the historical monthly data of the samples and the macroeconomics data, i.e. stock price, LQ45 stock index, stock beta, and Bank Indonesia rate. This research particularly observes data from March 2013 to March 2016.

2. Population and Sample

The population in this research is property and real estate companies in Indonesia, whilst the samples observed are Alam Sutra Realty (ASRI), Bumi Serpong Damai (BSDE), and Summarecon Agung (SMRA). These three companies are selected due to their large marketcapitalization, as they are included in LQ45 Index (top 45 Indonesian stocks).

3. Variables Measurement

The Expected Holding-PeriodReturn

The holding-period return (actual stock return) is calculated as :

$$Holding\ Period\ Return = E_{(r)} = \frac{E(D_1) + [E(P_1) - P_0]}{P_0}$$

Where :

E (P_1) represents the expectation today of the stock price one year from now.

E(r) is referred to as the stock's expected holding period return. It is the sum of the expected dividend yield, $E(D_1)/P_0$, and the expected rate of price appreciation, the capital gains yield, $[E(P_1) - P_0] / P_0$.

Expected Return

This research uses Capital Asset Pricing Model (CAPM) approach to determine whether a firm's stock is mispriced. CAPM approach is an asset pricing model used to calculate risk and return (Fama, 2004) using the following formula:

$$Expected\ Return = k = r_f + \beta[E(r_m) - r_f]$$

Where :

(r_f) : Representing the time value of the investment, is a form of compensation which investors receive for investing their money over a certain period. As there is no risk involved in the compensation received by investors, it is called the risk-free rate.

β: Investors also get compensated for the additional risk involved in their investments, determined by calculating *β* multiplied by the difference of market return *(r_m)* and risk free rate *(r_f)*. *β* represents the risk rate of the stock; higher value means greater risk. *β* data is obtained from Pefindo.

r_m: is composite market return, obtained from market index.

4. Method of Data Analysis

Data will be analyzed in order to answer the two problem statements.

1. The first hypothesis will be examined by conducting quantitative comparison between holding period returnand expected return that will be gained by processing the data using CAPM calculation. The expectedreturn will then be compared to holding period return of the observed stocks to decide whether it is underpriced, overpriced, or correctly priced. Underpricing happens whenholding period return is more than expected return, while overpricing is indicated by holding period return being lower than expected return.
2. The second hypothesis will be tested by conducting statistical t-test analysis in order to measure the significance of averages difference between the two groups of variables, holding period return and expected return. The CAPM approach can be considered an accurate model in calculating and predicting the observed firms' stock returns if the averages difference is proven to be insignificant.
3. The third hypothesis is tested by using correlation analysis to examine the relationship between risk and expected return of the observed companies as implied by CAPM.

4. Lastly, descriptive and qualitative analysis and figures will also be provided to enrich the explanation and give insight on the observed phenomena and quantitative conclusions.

RESULTS AND ANALYSIS

1. Descriptive Analysis

a. HoldingPeriod Return

Holding period return illustrates the percentage of difference between the stock's price in a month and the one in the previous month. Presented below is holding period return of ASRI, BSDE, and SMRA (in table 1-9).

According to the data, the observed month-to-month stock prices and returns are very fluctuating. In addition, the three stocks show similar patterns over time. For instances, the prices ranging from June until August 2013 show a pattern of negative returns followed by an increase in price, an increase of price and return in all stocks on July 2014, and prices on other occasions show almost the same pattern in all three stocks. This finding shows that while every company might face different problems and situations, resulting in different overall stock price changes, the overall stock fluctuation will still progress under major influence of market situation and external conditions.

b. ExpectedReturn

Expected return is calculated by using CAPM. Risk-free rate utilizes the interest rate set by Bank Indonesia as the central bank, for which reflects the stance of government towards the country's monetary system, thus translated into an interest rate theoretically holding no risk. The other part of CAPM approach calculates the compensation after taking on additional risk by investing in a market investment instrument. It is obtained by taking a risk measure rate *(β)* which compares the returns of the asset to the market over a period of time and to the market premium $(r_m - r_f)$. Below is the calculatedexpected return *(k)* in the observed stocks (in table 1-9).

Based on the data shown, it is seen that the property and real estate sector's growth since 2013 has been facing a decrement progress, which is due to different phenomena in each year that might bring such set back. Beginning in 2013, the BI Rate has been changing significantly from 5.75% in the first half and constantly increasing in the second half. Such

drastic changes in BI Rate might have shaped a higher public expectation of inflation, thus resulting in decrease of investment for fear of negative returns.

The following year's market progression might have been heavily affected by the national's political condition. Indonesian Rupiah has been declining and weakening against Dollar. The climax was after the Black Monday, August 24th, resulting in the most substantial decrease within the data span, when Rupiah hit the lowest value after the Asian Financial Crisis in 1998.

Since then, the government has been trying to stimulate growth by implementing series of policies, including the increase in loan to value ratio for house mortgage, the revision of luxurious property foreign ownership, and many others. This good intention was warmly welcomed by the property and real estate business players in Indonesia, even though it is projected to take a while for the impacts of the newly introduced policies to develop.

c. Comparison of Expected Return and HoldingPeriod Return

Below is the comparison between holdingperiod return and the expected return obtained using CAPM approach. Return calculated by CAPM correlated with systematic risk (β).The monthly stock returns that are higher than the CAPM return are labeled as underpriced as the capital market values the stocks in those specific periods higher than their intrinsic value.

Table 1 Comparison of Expected Return and HoldingPeriod Return of ASRIin 2013

ASRI					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2013	March	1,806	0,84%	15,05%	Underpriced
	April	1,720	-0,90%	-1,87%	Overpriced
	May	1,613	-2,42%	0,95%	Underpriced
	June	1,650	-12,03%	-29,25%	Overpriced
	July	1,777	-12,74%	-6,67%	Underpriced
	August	1,788	-21,42%	-21,43%	Overpriced
	September	1,981	-1,40%	9,09%	Underpriced
	October	1,953	1,89%	1,67%	Overpriced
	November	1,973	-18,42%	-22,13%	Overpriced
	December	2,021	-6,81%	-9,47%	Overpriced

Table 2 Comparison of Expected Return and HoldingPeriod Return of ASRI in 2014

ASRI					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2014	January	2,020	-0,82%	18,61%	Underpriced
	February	2,004	1,61%	12,75%	Underpriced
	March	1,997	-1,08%	3,48%	Underpriced
	April	2,001	-4,49%	-10,92%	Overpriced
	May	1,986	-5,19%	-5,66%	Overpriced
	June	1,854	-6,98%	-11,60%	Overpriced
	July	1,780	1,82%	18,78%	Underpriced
	August	1,826	-4,47%	-2,86%	Underpriced
	September	1,859	-6,41%	-10,78%	Overpriced
	October	1,981	-9,21%	1,98%	Underpriced
	November	2,015	-5,48%	20,69%	Underpriced
	December	2,309	-6,69%	0,00%	Underpriced

Table 3 Comparison of Expected Return and HoldingPeriod Return of ASRIin 2015-2016

ASRI					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2015	January	2,339	-7,58%	6,25%	Underpriced
	February	2,361	-3,02%	12,61%	Underpriced
	March	2,228	-6,42%	-17,16%	Overpriced
	April	2,411	-29,47%	10,81%	Underpriced
	May	2,328	-4,01%	-2,44%	Underpriced
	June	2,395	-24,49%	-4,17%	Underpriced
	July	2,471	-16,47%	-12,17%	Underpriced
	August	2,494	-26,41%	-29,90%	Overpriced
	September	2,603	-28,51%	-10,73%	Underpriced
	October	2,590	2,26%	23,10%	Underpriced
	November	2,579	-12,35%	-12,85%	Overpriced
	December	2,600	-3,43%	1,18%	Underpriced
2016	January	2,559	-10,07%	-6,41%	Underpriced
	February	2,397	-1,69%	7,17%	Underpriced
	March	2,397	-5,69%	8,14%	Underpriced

Table 4 Comparison of Expected Return and HoldingPeriod Return Period Returns of BSDE in 2013

BSDE					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2013	March	1,714	1,29%	6,45%	Underpriced
	April	1,743	-0,70%	5,05%	Underpriced
	May	1,710	-2,47%	7,69%	Underpriced
	June	1,606	-11,57%	-53,93%	Overpriced
	July	1,582	-11,67%	-22,48%	Overpriced
	August	1,587	-19,89%	-22,00%	Overpriced
	September	1,666	-0,46%	19,23%	Underpriced
	October	1,667	2,27%	12,90%	Underpriced
	November	1,693	-16,70%	-14,29%	Underpriced
	December	1,710	-5,74%	-13,33%	Overpriced

Table 5 Comparison of Expected Return and HoldingPeriod Return of BSDE in 2014

BSDE					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2014	January	1,703	-0,14%	22,44%	Underpriced
	February	1,665	2,03%	5,24%	Underpriced
	March	1,634	-0,50%	5,97%	Underpriced
	April	1,606	-3,44%	4,23%	Underpriced
	May	1,591	-4,16%	13,06%	Underpriced
	June	1,533	-6,89%	-9,56%	Overpriced
	July	1,521	1,35%	18,94%	Underpriced
	August	1,546	-5,85%	-0,74%	Underpriced
	September	1,519	-8,21%	-8,96%	Overpriced
	October	1,555	-10,45%	3,28%	Underpriced
	November	1,600	-6,35%	15,87%	Underpriced
	December	1,701	-5,59%	4,11%	Underpriced

Table 6 Comparison of Expected Return and HoldingPeriod Return of BSDEin 2015-2016

BSDE					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2015	January	1,713	-6,39%	8,55%	Underpriced
	February	1,719	-2,19%	10,00%	Underpriced
	March	1,720	-6,09%	-5,23%	Underpriced
	April	1,702	-24,84%	3,49%	Underpriced
	May	1,704	-2,69%	10,96%	Underpriced
	June	1,688	-20,03%	-17,22%	Underpriced
	July	1,760	-12,78%	6,42%	Underpriced
	August	1,774	-20,66%	-6,90%	Underpriced
	September	1,757	-21,04%	-30,86%	Overpriced
	October	1,746	3,18%	24,55%	Underpriced
	November	1,752	-9,35%	11,11%	Underpriced
	December	1,742	-1,71%	6,45%	Underpriced
2016	January	1,733	-7,79%	-12,42%	Overpriced
	February	1,567	-0,85%	10,38%	Underpriced
	March	1,607	-4,49%	-0,63%	Underpriced

Table 7 Comparison of Expected Return and HoldingPeriod Return of SMRAin 2013

SMRA					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2013	March	1,638	1,08%	9,38%	Underpriced
	April	1,668	-0,99%	-1,14%	Overpriced
	May	1,623	-2,91%	27,17%	Underpriced
	June	1,608	-11,55%	-18,18%	Overpriced
	July	1,679	-10,63%	-12,22%	Overpriced
	August	1,691	-18,26%	-17,09%	Underpriced
	September	1,768	-0,02%	9,92%	Underpriced
	October	1,816	2,68%	9,03%	Underpriced
	November	1,842	-14,74%	-14,01%	Underpriced
	December	1,869	-4,61%	-4,44%	Underpriced

Table 8 Comparison of Expected Return and HoldingPeriod Return of SMRAin 2014

SMRA					
Year	**Month**	***β***	**Expected Return using CAPM**	**Holding-Period Return**	**Stock Pricing**
2014	January	1,856	0,49%	11,63%	Underpriced
	February	1,860	2,60%	6,60%	Underpriced
	March	1,862	0,48%	6,52%	Underpriced
	April	1,825	-2,13%	-4,59%	Overpriced
	May	1,824	-2,66%	3,21%	Underpriced
	June	1,842	-4,48%	-7,76%	Overpriced
	July	1,929	2,65%	6,73%	Underpriced
	August	2,037	-2,63%	1,26%	Underpriced
	September	2,099	-3,87%	-3,74%	Underpriced
	October	2,128	-5,62%	3,88%	Underpriced
	November	2,149	-2,76%	10,28%	Underpriced
	December	2,133	-2,89%	1,98%	Underpriced

Table 9Comparison of Expected Return and HoldingPeriod Return of SMRA in 2015-2016

SMRA					
Year	**Month**	***β***	**Expected Returnusing CAPM**	**Holding-Period Return**	**Stock Pricing**
2015	January	2,157	-3,48%	11,91%	Underpriced
	February	2,174	-0,16%	9,90%	Underpriced
	March	2,176	-3,24%	-3,83%	Overpriced
	April	2,109	-18,60%	-12,65%	Underpriced
	May	2,062	-0,93%	2,15%	Underpriced
	June	2,061	-15,05%	-12,34%	Underpriced
	July	2,090	-9,57%	7,19%	Underpriced
	August	2,071	-16,62%	-10,34%	Underpriced
	September	2,063	-16,81%	-12,46%	Underpriced
	October	2,133	3,96%	15,30%	Underpriced
	November	2,190	-5,98%	4,01%	Underpriced
	December	2,190	0,18%	6,83%	Underpriced
2016	January	2,223	-4,48%	-3,89%	Underpriced
	February	2,165	1,32%	-2,60%	Overpriced
	March	2,165	-1,59%	8,90%	Underpriced

The result of comparison between E(r) and expected return is dominated by undervaluation; it makes up more than 74% of overall data (65% in ASRI, 78% in BSDE, and 81% in SMRA).

This is no surprise, for property and real estate businesses are prone to underpricing.Holding periodreturn of these stocks are higher than return valued by CAPM. Furthermore, the data shows that in events of great decrements in value (such as in June 2013), the Holding period returns fall even lower than the CAPM returns. The findings might represent the nature of property and real estate businesses that highly depend on public trust in high and promising returns. Once the company shows series of negative returns, the trust will suddenly fall and thus resulting in price falling deeper than the intrinsic value.

2. Inferential Analysis

a. T-Test

Statistical t-test is conducted to further analyze the significance of mispricewhether it is significantlyoverpriced or underpriced. The two-sample t-test assuming equal variances on all three companies hypothesized that the mean difference between holding period return and expected return is zero. Below are the null and alternative hypotheses and the result of test.

H_0 : the difference in means is not significant ($\mu_k = \mu_R$ or $\mu_k - \mu_R = 0$)

H_1 : the difference in means is significant ($\mu_k \neq \mu_R$ or $\mu_k - \mu_R \neq 0$)

Table 10 Inferential Analysis (Statistical T-Test) Result

Firm	ASRI		BSDE		SMRA	
	k	*R*	*k*	*R*	*k*	*R*
Mean	-0,081	-0,015	-0,046	0,009	-0,068	0,005
Variance	0,008	0,018	0,004	0,010	0,005	0,026
Observations	37	37	37	37	37	37
Pooled Variance	0,013		0,007		0,016	
df	72		72		72	
t Stat	-2,475		-2,788		-2,514	
P(T<=t) two-tail	0,016		0,007		0,014	
t Critical two-tail	1,993		1,993		1,993	

Based on the P-value of all three datasets, it can be concluded that the difference between means is significant. Furthermore, the fact that the t Stat results are significantly negative indicates that the actualstock return is not only different with expected return obtained from the model but also significantly higher, thus further confirming the notion that property and real estate businesses are prone to undervaluation. It is expected that the market stock price might also wield higher risk when facing shock, especially when the trust

built upon price significantly higher than the expectedreturn falls and the market begins to adjust to the expectedreturn. Such high risk of losing can be seen inherently in events like the 2008 America Housing Crisis.

b. Correlation Analysis

Below is the result of correlation test.

Table 11 Result of Correlation Test

Correlations				
		Expected_Return from CAPM	**Holding Period_Return**	**Risk**
ExpectedReturn from CAPM	Pearson Correlation	1	.619**	-.159
	Sig. (2-tailed)		.000	.095
Holding PeriodReturn	Pearson Correlation	.619**	1	.012
	Sig. (2-tailed)	.000		.904
Risk	Pearson Correlation	-.159	.012	1
	Sig. (2-tailed)	.095	.904	
**. Correlation is significant at the 0.01 level (2-tailed). N=111				

From the result of correlation test we can see that there is a negative significant relationship between risk and expected return of ASRI, BSDE, and SMRA with Pearson correlation of -0.159 and 0.095 significant level. This result explained that the higher the risks the lower the expected return, as also implied by Brealey, Richard A., Stewart C. Myers, and Franklin Allen (2011) and F. Black (1993) that stocks with the highest betas have provided poor returns.For risk and holding-period return of ASRI, BSDE, and SMRA we found that there was positive correlation but not significant, with Pearson Correlation of 0.012 and 0.904 significant level. This result confirmed the CAPM that the higher the risk the higher the return eventhough the result is not significant.

c. Further Discussion

Stocks from well-established companies may trade at a premium. This is mostly due to brand recognition, the fact that these companies are more easily trusted or the sense of security associated with well-established firms. Stock prices can increase due to market demand just like any other commodity. Investors generally desire shares with risk as low as possible, therefore mostly demanding for these well-established companies' stocks. Consequently, the demand for such stocks or shares will increase, thus resulting in undervaluation of the stocks.

The observed companies are well-established real estate players with relatively excellent brand recognition they have enjoyed a significant growth for the past few years. The property market in Indonesia is also seen emerging in number, thus it is to be expected that the stock prices of the major contributors in one of the most secure and fastest growing market sector in the country to be overvalued by investors.

Other factors that play a significant role in shaping the price are global economy and exchange rate. For instances, the oil subsidy reduction in June 2013 along with the increase in BI Rate and the fall of exchange rate contributed in making the price fall.

Although these events affected the market as a whole, the property and real estate sector was actually the sector which accepted the highest impact. It is mainly due to the nature of property and real estate sector, operating the core business under the foundation of trust built upon promising returns of investment over a period of time. While people will generally be attracted to the high return, most are still risk avert and will easily change their mind when facing challenges such as sudden change in BI rate. This is the reason why sometimes the overpricing by market can go very high and suddenly falls even below the intrinsic value. Furthermore, the public fear resonates further due to the American Housing Crisis in 2008; the macroeconomic policy, statement, or analysis imply a noticeable decrease in overall situation or even in some small aspects.

CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

This research has analyzed the stock prices of Alam Sutera Realty, Bumi Serpong Damai, and Summarecon Agung and noticed that mispricing happened from March 2013 until March 2016.

1. The result of comparison between holding period return and expected return is dominated by market overvaluation; it makes up more than 74% of overall data (65% in ASRI, 78% in BSDE, and 81% in SMRA). On the other hand, underpricingby marketalso takes place in some of the weakest time of market progression.
2. The statistical t-test has shown us a proof that the difference between the model and the stock price data is significantly leaning towardsmispricing, answering the question on whether the model can be accurate in predicting the market price of property and real estate businesses. In short, CAPM approach cannot be used in

accurately calculating the stock prices of the observed companies, due to the significant difference between the resulted values.

3. Finally, there is a negative significant relationship between risk and expected return of ASRI, BSDE, and SMRA.

2. Recommendations

From the research findings, the authors believe that there is a need to push forward the development of a more accurate way in predicting a firm's market value which can include factors affecting the mispricing. The urgency to gain more data and empirical studies on such highly fluctuating sectors lies on the need to help both business players and public understand risk on investment instruments on the present days, when public investment, fin-tech companies, and sharing economy emerge together in creating and developing a new economic system.

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APPENDIX

Table 12 Stock Price of ASRI, BSDE, SMRA in 2013-2014

Month	ASRI	BSDE	SMRA	ASRI	BSDE	SMRA
	Stock Price in 2013	Stock Price in 2013	Stock Price in 2013	Stock Price in 2014	Stock Price in 2014	Stock Price in 2014
Jan				Rp510	Rp1.440	Rp955
Feb				Rp575	Rp1.535	Rp1.005
Mar	Rp1.070	Rp1.750	Rp2.475	Rp595	Rp1.635	Rp1.065
Apr	Rp1.050	Rp1.730	Rp2.600	Rp530	Rp1.560	Rp1.110
May	Rp1.060	Rp2.200	Rp2.800	Rp500	Rp1.610	Rp1.255
Jun	Rp750	Rp1.800	Rp1.290	Rp442	Rp1.485	Rp1.135
Jul	Rp700	Rp1.580	Rp1.000	Rp525	Rp1.585	Rp1.350
Aug	Rp550	Rp1.310	Rp780	Rp510	Rp1.605	Rp1.340
Sep	Rp600	Rp1.440	Rp930	Rp455	Rp1.545	Rp1.220
Oct	Rp610	Rp1.570	Rp1.050	Rp464	Rp1.605	Rp1.260
Nov	Rp475	Rp1.350	Rp900	Rp560	Rp1.770	Rp1.460
Dec	Rp430	Rp1.290	Rp780	Rp560	Rp1.805	Rp1.520

Table 13 Stock Price of ASRI, BSDE, SMRA in 2015-2016

Month	ASRI	BSDE	SMRA	ASRI	BSDE	SMRA
	Stock Price in 2015	Stock Price in 2015	Stock Price in 2015	Stock Price in 2016	Stock Price in 2016	Stock Price in 2016
Jan	Rp595	Rp2.020	Rp1.650	Rp321	Rp1.730	Rp1.445
Feb	Rp670	Rp2.220	Rp1.815	Rp344	Rp1.685	Rp1.595
Mar	Rp555	Rp2.135	Rp1.720	Rp372	Rp1.835	Rp1.585
Apr	Rp615	Rp1.865	Rp1.780			
May	Rp600	Rp1.905	Rp1.975			
Jun	Rp575	Rp1.670	Rp1.635			
Jul	Rp505	Rp1.790	Rp1.740			
Aug	Rp354	Rp1.605	Rp1.620			
Sep	Rp316	Rp1.405	Rp1.120			
Oct	Rp389	Rp1.620	Rp1.395			
Nov	Rp339	Rp1.685	Rp1.550			
Dec	Rp343	Rp1.800	Rp1.650			

Table 14 Market Return (Rm) and BI Rate in 2013-2016

Month	Rm	BI Rate	Rm	BI Rate	Rm	BI Rate	Rm	BI Rate
	2013		2014		2015		2016	
Jan			3,383%	7,50%	1,195%	7,75%	0,482%	7,25%
Feb			4,559%	7,50%	3,042%	7,50%	3,376%	7,00%
Mar	3,028%	5,75%	3,205%	7,50%	1,255%	7,50%	1,560%	6,75%
Apr	1,884%	5,75%	1,507%	7,50%	-7,832%	7,50%		
May	0,686%	5,75%	1,111%	7,50%	2,555%	7,50%		
Jun	-4,927%	6,00%	-0,313%	7,50%	-5,861%	7,50%		
Jul	-4,327%	6,50%	4,309%	7,50%	-2,202%	7,50%		
Aug	-9,008%	6,75%	0,944%	7,50%	-6,099%	7,50%		
Sep	2,886%	7,25%	0,014%	7,50%	-6,335%	7,50%		
Oct	4,505%	7,25%	-0,935%	7,50%	5,475%	7,50%		
Nov	-5,635%	7,50%	1,186%	7,75%	-0,196%	7,50%		
Dec	0,417%	7,50%	1,496%	7,75%	3,296%	7,50%		