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THE EFFECT OF DEFAULT RISK AND UNEXPECTED EARNING ON CUMULATIVE ABNORMAL RETURN OF INDONESIAN REAL ESTATE COMPANIES

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Abstract

This paper examines whether Default Risk and Unexpected Earning have any effect on Cumulative Abnormal Return using the control variables of beta, growth, and size and variable interaction between Unexpected Earning with Default Risk, Beta, Growth, Size. The research sample includes 21 real estate companies listed in Indonesian Stock Exchange within the period of 2011-2016. Reverse regression method was used. The results show that Unexpected Earnings, growth and size effect have a significant effect on Cumulative Abnormal Return. All interaction variables have a significant effect on Cumulative Abnormal Return. Higher Unexpected Earning means higher profit quality and higher investors trust, which then will contribute to higher Cumulative Abnormal Return. Further, growth and size contribute to higher Cumulative Abnormal Return because the longer companies operate, the bigger their growth in terms of revenues and total assets.

INTRODUCTION

Decisions are made based on information of economic resources presented in financial statements as well as non-financial measurements such as macro-economics, risks, inflation and exchange rates. Net profit or net loss read by investors results in various reactions. Those numbers in financial statements contain systematic risks and unsystematic risks, quality of profit, beta of shares and growth opportunity. Positive reaction creates good prices for shares. On the other hand, negative reaction creates decreasing price for shares. One of the first studies on market reaction was conducted by Ball and Brown (2014). Their research indicated that reactions of investors to firms with good-news reporting resulted in positive abnormal returns. Bad

news created negative unexpected returns or unexpected earnings (Moradi, Salehi & Erfanian 2010). Positive or negative reactions cause fluctuation of share price. Hence, it will increase or decrease cost of capital and affect systematic risks (Chung, Ariff, & Shamsher, 2017)

Financial Statements and the notes reflecting performance read by many external parties should have the following qualitative characteristic: relevance, timeliness, predictive value, feedback value, reliability, variability, faithfulness, neutrality, comparability and consistency.

Not all profits have the same quality. Good quality profit can be measured using Earning Response Coefficient (ERC). ERC is another measurement for abnormal return observed in reaction to unexpected earning by a company which publishes its financial statements. According to Scott (2015), ERC is a measurement sensitivity shares prices through regression slope coefficient between abnormal returns and unexpected earnings. ERC is highly associated with default risk. Studies conducted by Dhaliwal and Reynolds (1994), Frankel and Lee (1998), Fischer and Verrecchia (1997), Billings (1999), showed that ERC is related to default risk and that ERC is larger in companies with lower default risk than in companies with high default risk.

Companies which have high default risks have the probability of not paying their long term debts. Shapiro (1990) mention that the issue of new bond can increase default risk, but redemption of issued bond can decrease default risk. An (2015) provides evidence that ERC is negatively related to firm's default risk. Firms can raise fund using either debts or equity. The best decision should be made by managers, whether to use bonds or shares or the combination of both using maximized composition of debts and equity. This paper focuses on the influence of default risks to ERC with three controls variable which are beta, growth and size of company.

Cumulative Abnormal Return is the sum of all abnormal returns happened in the company such as dividend announcement, merger or acquisition by company, winning the tender, war, increase or decrease in exchange rates and interest rate announced by the government (Scott, 2015). Abnormal return is the different between actual return and expected return. Actual returns information is gathered from actual closing price respective shares and expected return can be gathered from composite index or benchmark index (Sharpe, 1994). There are several calculations for expected return. The most common method is Capital Asset Pricing Model (CAPM).

The main research question is "do default risk and unexpected earning affect Cumulative Abnormal Return? Why?"

LITERATURE REVIEW

ERC is the effect of a dollar of unexpected earnings on stock returns and can be measured as slope of coefficient in the regression of abnormal stock return on unexpected earning Cho & Jung (1991), Zakaria, Isa, & Abidin (2013). Therefore, ERC is the relationship between returns and firm's earning. ERC is a reaction of Cumulative Abnormal Return (CAR) against Unexpected Earning (UE) declared by the company.

Declaration related to income is one of important factors for external readers. The first paper which investigates readers' reaction was done by Ball and Brown (2014). Their research showed that the reactions of

investors to a company with good news will result in positive abnormal returns and bad new will result in negative unexpected abnormal. Zhaoyun (2007) said that ERC measures how stock prices react to earnings changes. Investors reaction can be break down by capital structure. In this paper, we focus on how capital structure proxy with Debt Equity Ratio will affect ERC. Some companies which have a high debt ratio may generate results different from companies which have a low debt ratio. In his paper, Scott (2015) believes that the different reactions are related to several factors such as beta (systematic risk), growth opportunity, quality of earning, persistence of earning, information load of prices and capital structure. The earnings response coefficient (ERC) is another measure for the abnormal return observed in reaction to unexpected element of earnings through a regression slope coefficient between abnormal returns and unexpected earning based on Scott (2015) in (Moradi et al., 2010).

Collins & Kothari (1989) found that ERC has a positive relationship with growth opportunity and earning persistence, as well as negative relation risk-free rate and systematic risk. Dhaliwal & Reynolds (1994) proved that default risk may also negatively affect ERC. They ranked the debt ratio and stock ratio to measure the bankruptcy risks. Billings (1999) revealed that default risk affects ERC. Beta may be an adequate measure to capture all risks of particular securities Fama and French (1993). Total risk consists of systematic risks and unsystematic risks. Systematic risks arise from factors common to all securities whereas unsystematic risks reflect variations of factors unique to given securities. According to the CAPM of Sharpe (1994), Lintner (1965), and Black (1972), beta is the only determinant of systematic risk because it reflects sensitivity to variations in return on the market portfolio of all risky assets.

Moradi et al. (2010) studied the effect of leverage to ERC in Tehran Stock Exchange The results showed that ERC is lower for firms with high leverage and vice versa. The higher ERC is in the company, the better the value of company. Higher ERC means good quality of earning and investors more relied on the information published by the company.

Unexpected Earnings (UE) is the portion of an investment gain or loss that is attributable to unforeseen events. Unexpected Earning or Unexpected Return is used interchangeably depending on the author's preference. However, the two terms have the same meaning. Unexpected Earnings measure the number of standard deviations while the actual earnings position is relative to the entire set of analyst forecast. In other words, Unexpected Earnings refer to the difference between actual and estimated earnings. Unexpected Earning happens in unpredicted situations, for example when the Board of Directors announces a big loss suddenly which may cause share price drop afterwards. Unexpected Earnings should be related to Cumulative Abnormal Return.

Default Risks is a specific risk attached to a company. Because it is attached, it will influence Unexpected Return of the company. There is always a possibility that a company cannot pay back its debt so that the expected return will decrease. Investors will be unsure about the return if the company has high debt for financing its operations. This situation will make investors more careful and be conservatism in their action.

Beta in stock investing indicates that the investment is less or more volatile than the market as a whole. Beta measures the risk arising from exposure to general market movement as opposed to idiosyncratic factors. Beta of a stock less than1 means that the stock is less volatile than the market. If beta of a stock is is more than 1, this means that the stock is more volatile than the market. If a stock beta is 0.9, this means theoretically the stock is 10% less volatile than the market.

Growth in a company means the company can generate sufficient cash flow in operations, investment and financing. There are several ways to achieve positive growth by using strategic management style. We can see growth from company's revenue, earnings, dividend, or number of share outstanding in public. Having positive growth is important for a company to sustain the operation, be attractive to investors and valuable to analysts. Growth can be achieved faster by adding more debt but it put more risks on the company and some companies try to avoid using a lot of debts. A study done by Sheluntcova (2014) revealed that debt is an element of instability and that companies must try to avoid it. Research done by Rufina, Ariyanto, & Lesmana (2013) suggest that big companies which used high debts grow more than small companies with small debt ratio.

Size refers to how big a company is. The most commonly used indicators to measure company size are total assets, total sales and market capitalization. The size of a company has a significant negative effect on ERC (Collins & Kothari, 1989) and much information available to investors makes the size of company become significantly negative to ERC. Most of the time, big companies have more information than the smaller ones. Much information available for investors will make them confused in making decisions. Thus, the information is less reliable and it will reduce ERC in overall.

After reviewing previous studies on ERC with many variables, this paper further fills the gap by using moderating and interaction variables. Therefore, this research uses the moderating and interaction variables which are beta, growth, size to determine the one/s significantly affecting ERC.

MATERIALS AND METHODS

There are two research questions addressed in this study: how Default Risk affects Cumulative Abnormal Return (CAR) and how Unexpected Earning affects Cumulative Abnormal Return (CAR) on real estate companies in the period of 2011-2016 together with three moderating variables and three interaction variables. The population of this study consists of Real Estate Property listed on Indonesia Stock Exchange in the period of 2011-2016. From 46 Real Estate Property company listed, only 21 companies can be used for this study. We excluded companies which did not have adequate information such as the inactive shares trading during the period of examination and no information about closing price as well as discharging all the outliers.

Operational Variables

1. Independent Variable consists of Default Risk and Unexpected Earning. Default Risk is measured using Debt Earning Ratio(DER)
and Unexpected Earning is measured using Earning Per Shares (EPS)

2. Dependent Variable is cumulative abnormal return (CAR). CAR is accumulated from abnormal return and abnormal return is the difference between actual return and expected return

3. Controls Variables

There are 3 controls variables, which are beta, growth and size.

3.1 Beta is used to measure share systematic risk against market return using single index model.

3.2 Growth explains the opportunity to expand the business in the future (Lukman, 2014). Growth can be measured using Market to Book Value of an equity ratio.

3.3 Size using Ln (total assets) is used to measure the size of the company

4. Interaction Variables consist of Unexpected Earnings and Default Risk(UE*DRISK), Unexpected Earnings and Beta(UE*BETA), Unexpected Earnings and Growth(UE*GROWTH) and Unexpected Earnings and Size(UE*SIZE).

The study investigates that ERC is associated with Unexpected Earning and Default Risks together with moderating variables and interaction variables, the empirical model is:

$$CAR = \alpha_0 + \alpha_1 UE + \alpha_2\, DRISK + \alpha_3\, BETA + \alpha_4 GROWTH + \alpha_5\, SIZE + \alpha_6 UE * DRISK + \alpha_7 UE * BETA + \alpha_8\, UE * GROWTH + \alpha_9\, UE * SIZE + \varepsilon$$

Where:

CAR = Cumulative Abnormal Return

UE = Unexpected Earnings

DRISK = Default risk

BETA = Systematic Risk

GROWTH = Opportunity to grow

SIZE = Size of company

UE*DRISK = Intersection between UE and DRISK

UE*BETA = Intersection between UE and BETA

UE*GROWTH = Intersection between UE and GROWTH

UE*SIZE = Intersection between UE and SIZE

ε = *error*

RESULTS AND DISCUSSIONS

We used moderating (beta, growth and size) and interaction variables (UE*beta, UE*growth, UE*size). We used panel data regression to estimate ERC using E-views version 9.0. Table 1 shows the hypothesis test using common effect.

Table 1: *Regression Model Common Effect*

Dependent Variable: CAR
Method: Panel Least Squares
Date: 01/30/18 Time: 06:41

Sample: 2011 2016
Periods included: 6
Cross-sections included: 21
Total panel (balanced) observations: 126

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.635660	0.933134	2.824523	0.0056
UE	1.638355	0.812308	2.016913	0.0460
DRISK	0.043597	0.040851	1.067219	0.2881
BETA	0.094333	0.078262	1.205349	0.2305
GROWTH	0.084179	0.022365	3.763815	0.0003
SIZE	-0.096411	0.033033	-2.918592	0.0042
UE*DRISK	-0.144491	0.046225	-3.125804	0.0022
UE*BETA	0.525473	0.093003	5.650093	0.0000
UE*GROWTH	0.062171	0.021959	2.831266	0.0055
UE*SIZE	-0.071074	0.029662	-2.396159	0.0182

R-squared	0.440378	Mean dependent var	0.178776
Adjusted R-squared	0.396960	S.D. dependent var	0.501059
S.E. of regression	0.389101	Akaike info criterion	1.026081
Sum squared resid	17.56233	Schwarz criterion	1.251183
Log likelihood	-54.64313	Hannan-Quinn criter.	1.117533
F-statistic	10.14255	Durbin-Watson stat	2.047239
Prob(F-statistic)	0.000000		

E-views version 9

$$CAR = 2.635 + 1{,}638\ UE + 0{,}043\ DRISK + 0.094\ BETA + 0.084\ GROWTH - 0.096\ SIZE - 0.144\ UE*DRISK + 0.525\ UE*BETA + 0.062\ UE*GROWTH - 0.071\ UE*SIZE + \varepsilon$$

From table 1, the following results are obtained:

Unexpected Earning (UE) is significant to Cumulative Abnormal Return (CAR) with sig value 0.046<0.05 and coefficient UE 1.638. The positive number means that increasing 1 unit UE will increase CAR 1.638. UE is accounting profit taken from EPS which significantly contributes to CAR. The higher UE in the company, the higher the quality of profit and the confidence level of investors are. High quality profit will be shown in higher Earning Response Coefficient. Increasing UE will increase Cumulative Abnormal Return. This finding aligns with those of previous empirical studies done by Ball and Brown (2014), An (2015), Zakaria et al. (2013).

Default Risk (DRISK) is not significant to Cumulative Abnormal Return (CAR) with sig value of 0.2881>0.05 and coefficient UE of 0.0435. DRISK is taken from Debt to Total Equity. DRISK is not significant to CAR because Real Estate companies have high leverage and managers must manage high debt cautiously to make sure all interest expenses are paid out. Using high leverage is good for bondholders because they are sure to get interest coupon first before dividend is distributed. Investors thought differently, that having high debts means high risks. Investors are afraid if the company cannot pay dividend sufficiently. Leverage is not a main focus for investors in making decisions. So, this indicates that leverage is not significant to Cumulative Abnormal Return.

Beta (BETA) is not significant to Cumulative Abnormal Return (CAR) with sig value of 0.2305>0.05 and coefficient UE of 0.0943. BETA is a measurement for systematic risks and it is not significant to CAR because

most Real Estate companies are growing and young in age. So, their BETAs are usually high. The closing price used to calculate BETA does not affect Cumulative Abnormal Return and investors do not really depend on closing price. Rather, they use financial ratios and other valuation methods to calculate profit. This proposition is consistent with Fama and French (1993) that increasing systematic risk and unsystematic risk will reduce shareholders' wealth. Increasing risks can happen if there is insider trading that may increase or decrease Cumulative Abnormal Return. Our samples were taken from real estate companies which have less riskiness because of the big size of the companies. They have been in the business for many years. They are well established and many people recognize their business for many years. This makes the profile have less risk. Further, the risk associated with this industry is not significant to Cumulative Abnormal Return. This proposition agrees with Fama and French (1993) that increasing systematic risk and unsystematic risk will reduce shareholders wealth.

Growth (GROWTH) is significant to Cumulative Abnormal Return (CAR) with sig value of 0.0003<0.05 and coefficient GROWTH of 0.0841. Positive number means that increasing 1 unit GROWTH will increase CAR 0.0841. Higher GROWTH will create an opportunity for the company to earn more profit. Higher profit will create higher Unexpected Earning and higher ERC at the end. This finding aligns with An (2015), Ball and Brown (2014), Zakaria et al. (2013).

Size (SIZE) is significant to Cumulative Abnormal Return (CAR) with sig value of 0.0042<0.05 and coefficient SIZE of -0.0964. Negative number means that increasing 1 unit SIZE will decrease CAR -0.0964. Investors have better information from large companies compared to smaller companies. Investors are willing to put more money for buying larger companies than the smaller ones. This results in higher CAR. The size of the company shows the big number shares in the public, big volume transaction, and a wide variety of activities. The big size of a company means that the company has enough resources to operate various activities, have better management, and have good accounting planning. Big companies look attractive and withdraw more investors than smaller companies do.

The interaction variable of UE*DRISK is significant to Cumulative Abnormal Return (CAR) with sig value of 0.0022<0.05 and coefficient UE*DRISK of -0.1444. The negative number means that increasing 1 unit UE*DRISK will decrease CAR -0.1444. DRISK as an interaction variable to Unexpected Earnings is significant to Cumulative Abnormal Return (CAR). Investors always calculate risk and return. So, risk is significant to Unexpected Earnings. Investors always put their money into types of securities which yield more than required rate of return. Using real estate companies as a sample, we conclude that the investors tend become as a risk adverse as a human in general. Putting more debts to increase revenues is unlikely for real estate companies because property is expensive for most people and if the business is not good, then the companies will have a lot of inventories unsold.

Variable interaction UE*BETA is significant to Cumulative Abnormal Return (CAR) with sig value 0.0000<0.05 and coefficient UE* BETA

0.5254 positive number means increasing 1 unit UE*BETA will increased CAR 0.5254. BETA as interaction variable to Unexpected Earnings is significant to Cumulative Abnormal Return (CAR).This study agree with (Zakaria et al., 2013) who said increasing BETA will result increasing CAR in a way investor put more risks and expect higher return which reflect in increasing CAR.

Interaction variable UE* GROWTH is significant to Cumulative Abnormal Return (CAR) with sig value of 0.0055<0.05 and coefficient UE* GROWTH of 0.0621. The positive number means that increasing 1 unit UE* GROWTH will increase CAR 0.0621. Growth as interaction variable to Unexpected Earnings is significant to Cumulative Abnormal Return (CAR), indicating that maximal rate of return has been done. High rate of return is an important achievement for the management because it can attract more investors to put their money into shares and at the end, the size of the company will become larger.

The interaction variable of UE* SIZE is significant to Cumulative Abnormal Return (CAR) with sig value of 0.0182<0.05 and coefficient UE* SIZE of -0.0710. The negative number means that increasing 1 unit UE* SIZE will decrease CAR -0.0710. SIZE as interaction variable to Unexpected Earnings is significant to Cumulative Abnormal Return (CAR).

Coefficient Determination Test (R^2) was done to identify how close the data fit to regression line, and how independent variables can explain the dependent variable. R square showed 0.4404 and Adjusted R square showed 0.3970. We can say that our independent variables can explain the dependent 39.69%. The rest 60.31% is explained by other things not included in this model.

CONCLUSIONS

This paper analyzed whether default risk and unexpected earning affect cumulative abnormal return in real estate companies listed in Indonesia Stock Exchange within the period of 2011-2016.

The results showed that unexpected earning, growth and size affect cumulative abnormal return. All interaction variables also have a significant effect on cumulative abnormal return. Unexpected earning affects cumulative abnormal return, which is a sign of informativeness reported by companies through their financial statements. Higher growth and size of companies affect cumulative abnormal return, showing the big trust in big, old companies. Most big and old companies operate their business for many years. Cumulative Abnormal Returns can be achieved if Unexpected Return of a company is positive, which means that the company should have positive profits along the way because profit will add prosperity and wealth for stakeholders. With adequate profit, the company can do many activities and do more innovations for customers.

There are some issues which can be addressed by future research. First, further research on default risk using bond can be done. This can involve companies which issue bond. Thus, the financial leverage will be enhanced by the change. Second, the rate of investment growth opportunities on ERC should be taken into account. Last, further research should cover a longer period and involve different companies in industries. The research may compare the results from each industry.

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