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THE INFLUENCE OF FINANCIAL RATIOS ON BOND RATINGS OF BANKING COMPANIES IN 2019-2023

The Impact of Financial Ratios on the Bond Ratings of Banking Companies in 2019–2023

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Abstract

The downgrade of bond ratings by PT PEFINDO amidst the COVID-19 outbreak was the driving force behind this study. It can be seen from the downgrade of the bond ratings of these companies, which indicates that the risk of default is increasing. Theoretically, several factors, including financial ratios, can influence bond ratings. The purpose of this study was to examine the impact of LDR, BOPO, ROA, and CAR on the bond ratings of banking companies assessed by PT PEFINDO from 2019 to 2023. The sampling technique used was purposive sampling. The data analysis method used was ordinal logistic regression analysis, performed using the SPSS 26 program. Based on the study's results, bond ratings were significantly influenced simultaneously by LDR, BOPO, ROA, and CAR. LDR has a positive and significant effect, and BOPO has a negative and significant effect. ROA and CAR do not have a significant effect on bond ratings

Keywords: *Bond Ratings, BOPO, Capital Adequacy Ratio, Loans to Deposit Ratio, Return on Asset*

INTRODUCTION

Bonds are debt instruments with a specific maturity. They are securities that serve as proof of debt between the investor, the lender, and the issuer, the borrower (Tandelilin, 2010). Bonds are an investment option for investors who are not particularly risk-averse. When investing in bonds, investors can use several risk analyses. One way is to look at the bond rating from a rating agency (Suhendi, 2022). One requirement for issuing bonds is to have a rating from a bond rating agency (Tandelilin, 2010). This rating plays a crucial role for both the bond-issuing company and investors. For the issuing company, the bond rating provides investors with information about the quality of the bond. For investors, this rating is very useful for analyzing the risks faced and thus making informed investment decisions. There are two categories of bond ratings: investment-grade (ranging from AAA to BB) and non-investment-grade (ranging from BB to D) (Tandelilin, 2010).

The COVID-19 pandemic brought significant challenges to Indonesia's economy. Company performance weakened, the risk of bankruptcy grew, and economic uncertainty eroded investor confidence. As a result, investment volumes dropped noticeably. This reflects just how strongly the pandemic affected the country's economic landscape. The investment sector was no exception—bond trading volumes fell sharply during this period. Supporting this, a 2021 press release from PT Pefindo revealed that several companies saw their bond ratings downgraded. Against this backdrop, this study focuses on banking companies listed on the Indonesia Stock Exchange (IDX) and assessed by PT Pefindo. Here, bond ratings serve as the dependent variable, while the research explores the factors that influence these ratings.

Bond ratings are typically determined by various factors, with financial ratios being one of the most important (Brigham & Houston, 2014). Rating agencies assess these ratings by examining the issuing company's capacity to meet its financial obligations, which is often reflected in its financial ratios

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(Tandelilin, 2010). According to Bank Indonesia Regulation Number 13/1/PBI/2011 on the Assessment of Commercial Bank Health, a bank's health is evaluated through several indicators, including its risk profile, good corporate governance, profitability, and capital (Ginting et al., 2012). In line with these criteria, this study employs financial ratios aligned with the bank health assessment framework: liquidity risk is represented by the Loan to Deposit Ratio (LDR), management efficiency by the BOPO ratio, profitability by Return on Assets (ROA), and capital strength by the Capital Adequacy Ratio (CAR). These indicators are then analyzed to identify the factors that may influence bond ratings.

The Loan to Deposit Ratio (LDR) is used to compare the amount of savings (public funds) collected with the amount of loans provided by banks (Kasmir, 2012). The amount of public savings collected and lent by banks to the general public is displayed by the LDR. By using the amount of credit disbursed as a source of liquidity, the LDR indicates the extent to which banks can repay depositors' money. A higher LDR indicates a greater amount of public funds lent as credit, thus increasing the risk of public funds. The following formula can be used to determine the LDR (Kasmir, 2012):

$$\textbf{LDR} = \frac{\boldsymbol{Total\ Loan}}{\boldsymbol{Total\ Deposit}} \boldsymbol{x}\ \mathbf{100\%}$$

One benchmark for comparing operating costs and operating income is the Operating Cost to Operating Income (BOPO) Ratio (Kasmir, 2012). According to (Pramana & Yunita, 2015), a decreasing BOPO ratio indicates more efficient operating costs, thereby reducing distressing conditions and improving bond ratings. The following formula can be used to determine BOPO (Kasmir, 2012).

$$\textbf{BOPO} = \frac{\boldsymbol{Operating\ Cost}}{\boldsymbol{Operating\ Income}} \boldsymbol{x}\ \mathbf{100\%}$$

Return on Assets (ROA) is used to evaluate how effectively a company manages its assets to generate profit after tax (Kasmir, 2012). In other words, ROA reflects the business's ability to produce returns from its total assets through operational activities. A higher ROA indicates that the company is using its assets efficiently to generate net profits after tax (Rohma & Erdkhadifa, 2023). The greater the ROA, the stronger the company's overall performance0020(Imara & Erdkhadifa, 2023). ROA can be calculated using the following formula (Kasmir, 2012):

$$\boldsymbol{ROA} = \frac{\boldsymbol{Profit\ After\ Tax}}{\boldsymbol{Total\ Assets}}\ \boldsymbol{x}\ \mathbf{100\%}$$

The Capital Adequacy Ratio (CAR) refers to the proportion of a bank's capital to its risk-weighted assets (ATMR) (Kasmir, 2012). This ratio reflects the bank's ability to provide sufficient equity to absorb potential losses from investments in risky productive assets, as well as to finance fixed assets. A higher CAR suggests that the bank has adequate capital to cover credit risks and meet operational needs (Harahap et al., 2022). In essence, the greater the CAR, the healthier the bank's financial condition, as its capital is deemed capable of covering potential losses. CAR can be calculated using the following formula (Kasmir, 2012):

$$\boldsymbol{CAR} = \frac{\boldsymbol{Capital}}{\boldsymbol{ATMR}}\ \boldsymbol{x}\ \mathbf{100\%}$$

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LITERATURE REVIEW

Several researchers have conducted studies on the influence of financial ratios on bond ratings in Indonesia, with varying focuses and time periods. In general, these findings indicate that each type of financial ratio has a varying degree of influence, depending on the company context and observation period.

Fadah, et,al, 2019 began their study by examining manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the period 2013–2017. They found that profitability, measured by ROA, and liquidity through the current ratio, positively contributed to bond ratings. Conversely, growth, DAR, bond maturity, and collateral had no significant impact.

Different results emerged in a study by Wijayanti, E., & Yuliana, 2019, which focused on the financial sector for the period 2015–2020. Of the variables LDR, ROA, DER, company size, TAT, BOPO, and NPL, only company size proved significant. Interestingly, although most variables individually had no effect, all of them simultaneously influenced bond ratings.

Livia, F., et.al (2024) then expanded their study by adding auditor reputation as a variable. This study of banking companies listed on the IDX and rated by Pefindo for the 2016–2021 period shows that company size, auditor reputation, bond maturity, and LDR have a positive effect, while NPLs actually lower bond ratings. The ROA, current ratio, and BOPO variables again proved insignificant.

Irdyansah, A., & Stiadi (2023) took a narrower perspective by only examining LDR, DAR, and ROE in banking companies from 2016–2020. Their results showed that DAR had a negative effect, while LDR and ROE did not affect bond ratings. In banking companies from 2016–2021, company size again emerged as a positive factor, while ROA and LDR had no effect. Livia, F., et.al (2024) further complemented this picture by examining CAR, NPL, LDR, and growth in general banking companies from 2016–2020. They found that CAR and LDR had a positive impact on bond ratings, NPL had a negative impact, while growth showed no significant effect.

Overall, prior literature indicates that company size, profitability, and certain liquidity ratios tend to positively contribute to bond ratings, while ratios such as NPL and DAR have the potential to detract from them. However, the influence of each variable often varies between studies, indicating that these factors do not work singly, but rather interact with the specific conditions of the company and the market at a given time.

METHOD

This study adopts a quantitative research approach. The population consists of all banking companies that issue bonds and have been rated by PT. Pefindo. A purposive sampling technique was applied to select the research sample. The study relies on secondary data, obtained through documentation from official websites www.idx.co.id and www.pefindo.co.id. Data were analysed using ordinal logistic regression, with the following tests carried out:

1. Descriptive Statistical Analysis

   Descriptive statistical analysis is an initial description in the form of the mean, median, maximum, minimum, and standard deviation values for each variable.

2. Ordinal Logistic Regression

   A model called ordinal logistic regression is used to determine whether independent variables, which can be a combination of metric and non-metric/categorical variables, can predict the likelihood of a dependent variable appearing in non-metric/categorical form (Ghozali, 2013). The ordinal logistic

regression equation model is as follows:

$$\text{Logit } P\,(Y \leq j) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

Note:

$P\,(Y \leq j)$ = Bond Rating Opportunity in Category J-th
α = Constant
β_1 - β_4 = Regression Coefficient of Independent Variables
X_1 = Loan to Deposit Ratio (LDR)
X_2 = BOPO (Operating Cost to Operating Income)
X_3 = Return on Assets (ROA)
X_4 = Capital Adequacy Ratio (CAR)

3. Model of Goodness of Fit Test

The model adequacy test is used to test the model's goodness of fit. This goodness-of-fit test indicates whether the model used fits the data or not by examining the calculated Chi-Square value and its significance level.

4. Simultaneous Test

A simultaneous test is conducted to determine the level of significance of the independent variables on the dependent variable in the model simultaneously using a likelihood ratio test by looking at the G value or X2 count and the significance value. The G test statistic can be calculated using the following formula (Suganda & Erdkhadifa, 2021):

$$G = -2 \ln \left[\frac{\left(\frac{n_1}{n}\right)^{n_1} \left(\frac{n_0}{n}\right)^{n_0}}{\prod_{i=1}^{n} \hat{\pi}^{y_i} (1-\hat{\pi} i)^{(1-y_i)}} \right]$$

Note :

n_1: number of observations of category i
n_0: number of observations of category

5. Partial Test

A partial test is conducted to determine the level of significance of the partial influence of the independent variable on the dependent variable using the Wald test by looking at the Wald value and the significance value. The statistical formula for the Wald test is as follows. (Suganda & Erdkhadifa, 2021):

$$W = \frac{\widehat{\beta} \imath}{SE(\widehat{\beta} \imath)}$$

Note :

$\widehat{\beta} \imath$ = estimated value of the parameter of the independent i-th
$SE(\widehat{\beta} \imath)$ = standard error value

6. Test of the Coefficient of Determination

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The Pseudo R-Square test can be used to determine the coefficient of determination. This test aims to determine how strong the relationship is between the independent and dependent variables. One way to evaluate Pseudo R-Square Detection is to examine one of the Nagelkerke (Anom, 2021).

RESULTS AND DISCUSSION

1. Descriptive Statistics

Table 1
Descriptive Statistical Test

	N	Minimum	Maximum	Mean	Std. Deviation
BOND RATINGS	65	1	4	3,14	1,014
LDR	65	0,50	1,28	0,8746	0,13289
BOPO	65	0,37	1,22	0,7497	0,16230
ROA	65	0,00	0,06	0,0174	0,01079
CAR	65	0,11	0,32	0,2189	0,04580
Valid N *(listwise)*	65				

Source: SPSS 26 Data Processing Results, 2025

2. Ordinal Logistic Regression Model

Tabel 2
Test Results of Univariate Ordinal Logistic Regression

	Estimate	Wald	$X^{2}_{(0,05;1)}$	Sig
LDR	6,109	6,826	3,841	0,009
BOPO	-19,698	14,573	3,841	0,000
ROA	-40,040	1,299	3,841	0,254
CAR	9,593	1,733	3,841	0,182

Source: SPSS 26 Data Processing Results, 2025

Table 2 shows that the LDR and BOPO variables influence bond ratings because their significance values are less than 0.05. Bond ratings are not affected by ROA and CAR, because their significance values are greater than 0.05. Therefore, LDR and BOPO are independent variables used in the multivariate ordinal logistic regression analysis. The following are the results of the parameter coefficient analysis of the multivariate ordinal logistic regression model:

Table 3
Results of Multivariate Ordinal Logistic Regression Parameter Coefficient Test

Variable	Estimate
[PO = 1]	-14,032
[PO = 2]	-11,203
[PO = 3]	-9,886
LDR	4,268
BOPO	-17,863

Source: SPSS 26 Data Processing Results, 2025

From Table 5, the ordinal logistic regression equation is as follows:

Logit (Y_1) = -14,032 + 4,268 LDR – 17,863 BOPO
Logit (Y_2) = -11,203 + 4,268 LDR – 17,863 BOPO
Logit (Y_3) = -9,886 + 4,268 LDR – 17,863 BOPO

Where:

Y_1 = the probability of bond rating idBBB- to idBBB+

Y_2 = the probability of bond rating idA- to idA+

Y_3 = the probability of bond rating idAA- to idAA+

3. Model of Goodness of Fit Test

Table 4
Results of the Goodness-of-Fit Test

	X^2 count	$X^2_{(0,05;187)}$	Sig.
Deviance	104,102	219,906	1,000

Source: SPSS 26 Data Processing Results, 2025

Deviance produces an X^2 count of 104.102, and an X^2 table value with a significance level of 0.05 is X^2 (0.05;187) of 219.906 > X^2 count of 104.102. While the significance value is 1.000 > 0.05. So, the conclusion obtained is that the model is appropriate.

4. Simultaneous Test

Table 5
Results of *the G* Test

G	$X^2_{(0,05;2)}$	Sig.
48,350	5,991	0,000

Source: SPSS Output 26, 2025

The G value is 48.350 > $X^2_{(0,05;2)}$ of 5.991. The significance value is 0.000 < 0.05. Therefore, it can be concluded that there is at least one independent variable that influences bond ratings.

5. Partial Test

Table 6
Results of the Wald Test

Variabel	Wald	$X^2_{(0,05;1)}$	Sig.
LDR	4,076	3,841	0,043
BOPO	21,210	3,841	0,000

Source: SPSS 26 Data Processing Results, 2025

The X^2table value with a significance level of 0.05, then the $X^2_{(0,05;1)}$ value is 3.841. The Wald value of LDR and BOPO is greater than the X^2table value. Therefore, it can be explained that LDR and BOPO influence bond ratings. The significance value of both variables is less than 0.05, which means they have a significant effect. Therefore, the conclusion obtained is that LDR and BOPO have a significant effect on bond ratings.

6. Coefficient of Determination Test

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Table 7
Results of Pseudo R-Square Test

Nagelkerke	0,578

Source: SPSS 26 Data Processing Results, 2025

The *Nagelkerke* value is 0.578. It can be concluded that all independent factors, particularly LDR and BOPO, contribute 57.8% of the variation in the dependent variable, namely bond ratings, while additional variables not included in this study contribute the remaining 42.2%.

RESULT AND DISCUSSION

The Influence of Loan to Deposit Ratio on Bond Ratings

Based on the data analysis, bond ratings are positively influenced by the LDR variable. Thus, a higher bond rating indicates a higher LDR ratio, and vice versa. The LDR indicates a bank's ability to provide credit in response to public needs. The effectiveness of bank management in allocating credit is reflected in a high LDR level. This situation demonstrates how a high level of liquidity can reduce the risk of default or failure to meet long-term commitments, such as bond repayments, which encourages an increase in the bank's bond rating. These results align with research by Wijayanti, E., & Yuliana, (2019) and et.al, (2024) that found LDR significantly influences bond ratings. However, these results contradict research by Dewi, D. O. W. T. (2021) and Irdyansah, A., & Stiadi (2023) that found LDR does not significantly influence bond ratings.

The Influence of BOPO on Bond Ratings

Data analysis shows that bond ratings are negatively affected by the BOPO variable. Thus, the bond rating will be lower if the BOPO ratio is higher, and vice versa. A lower BOPO ratio will alleviate problematic situations, indicating increased operational cost efficiency. Conversely, a higher BOPO indicates that the business is having difficulty controlling its operational costs. A low BOPO reflects efficient resource utilization and more effective managerial performance in generating profits. This suggests that operational inefficiency can reduce investor confidence in the bank's ability to meet its long-term obligations. The BOPO ratio also reflects the extent to which a bank's cost structure can be controlled in the face of market pressures and competition. These results align with those of Indriani, D. (2018) and Chrisantoro, B., & Baridwan (2020) that BOPO significantly influences bond ratings. However, these results contradict those of Dewi & Zulfikar (2021) and Agustinus, S., & Yoewono (2022) that BOPO does not affect bond ratings.

The Effect of Return on Assets on Bond Ratings

Based on the data analysis, the Return on Assets (ROA) variable did not significantly influence bank bond ratings for the 2019-2023 period. In financial theory, a high ROA typically indicates healthy financial conditions and is a positive signal for investors and rating agencies. However, in this study, the ROA variable did not significantly influence bond ratings. This finding suggests that a bank's profitability in terms of asset utilization is not necessarily a primary factor considered by rating agencies in determining bond ratings. This may be because rating agencies and investors focus more on liquidity, operational efficiency, and credit risk when evaluating a bank's long-term viability, particularly in the highly complex banking industry. This finding aligns with (Agustin, 2022) and Sapruwan, M.,et.al (2023) findings that ROA does not affect bond ratings. However, this finding contradicts findings from Fadah, I., et.al (2019) and Hung, S., et.al (2021) that ROA has a significant positive effect on bond ratings.

The Influence of Capital Adequacy Ratio on Bond Ratings

Based on the data analysis, the Capital Adequacy Ratio (CAR) variable did not significantly influence bank bond ratings for the 2019-2023 period. This insignificance indicates that high capital adequacy is not necessarily a primary determinant of bond rating upgrades. This may occur because CAR is a relatively static ratio controlled by minimum regulations that all banks must comply with. In other words, almost all banks have met the minimum CAR standards set by Bank Indonesia, so the differences between banks are not significant enough to significantly influence bond rating assessments. The insignificant influence of CAR may also be influenced by rating agencies' focus on banks' actual market performance and how banks manage operational risks. These results align with Laila, N, et.al (2021) and Yuliani, R., et.al (2023) findings that CAR does not affect bond ratings. However, these results contradict those of (Phety, 2018) and Livia.F, et,al (2024) that CAR has a significant positive effect on bond ratings.

CONCLUSION

Simultaneously, the variables LDR, BOPO, ROA, and CAR showed an influence on bond ratings. Partially, LDR was shown to have a positive and significant effect on bond ratings. BOPO had a negative and significant effect on bond ratings. Meanwhile, ROA and CAR did not show a statistically significant effect on bond ratings.

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