



Effect of Earnings Management, Liquidity Ratio, Solvency Ratio and Ratio Profitability of Bond Ratings in Manufacturing: (Case Study Sub-Sector Property and Real Estate Sector Companies listed on the IDX Indonesian)

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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 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, by processing data using Eviews Version 9. The sampling technique used was purposive sampling method and 4 companies were selected as samples. This study uses quantitative descriptive methods and multiple regression tests to determine the relationship between variables. Based on the results of the study prove that earnings management, liquidity ratios, solvency ratios, and profitability ratios have an effect on simultaneously on bond ratings. earnings management partially has a negative effect on bond ratings, liquidity ratio partially has a positive and significant on bond ratings, solvency ratio and profitability ratio partially has negative 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.

Keywords: Bond investment, management, bond investment, stock exchange

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 (Ni'mah et al., 2020; Yusuf and Prasetyo, 2019). 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 (Prodanova et al., 2019; Sacarin, 2017).

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 (Fan et al., 2019; Kliestik et al., 2020; Yung and Root, 2019). 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.

Sunarjanto and Daniel (2013) present the factors which may be taken into consideration in the rating agencies provide bond ratings are from various financial ratios and quality management. Furthermore, Müller and Martinez (2016) described earnings management has a significant effect on bond ratings, so that if earnings management increases, the better the bond rating of a company. Bahtera (2017) analyzed the impact of bond rating announcement on companies listed stock returns. Sari et al. (2018) show that the Liquidity ratio does not affect the bond's rating and Profitability ratio affects the bond's rating. Tan et al. (2018) studied the role of accounting policy on bond rating to financial companies listed in Indonesia stock exchange. Dewi and Utami (2020) studied the influence of profitability and liquidity to bond rating and the impact on the bond yield. Nurwulandari et al. (2021) presented The Effect of the Bank Indonesia Interest Rate, Exchange Rate, and Bond Rating against Bond Yield on the Indonesia Stock Exchange.

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.

This study aims to analyze the positive effect of earning management, profitability ratios, solvency ratio and liquidity ratio to bond rating of manufacturing companies sector property and real estate on the IDX for the period 2017 -2020 by using descriptive statistical analysis research methods and multiple regression with the help of the Eviews 9 software application for research data processing.

2. Background Theory

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. The measurement of estimated accruals under management uses the following model (Swastika, 2013):

$$EDA_{it} = \frac{TA_{it}}{A_{it-1}} \quad (1)$$

Information :

EDA_{it} = Estimated accruals under management for period t

TA_{it} = Total accruals period t

A_{it} = Total assets in period t

By calculating the total accruals as follows:

TA_{it} = Net Profit - Cash

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. The liquidity ratio is a ratio that describes the company's ability to meet short-term obligations (Bogdan et al., 2012). 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.

2.3 Solvency Ratio

The solvency ratio is the ratio used to measure the extent to which the company's assets are financed with debt (Baraja and Yosya, 2019). 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.

2.4 Probability Ratio

The Profitability ratio is the company's ability to profit in relation to sales, total assets and own capital (Pramanik et al., 2021). 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.

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 result of rating conversion for the sample used in this study from the rating issued by PT. Pefindo 2020 can be seen in Table 1.

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

3. Material and Methodology

3.1 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 sample that have been presented in Table 2.

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.

3.2 Methodology

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. The formula for multiple linear regression analysis in this study is as follows:

$$Y = \alpha + \beta_1.X_1 + \beta_2.X_2 + \beta_3.X_3 + \beta_3.X_4 + e \quad (2)$$

Description:

Y	= Bond Rating
α	= Constants
$\beta_1, \beta_2, \beta_3, \beta_4$	= Partial Coefficient Regression
X_1	= Earning Management
X_2	= Liquidity Ratio
X_3	= Solvency Ratio
X_4	= Probability Ratio
e	= Error

The regression coefficient value no 1 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. The framework model for multiple regression can be seen in Figure 1.

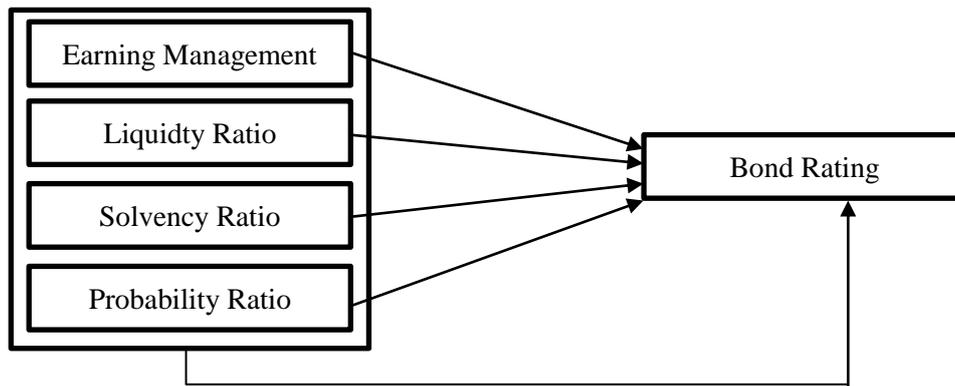


Fig 1. Framework Model

4. Results

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 presented in the Table 3.

Table 3 Descriptive statistics

	Cr	Der	Mnj_Profit	Bond_Rating	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 can be seen in the Figure 2.

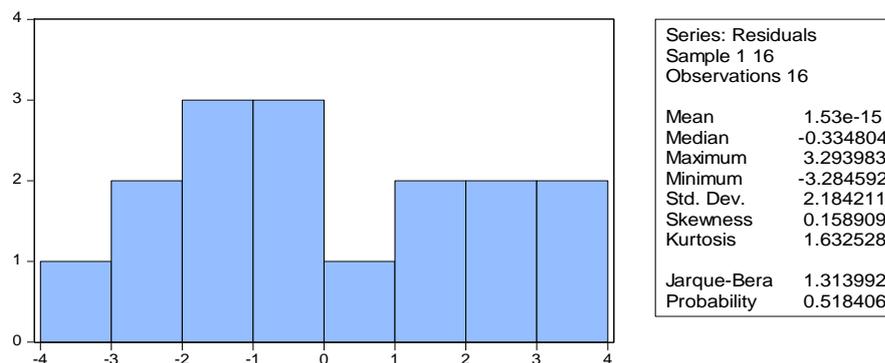


Figure 2. Jarque-Bera Probability Normality Test

Based on Figure 2, 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. Then for testing the analysis of data measurement will use the Multicollinearity test.

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 presented in the Table 4.

Table 4 Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1.477319	3.633343	NA
MNJ_Profit	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 4, 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. Then for testing the analysis of data measurement will use the Auto Correlation test.

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 presented in the Table 5.

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, relationship between variables is done using the Watson Durbin test. The results showed that the $DW < L$ is $1.928 < 1.9351$ which means that there is a positive autocorrelation. Then for testing the analysis of data measurement will use the hetroscedasticity test.

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 presented in the Table 6. 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.

Table 6 Glesjer Heteroscedasticity

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.838311	0.360841	5.094513	0.0003
MNJ_Profit	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

4.6. Multiple Regression Analysis

Multiple regression testing is conducted to determine the effect that occurs on the dependent variable and the independent variable. the results have been presented in Table 7.

Table 7 Multiple Regression Test Result

Dependent Variable: Bond_Rating
Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.349154	1.215450	2.755484	0.0187
MNJ_Profit	-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 7 and refer to equation no 1, The resulting regression equation is as follows:

$$Y = \alpha + (-0,0016).MNJ_Laba + 0,0956.CR + 0,0216.DER + (-0,0209).EPS + e$$

- 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. F Test

Simultaneous effect test is used to test whether the independent variable has a simultaneous effect on the dependent variable using the Eviews 9 application software whose results are presented in Table 8.

Table 8 Test Result F-test

F-statistic	10.46936
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Prob(F-statistic)	0.000952
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Based on Table 8, 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 (R^2)

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. Table 9 is the data that have been determined using the software application evIEWS 9.

Table 9 Determination Coefficient Test Result

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

Based on Table 9, 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)

The partial effect test is used to test whether the independent variable has an individual or partial effect on the dependent variable using the EvIEWS 9 application software whose results are presented in Table 10.

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

Based on Table 10, it can be explained as follows:

- 1) The value of t count < t distribution table is $(-0.012 < 1.720)$ and the significant level is $0.9899 > 0.05$ then H_0 is accepted. This means that there is no significant effect between earnings management on bond ratings.
- 2) The value of t count > t distribution table is $(4.346 > 1.720)$ and the significant level is $0.001 < 0.05$, so H_0 is rejected. This means that there is a positive and significant effect of the liquidity ratio on bond ratings.
- 3) The value of t count < t distribution table is $(0.9626 < 1.720)$ and the significant level is $0.356 > 0.05$, so H_0 is accepted. This means that there is no significant effect between solvency ratios on bond ratings.
- 4) The value of t count < t distribution table is $(-0.847 < 1.720)$ and the significant level is $0.415 > 0.05$ then H_0 is accepted. This means that there is no significant effect between the profitability ratios on bond ratings.

5. Conclusion

Based on this research, we can conclude as follows: 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. Then to test the effect partially 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.

The 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. Then 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. And the last 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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