# The Effect of Earnings Management, Liquidity Ratio, Solvency Ratio and Profitability Ratio on Bond Ratings in the Property Sector Listed on the IDX

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**ABSTRACT**

This study aims to analyze the effect of earnings management, liquidity ratios, solvency ratios, and profitability ratios on bond ratings. The obligations of a property and real estate sector company given by a depository are important for investors to know because investors will know the rating of the company that is eligible or not to invest. The population of this study is 45 companies listed on the Indonesia Stock Exchange in the property and real estate sector during the 2017-2020 period. The sampling technique used was purposive sampling method and 22 companies were selected as samples. This study uses quantitative descriptive methods and multiple regression tests to determine the relationship between variables. The results of the analysis show that earnings management, liquidity ratios, solvency ratios and profitability ratios have an effect on bond ratings in the property sector listed on the IDX.

**Keywords:**
Earnings management, liquidity ratios, solvency ratios, profitability ratio, bond ratings, property sector.

## 1. Introduction

Bond investment is one of the investments that is in demand by investors because it has a fixed income, the fixed income is obtained from interest that will be received periodically and the principal of the bond at maturity, in the issuance of bonds aims to avoid bad judgment by investors compared to if the company issued a bond new stock. This is based on the fact that every investor in investing definitely wants the expected profit (Kalfin et al., 2019a; Kalfin et al., 2019b; Kalfin et al., 2020). For issuers, bonds are safe securities because the issuance costs are cheaper than stocks. Companies that have high bond ratings will be preferred by investors than companies with low bonds. Bond issuing companies will try to improve their performance so that high bonds can be obtained, in conducting bond ratings there are factors that influence the determinants of bond ratings such as an assessment of the financial statements (Sukono et al., 2020; Hasbullah et al., 2020).

Earnings management is a form of deviation in the process of preparing financial statements, which affects the level of profit displayed in the financial statements. The purpose of carrying out earnings management practices is so that the bond ratings that will be issued by the rating agency fall into the category of companies that are worthy of being an investment place for investors. The rating of a company that is worthy of being a place of investment is

usually called investment grade. With a good rating, it will increase investor confidence and maximize the funds that enter the company. Investors can assess the security level of a bond and the credibility of the bond based on the information obtained from the rating agency. The largest and most well-known rating agencies in the world are Moody's and Standard & Poor's, while in Indonesia there are three debt securities rating agencies, namely PT.PEFINDO (Indonesian Securities Rating), PT. Fitch Ratings Indonesia and PT. Kasnic Credit Rating Indonesia (Appendix to Circular Bank Indonesia Nomor 7/8/DPNP, 2005).

In this study using bond rating data issued by PT. PEFINDO because this agency publishes bond ratings every month and the number of companies that use this rating service is far more than other rating agencies. In the rating process, the rating company performs an analysis that will be used to assign a bond rating value. Investors generally use the rating of a bond to measure the risks faced in buying bonds. The closer the bond's rating to idAAA means the better the rating and the less likely it is that the bond will fail to meet its interest and principal obligations. This means that the higher the bond rating, the lower the risk faced by investors. And conversely, the lower the bond rating, the higher the investor's risk of experiencing bad debt.

Several previous studies have shown varied results, among others, in a study conducted by Diego and Antonio (2016) stating that earnings management has a significant effect on bond ratings, so that if earnings management increases, the better the bond rating of a company. However, research conducted by Maria and Herni (2020) states that earnings management has a negative effect on bond ratings.

## 2. Literature Review

### 2.1 Earning Management

Earnings management are managers' actions to increase (decrease) the current period's profit of a company that is managed for the purpose of avoiding losses and so on. Earnings management can make the company's performance look good to investors by increasing the profits earned by the company. It is suspected that the management of a company tends to carry out earnings management or earnings engineering in the period around the issuance of bonds so that the company's performance looks good because it will have an impact on obtaining bond ratings so that it will increase the attractiveness of the company in the eyes of investors. Earnings management is a form of deviation in the process of preparing financial statements, which affects the level of profit displayed in the financial statements. Earnings management proxy in this study uses Healy's (1985) model in Sari and Bandi (2010). The measurement of estimated accruals under management uses the following model:

$$EDA_{it} = \frac{TAit}{Ait - 1}$$

Information :

**EDAit** = Estimated accruals under management for period t

**TAit** = Total accruals period t

**Ait** = Total assets in period t

By calculating the total accruals as follows:

**TAit** = Net Profit - Cash

How to see the company is doing earnings management or not, as shown by the average result which is positive indicating that the company is doing earnings management in certain ways to increase profits. Meanwhile, the average result that is negative indicates that management is making efforts to reduce or reduce profits..

### 2.2 Liquidity Ratio

The cash ratio is a measure of a company's liquidity, specifically the ratio of a company's total cash and cash equivalents to its current liabilities. This metric calculates a company's ability to repay its short-term debt with cash or near-cash resources, such as marketable securities. According to (Kasmir, 2014) stated the liquidity ratio is a ratio that describes the company's ability to meet short-term obligations (debt). The higher the current ratio value, the better for the company so that the company is able to meet and cover the company's debt so that it can affect a company's bond rating.

$$Current\ Ratio = \frac{\text{Cash Assets}}{\text{Total Deposit}}\ x\ 100\%$$

**2.3 Solvency Ratio**

According to (Kasmir, 2014) the solvency ratio is the ratio used to measure the extent to which the company's assets are financed with debt. The solvency ratio used is the primary ratio, which is the ratio used to determine whether the capital owned is adequate or the extent to which the decline in total assets can be covered by own capital. The higher the level of debt will have a bad impact if there is a continuous spike that will have an impact on the bankruptcy of a company so that it can affect the bond rating of a company.

$$Debt\ Equity\ Ratio = \frac{\text{Total Debt}}{\text{Equity}}\ x\ 100\%$$

**2.4 Probability Ratio**

According to (Kasmir, 2014) Profitability is the company's ability to profit in relation to sales, total assets and own capital. This ratio can help company management and investors to see how well a company is able to manage its investment in assets into profit or profit. The higher the return on assets, the better for the company. The higher the return on assets, the better for the company because the company will quickly meet the company's debt so that it will affect the bond rating of a company.

$$Return\ on\ Assets = \frac{\text{Laba Bersih}}{\text{Cash}}\ x\ 100\%$$

**2.5 Bond Rating**

Investors who use information on a bond rating for consideration before making a purchase to avoid the possibility of default risk. One of the company's policies in order to get funds without having to owe to banks and issue new shares is to issue bonds. The rating given by the reting agency will state whether the bond is at investment grade or non-investment grade. From the investor's perspective, the existence of this rating agency can assist investors in obtaining investment information regarding the ability of the issuer, viewed from the economic and financial aspects of a company. The rating of each bond is carried out by a rating agency, providing an overview of the credibility and influencing the sale of the bonds concerned so that the credit quality of the issuing company can be seen from the bonds. The following is the result of rating conversion for the sample used in this study from the rating issued by PT. Pefindo 2020.

**Table 1.** Bond Rating Conversion Results

| | |
|---|---|
| **idAAA** | 19 |
| **idAAA-** | 18 |
| **idAA+** | 17 |
| **idAA** | 16 |
| **idAA-** | 15 |
| **idA+** | 14 |
| **idA** | 13 |
| **idA-** | 12 |
| **idBBB+** | 11 |
| **idBBB** | 10 |
| **idBBB-** | 9 |
| **idBB+** | 8 |
| **idBB-** | 7 |
| **idBB** | 6 |
| **idB+** | 5 |

| | |
|---|---|
| **idB-** | 4 |
| **idB** | 3 |
| **idCCC** | 2 |
| **idD** | 1 |

Source: www.pefindo.com

## 3. Material and Research Method

- **Material**

This study uses secondary data sources that refer to data collected by other people other than the main users such as financial statements from companies that are sampled in the study, namely property and real estate sub-sector index companies during the 2017-2020 period. The population and sample in this study used the property and real estate sub-sector index during the 2017-2020 period. Data collection starts from the 2017-2020 period due to fluctuating price book value movements. The population in this study were 45 companies. Sampling was carried out using purposive sampling method with the following criteria:

1. Property and real estate companies that go public and are listed on the IDX and are listed in the rating company PT Pefindo.
2. Property and real estate companies that are registered and still active on the IDX for the 2017-2020 period.
3. Companies must publish financial statements in rupiah for the 2017-2020 period and include the value of the variables studied by earnings management as proxied by EDAit, liquidity ratios proxied by Cash Ratio, solvency ratios proxied by Debt to Equity Ratio, and profitability ratios proxied by Return on Assets.

A sample of 4 companies with a research period of 4 years, companies in reporting financial statements and listed in the bond ranking by PT Pefindo in the current year, 2021 so that the total data obtained is 4 data. Table 2 is a sample from the study :

**Table 2.** List Sample Research

| No | Stock Code | Company |
|---|---|---|
| **1** | **BSDE** | Bumi Serpong Damai Tbk. |
| **2** | **DILD** | Intiland Development Tbk. |
| **3** | **MDLN** | Modernland Realty Tbk. |
| **4** | **PPRO** | PP Properti Tbk. |

*Source: IDX 2021*

The data analysis technique in this study uses the E-views version 9 software application

- **Method**

In this study, the author uses quantitative methods and descriptive analysis and then for data analysis techniques using multiple regression techniques to estimate the relationship between the dependent variable and one or more independent variables. Then the classical assumption is made to see whether the data being tested is normally distributed or not to carry out the next stage.

Classical assumptions consist of several test assumptions that must be met, including normality which is used to determine whether a data set is well modeled by a normal distribution and to calculate how likely it is that the random variables underlying the data set are normal. distributed. Then the multicollinearity test, which refers to a situation where more than two explanatory variables in the multiple regression model are highly linearly related. Then, autocorrelation analysis measures the observed relationships between different time points, and thus looks for patterns or trends over the time series. Then the heteroscedasticity test was carried out to see whether there was a model dissimilarity in the observed variables and this test should not allow heteroscedasticity to occur.

If all the classical assumption tests have been met, then the next stage of testing can be carried out, namely the multiple linear regression analysis test. Multiple linear regression is a model to predict the value of one

dependent variable based on two or more independent variables (Januaviani et al., 2020a; Januaviani et al., 2020b). The formula for multiple linear regression analysis in this study is as follows:

$$\mathbf{Y = \alpha + \beta 1.X1 + \beta 2.X2 + \beta 3.X3 + \beta 3.X4 + e}$$

**Description:**

| | |
|---|---|
| Y | = Bond Rating |
| A | = Constants |
| β1, β2, β3, β4 | = Partial Coefficient Regression |
| X1 | = Earning Management |
| X2 | = Liqudity Ratio |
| X3 | = Solvency Ratio |
| X4 | = Probability Ratio |
| e | = Error |

The regression coefficient value above is a fundamental method because it can be used as a basis for research analysis. A positive coefficient value indicates that the independent variable affects the dependent variable, whereas a negative coefficient value indicates that the independent variable does not affect the dependent variable and this causes the dependent variable to decrease in value. From this regression analysis test shows or examines whether these variables have a relationship or not. In testing the significance of all independent variables having an effect or not on the dependent variable, it is necessary to use an ANOVA approach (F test) and to test the level of significance of each variable, it is necessary to do a t test.

### 3.2.1 Structure

The framework model for multiple regression research that has been stated previously is as follows::

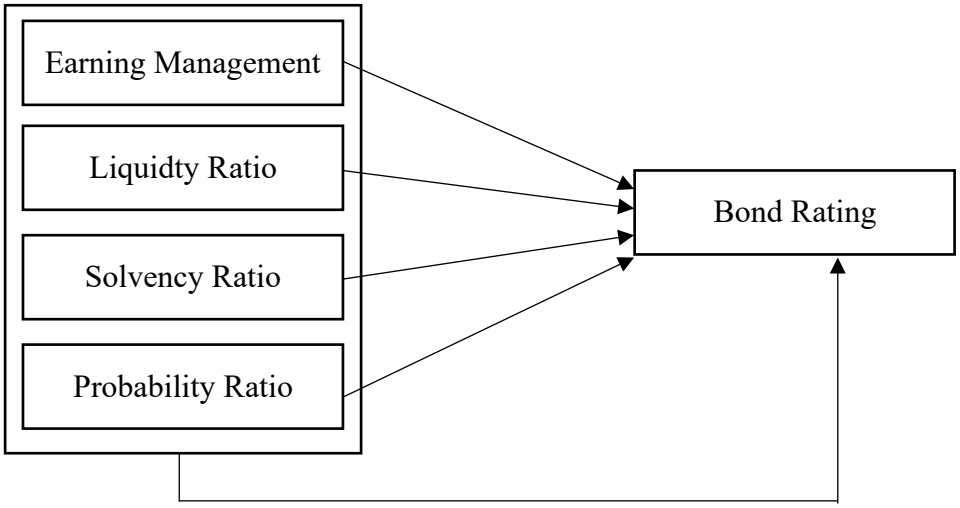


**Figure 1** Thinking Framework Model

## 4. Research Results and Discussion

### 4.1 Descriptive Analysis

Descriptive statistics can be useful for two purposes: 1) to provide basic information about variables in a data set and 2) to highlight potential relationships between variables. The descriptive statistics used in this study consist of data (N), the average value (mean), minimum, maximum, and standard deviation of the data.

**Table 3.** Descriptive statistics

| | CR | DER | MNJ_LABA | PERINGKAT_OBLIGASI | ROA |
|---|---|---|---|---|---|
| **Mean** | 49.75000 | 59.06250 | -2.625000 | 9.000000 | 18.56250 |
| **Median** | 40.50000 | 59.50000 | 0.000000 | 9.500000 | 5.500000 |
| **Maximum** | 131.0000 | 160.0000 | 10.00000 | 15.00000 | 102.0000 |
| **Minimum** | 5.000000 | 1.000000 | -24.00000 | 2.000000 | 0.000000 |
| **Std. Dev.** | 40.74064 | 50.13112 | 8.845903 | 4.788876 | 27.88301 |

### 4.2 Normality test

Normality test is a data processing method used in research to test data that is normally distributed or not. In this normality test, several methods can be used, namely the kmolgorov-smirnov test and the jarque-berra test, in this study using the jarque-berra test with the following results:

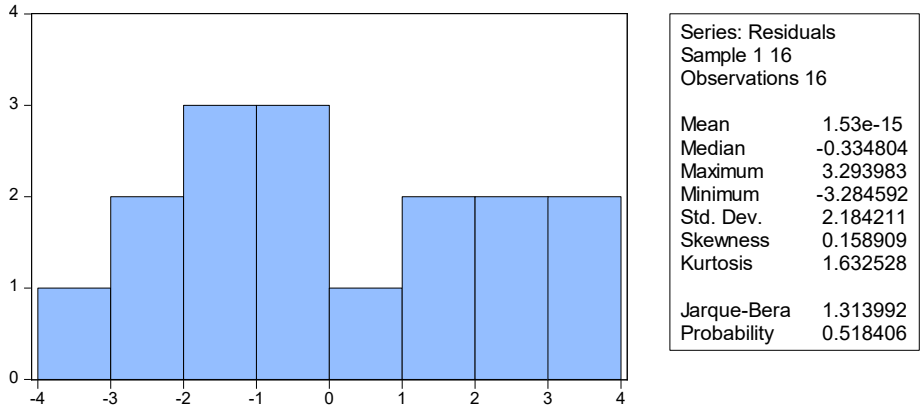


**Figure 2** Jarque-Bera Probability Normality Test

Based on the appearance of the diagram, the value of probability is 0.52. The results of the study show that the Jarque Bera Probability (0.52 > 0.05). Therefore, based on the normality test, the data of this study were normally distributed.

### 4.3. Multicollinearity Test

Multicollinearity can affect any regression model with more than one predictor. It occurs when two or more predictor variables overlap so much in what they measure that the effects are indistinguishable. The multicollinearity test is seen from the Variance Inflation Factor (VIF) value, if the VIF value is less than 10, it means that there is no multicollinearity problem between independent variables, and if the VIF value is greater than 10, then there is a multicollinearity problem.

**Table 4.** Multicollinearity Test

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| C | 1.477319 | 3.633343 | NA |
| MNJ_LABA | 0.015415 | 3.042527 | 2.781282 |
| CR | 0.000484 | 4.800098 | 1.852895 |
| DER | 0.000505 | 7.259822 | 2.926640 |
| ROA | 0.000612 | 1.615524 | 1.096951 |

Based on the table, all variables have a VIF centered value below 10 or VIF < 10, so it can be concluded that the research regression model formed does not occur multicollinearity symptoms.

### 4.4. Auto Correlation Test

The autocorrelation test refers to the degree of correlation between the values of the same variable across different observations in the data. In regression analysis, autocorrelation of the regression residuals can also occur if the model is not correctly determined.

**Table 5.** Autocorrelation Test

| | |
|---|---|
| Mean dependent var | 9.000000 |
| S.D. dependent var | 4.788876 |
| Akaike info criterion | 4.960848 |
| Schwarz criterion | 5.202282 |
| Hannan-Quinn criter. | 4.973212 |
| Durbin-Watson stat | 1.928007 |

In this study to see whether there is a relationship between variables is done using the Watson Durbin test. The results showed that DW < L is 1.928 < 1.9351 which means that there is a positive autocorrelation.

### 4.5. Heteroscedasticity Test

Heteroscedasticity test was used to analyze the variance inequality of the residuals between observations. If the probability value of each variable is less than 0.05, it can be interpreted that the data has heteroscedasticity problems. A good regression model does not show symptoms of heteroscedasticity.

**Table 6**

Glesjer Heteroscedasticity

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1.838311 | 0.360841 | 5.094513 | 0.0003 |
| MNJ_LABA | 0.029073 | 0.036860 | 0.788730 | 0.4469 |
| CR | -0.001180 | 0.006532 | -0.180561 | 0.8600 |
| DER | -0.003195 | 0.006672 | -0.478823 | 0.6414 |
| ROA | 0.020508 | 0.007344 | 2.792473 | 0.0175 |

Based on the glesjer test table, the prob value of each variable is greater than the research probability value of 0.05 so it can be said that in the model there is no heteroscedasticity problem.

### 4.6. Multiple Regression Analysis

This test was conducted to determine the effect that occurs on the dependent variable and the independent variable. Table 5 shows the results of multiple regression tests:

**Table 7.** Multiple Regression Test Result

Dependent Variable: PERINGKAT_OBLIGASI
Method: Least Squares

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 3.349154 | 1.215450 | 2.755484 | 0.0187 |
| MNJ_LABA | -0.001607 | 0.124159 | -0.012944 | 0.9899 |
| CR | 0.095634 | 0.022004 | 4.346275 | 0.0012 |

| | | | | |
|---|---|---|---|---|
| DER | 0.021635 | 0.022474 | 0.962664 | 0.3564 |
| ROA | -0.020955 | 0.024737 | -0.847086 | 0.4150 |

Based on Table 5. The resulting regression equation is as follows:

$$Y = \alpha + \beta 1.X1 + \beta 2.X2 + \beta 3.X3 + \beta 3.X4 + e$$

**Y = α +(-0,0016).MNJ_Laba + 0,0956.CR + 0,0216.DER + (-0,0209).EPS + e**

1. Constant = 3.3491, if the value of earnings management, liquidity ratio, solvency ratio, and profitability ratio is 0 then the book value of the price will decrease by 3.3491 points.
2. The regression coefficient for earnings management is -0.0016 if earnings management increases by 1 point, the bond rating will decrease by 0.0016 points. The coefficient is negative, which means that there is no relationship between earnings management and bond ratings.
3. The regression coefficient for the liquidity ratio is 0.0956 if the liquidity ratio increases by 1 point, the bond rating will increase by 0.0956 points. The coefficient is positive, meaning that there is a positive relationship between the liquidity ratio and the bond rating.
4. The regression coefficient for the solvency ratio is 0.0216 if the solvency ratio increases by 1 point, the bond rating will increase by 0.0216 points. The coefficient is positive, meaning that there is a positive relationship between the solvency ratio and the bond rating.
5. The profitability ratio regression coefficient is -0.0209 if the profitability ratio increases by 1 point, the bond rating will decrease by 0.0209 points. The coefficient is negative, which means that there is no relationship between profitability ratios and bond ratings.

### 4.7. Uji Secara Simultan (Uji F)

The F statistic is used to test whether the independent variable has a simultaneous or partial effect on the dependent variable.

**Table 8.** Test Result F-test

| | |
|---|---|
| F-statistic | 10.46936 |
| Prob(F-statistic) | 0.000952 |

Based on Table 6. It can be seen that the calculated F is 10,469 and at a significant level of 0.000 < 0.05 so it can be said that the four independent variables are earnings management proxied by EDAit, liquidity ratio proxied by Cash Ratio, solvency ratio proxied by Debt to Equity Ratio, and the profitability ratio proxied by Return on Assets, simultaneously affect the Bond Rating.

### 4.8. Coefficient of Determination Test Results (R2)

The coefficient of determination shows the percentage of the independent variable on the dependent variable. By looking at the high percentage level, the higher the influence of these variables. The following are the results of the data that have been determined:

**Table 9.** Determination Coefficient Test Result

| | |
|---|---|
| R-squared | 0.791972 |
| Adjusted R-squared | 0.716325 |
| S.E. of regression | 2.550609 |

Based on Table 4. the value of the coefficient of determination or Adjusted R-squared is 0.716 or 71.6%, which means that the dependent variable can be influenced by the independent variable. It can be said that 71.6% of bond rating variables are influenced by earnings management as proxied by EDAit, liquidity ratios as proxied by Cash Ratio, solvency ratios proxied by Debt to Equity Ratio, and profitability ratios proxied by Return on Assets. While 28.4% is influenced by other variables in financial ratios that are not used in this study.

### 4.9. Partial Test (T Test)

**Table 10.** Test Result t-test

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 3.349154 | 1.215450 | 2.755484 | 0.0187 |
| MNJ_LABA | -0.001607 | 0.124159 | -0.012944 | 0.9899 |
| CR | 0.095634 | 0.022004 | 4.346275 | 0.0012 |
| DER | 0.021635 | 0.022474 | 0.962664 | 0.3564 |
| ROA | -0.020955 | 0.024737 | -0.847086 | 0.4150 |

1. Based on Table 8. It can be explained as follows:
2. The value of t count < t table is (-0.012 < 1.720) and the significant level is 0.9899 > 0.05 then H0 is accepted. This means that there is no significant effect between earnings management on bond ratings.
3. The value of t count > t table is (4.346> 1.720) and the significant level is 0.001 < 0.05, so H0 is rejected. This means that there is a positive and significant effect of the liquidity ratio on bond ratings.
4. The value of t count < t table is (0.9626 < 1.720) and the significant level is 0.356 > 0.05, so H0 is accepted. This means that there is no significant effect between solvency ratios on bond ratings.
5. The value of t count < t table is (-0.847 < 1.720) and the significant level is 0.415 > 0.05 then H0 is accepted. This means that there is no significant effect between the profitability ratios on bond ratings.

## 5. Discussion

### 5.1. Effect of Earnings Management and Financial Ratios on Bond Rating

Bond rating is important for investors to invest in the company, with bond ratings investors can see the financial condition, debt held and profits earned. Generally, too much debt is a bad thing for the company and its shareholders because it hinders the company's ability to create a cash surplus. In addition, high debt levels can negatively impact common stockholders, who are last in line to demand returns from companies that become insolvent.

The results of this test prove that simultaneously the earnings management variable is proxied by EDAit, the liquidity ratio is proxied by the Cash Ratio, the solvency ratio is proxied by the Debt to Equity Ratio, and the profitability ratio is proxied by the Return on Assets affect the Bond Rating by 71.6 %. The rest is influenced by other variables that are not in this study. This shows that it is important for investors to know the financial statements and ratings of bonds owned by the company to invest in the company.

### 5.2. Effect of Earnings Management on Bond Rating

It is suspected that the management of a company will tend to carry out earnings management or earnings engineering in the period around bond issuance so that the company's performance looks good because it will have an impact on obtaining bond ratings so that it will increase the attractiveness of the company in the eyes of investors.

The test results prove that the earnings management variable has a value of t count < t table, namely (-0.012 < 1.720) and a significance level of 0.9899 > 0.05 then H0 is accepted. This means that there is no significant effect between earnings management on bond ratings. This proves that earnings management carried out by a company will not affect investors in making decisions to invest in the company.

### 5.3 Effect of Liquidity Ratio on Bond Rating

The liquidity ratio describes the company's ability to manage debt; the size of the debt owned by the company will be influenced by the liquidity ratio so that it has a significant effect on bond ratings. The cash ratio, sometimes referred to as the cash asset ratio, is a liquidity metric that indicates a company's capacity to pay off its

short-term debt obligations with its cash and cash equivalents. a ratio that can generally measure how much cash the company has to pay off debts owned by the company.

The test results prove that the liquidity ratio variable has a value of t count > t table that is (4.346 > 1.720) and a significance level of 0.001 < 0.05, so H0 is rejected. This means that there is a significant effect between the liquidity ratio and the bond rating. This proves that liquidity has an effect on bond ratings so that it can be considered by investors in making decisions to invest in companies.

### 5.4. The Effect of Solvency Ratio on Bond Rating

This ratio is used to determine whether the capital owned is adequate or the extent to which the decline in total assets can be covered by own capital.

Based on the results of the study, the Solvency Ratio variable has a value of t count < t table, namely (-0.9626 < 1.720) with a significance level of 0.356 > 0.05. This proves that the solvency ratio has no positive effect on bond ratings. Where the company is not good at using its funds effectively in holding funding, causing a company's dependence on debt, this management does not run well from year to year so that there is an increase in this turnover ratio which affects the value of the company..

### 5.5. The Effect of Profitability Ratios on Bond Ratings

Companies that have high profits will increase investor confidence to invest in the company. Net profit margin is one way to calculate profitability which is used to see the company's ability to generate net profit from sales revenue.

Based on the results of the study, the profitability ratio variable has a value of t count < t table, namely (-0.847 < 1.720) with a significant level of 0.415 > 0.05 meaning that the profitability ratio variable has no significant effect on bond ratings.

## 6. Conclusion

Based on this research, we can conclude as follows: (a) Edait, Cash Ratio, Debt to Equity, Return on Assets simultaneously affect the bond rating by 71.6%, the rest is influenced by variables that are not used in this study. (b) Earnings Management has no significant effect on Bond Rating. The results of this study indicate that if the company's earnings management will not affect the bond rating. (c) Liquidity Ratio has a positive and significant effect on Bond Rating. The results of this study indicate that if the liquidity ratio proxied by the cash ratio decreases or increases, it will affect the bond rating. (d) Solvency Ratio has no significant effect on Bond Rating. The results of this study indicate that if the solvency ratio proxied by the Debt to Equity Ratio decreases or increases, it does not affect the bond rating. (e) Profitability Ratios have no significant effect on Bond Ratings. The results of this study indicate that if the Profitability Ratio proxied by Return on Assets decreases or increases, it does not affect the bond rating.

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