

THE RELATIONSHIP BETWEEN INTEREST RATES, FINANCIAL RATIOS, AND BOND RATINGS WITH PROFITABILITY AS A MEDIATING VARIABLES IN NON-FINANCIAL SECTOR COMPANIES IN INDONESIA

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ABSTRACT

During the latest decades, regional creativity has often been considered. This study seeks to investigate the relationship between interest rates, liquidity, and leverage to non-financial companies in Indonesia who have issued bond securities between 2018 and 2023 with profitability as an intervening variable. Panel data regression analysis and path analysis are used in the study to explore the connections between the variables, both directly and indirectly. According to the results, bond ratings are heavily affected by interest rates, but liquidity does not appear to play a major role. Moreover, leverage appears to have a positive effect on bond ratings. Moreover, profitability is significantly influenced by interest rates, while leverage has a detrimental effect on profitability. The study suggests that there is a slight influence of profitability on the connection between interest rates and bond ratings, but not for liquidity or leverage. Interest rates are found to have a significant positive effect on bond ratings, whereas liquidity and leverage have minor direct impacts. These findings contribute to investors in making bond investment decisions, as well as for companies in optimizing their capital structure to improve bond ratings. This study suggests further development by expanding the coverage of other industry sectors and adding variables such as corporate governance and macroeconomic indicators to increase external and internal validity.

Keywords: Bond rating · Interest rate · Leverage · Liquidity · Profitability

1. INTRODUCTION

Corporate financing is essential for fostering a company's growth and stability, particularly through the issuance of bonds, which serve as a primary capital source. Bonds enable companies to secure funding while delivering consistent returns to investors. The ratings assigned to bonds are crucial for assessing the creditworthiness of the issuer. Typically, a higher rating correlates with lower interest rates, thereby decreasing the company's borrowing costs (Brealey et al., 2023). As such, investors can enhance their risk assessment and make more informed investment choices by comprehending these ratings (Brealey et al., 2023).

Companies can also leverage multiple financing sources, including equity, reserves, and debt, to enhance their capital structure. The strategic implementation of bonds frequently offers increased financial flexibility, supporting companies in their expansion initiatives and helping

them meet their growth targets (Vernimmen et al., 2022). However, although bonds are an important financing tool, management must ensure that the level of debt taken on does not exceed the company's ability to fulfill its obligations. Therefore, continuous monitoring of bond ratings is necessary to reduce the risk of default and maintain investor confidence (Brealey et al., 2023; Vernimmen et al., 2022). The existence of a bond rating can guarantee the timeliness and security of principal and interest payments on its bond debt (Laila et al., 2021).

The development of bonds in Indonesia is currently showing an increasingly positive trend. Throughout 2021, the total bond and sukuk issuances that have been recorded reached 35 issuances from 28 issuers with a value of IDR 39.43 trillion. This figure has increased in 2022, where 37 emissions from 30 issuers were recorded with a value of IDR 40.88 trillion. Investor interest in bonds has continued to increase in recent years, which is reflected in the significant growth of bonds (Rosita & Santoso, 2022).

Non-Bank Financial Companies comes into play in supporting the economy and providing important financial services to various stakeholders in the community (Ruma et al., 2023). However, Non-Bank Financial Companies often face challenges such as strict regulations, higher risk perception from investors, and operational inefficiencies. For example, legal reforms in Indonesia make it difficult for companies to adapt to new regulations which may affect investor confidence (Tongat, 2022). In addition, the market perception that non-financial companies are riskier may increase the cost of capital (Tarulli et al., 2023). Internal challenges such as operational inefficiencies also hamper profitability, although the implementation of good governance can help address these issues (Olaniyi et al., 2023).

Based on data from Pefindo (2022) regarding changes in bond ratings of non-financial institution companies during the 2018-2020 period, there are fluctuations in ratings every year. Of the 10 bonds issued by non-financial institution companies, in 2018, 70% of companies were downgraded (7 companies), while no companies were upgraded, and 30% (3 companies) maintained their ratings. In 2020, downgraded companies decreased to 30% (3 companies), upgraded companies increased to 10% (1 company), and companies with stable ratings reached 60% (6 companies). One example is PT Mayora Indah Tbk, which in 2020 managed to increase sales with AA-rated bonds and stable prospects. This led to an increase in sales with AA Bonds with a stable rating perspective (Rosita & Santoso, 2022).

In this study, the securities valuation theory used is to use fundamental analysis where this analysis is used to assess the company's performance through its financial statements. This approach allows investors to determine the financial health of the company, guiding their investment decisions. Therefore, fundamental analysis is a method for evaluating or projecting bond values or bond ratings using a variety of original data sources.

This study uses the variables of Interest Rate, Leverage (Debt to Asset Ratio), Liquidity (Current Ratio) as variables in testing their influence on bond ratings and Profitability (Return On Asset) as a mediating variable.

BI's interest rate policy is one of the factors that can affect bond investment performance. Bonds generally have a fixed coupon payment determined at the time of issuance. When market interest rates rise above the coupons generated by existing bonds, the bonds become less attractive to investors. As a result, the price of the bond drops to increase the yield of the bond to match the higher market interest rate (Fabozzi & Fabozzi, 2021).

The leverage ratio shows how well the company is positioned to meet its short-term and long-term financial obligations. According to research results (Hung et al., 2021; Purba & Syarif, 2023), that leverage has no significant effect on bond ratings. The use of debt by companies is not always assumed to be bad, the use of debt can also help management in optimizing the use

of funds to generate profits for other activities related to company operations.

Liquidity ratio is a ratio that measures the company's ability to pay its short-term obligations. High liquidity indicates that the company is able to fulfill its obligations in a relatively short time. In a research (Dewi & Utami, 2020), liquidity has a positive but insignificant effect on bond ratings. However, research by Hung et al. (2021) states that Current Ratio affects the bond rating. Companies that have a high Current Ratio will lower the bond rating. Companies with high liquidity suggest that the organization's financial health may not be robust.

Profitability ratios show the company's ability to earn profits both from sales, total assets and own capital profits. Profitability provides an overview of how effectively a company operates to provide profits for the company itself. Research results (Widodo, 2024) shows that profitability has a negative effect on bond ratings. While the research results (Fadah et al., 2020) shows that profitability affects bond ratings.

Non-financial sector firms are selected due to their distinct financial attributes in contrast to those in the financial sector. These companies typically exhibit a more diverse funding structure, with differing levels of dependence on debt and equity. Furthermore, the risks encountered by non-financial firms, including operational and market risks, differ significantly from the financial risks that are prevalent in the financial sector. This study aims to emphasize the influence of financial factors across various industries by concentrating on the non-financial sector, thereby offering more targeted and pertinent insights for businesses that do not primarily depend on financial operations for profit generation.

The novelty of this study lies in its approach that sees profitability as a mediating variable between interest rates, financial ratios, and bond ratings in non-financial sector companies. Most of the previous studies only focus on the direct relationship between variables without paying attention to how profitability can affect the relationship. Thus, this study contributes to providing practical guidance for the management of non-financial sector companies in managing profitability and financial performance to maintain bond rating stability and attract investor interest.

2. LITERATURE REVIEW

2. 1. BOND RATINGS

Bond ratings are assessments made by rating agencies and are a valuable source of information for investors regarding the risks associated with traded bonds, as outlined in Bapepam-LK Decree Number 151/BL/2009. This rating is an important reference for investors when considering buying bonds. A good bond rating not only reflects the company's ability to meet its financial obligations, but also indicates that the company operates effectively and efficiently, and successfully manages its debt to drive business growth. The insights provided by rating agencies are helpful to investors in selecting appropriate bond securities. These agencies are independent entities that offer information on the level of risk associated with debt, including bond securities, which indicates the safety of a bond to potential investors. This safety is evidenced by the issuer's ability to pay interest and return the principal amount of the bond.

2. 2. INTEREST RATE

An interest rate is a percentage that represents the cost or return of a loan or savings instrument. An interest rate is the amount of interest payable per period, as a proportion of the amount borrowed, saved, or lent. Market interest rates can affect bond prices, and bond ratings can be affected by the interest rates of the bonds offered. Interest rates on bonds offered tend to be lower for bonds with higher ratings. Changes in bond ratings indicate changes in bond risk. The relationship between a bond's interest rate and its rating shows that higher-rated bonds usually

offer lower yields. This is due to the perception of lower default risk on higher-rated bonds. Moody's and S&P, as major rating agencies, provide significant insight in this regard, where better-rated bonds are associated with lower risk and, hence, lower interest rates (Hilscher & Wilson, 2017). However, market participants do not rely solely on ratings, but also consider various other financial metrics in their assessment of risk and return (Hilscher & Wilson, 2017). Rating changes also have an impact on bond prices, with downgrades often causing bond prices to fall, especially on low-rated bonds (Beatty et al., 2019). In addition, the market reaction to downgrades is stronger than the reaction to upgrades, suggesting that negative news has a greater impact on bond prices (Shimko et al., 2019). While ratings are critical in determining interest rates and risk, broader financial metrics also play a significant role in market dynamics.

H1 : Interest rates have a significant positive effect on bond ratings

2. 3. LEVERAGE

Leverage is the use of debt or loans to finance a company's investments or operations with the aim of increasing potential profits. In a financial context, leverage allows a company to use borrowed funds to invest more than would be possible with its own capital. The company's susceptibility to environmental turbulence is heightened due to its significant liabilities and high leverage ratios (Škuflić & Bašić, 2024). While leverage can increase profits when an investment is successful, it also increases risk, as the company must repay the loan, which can be a burden if the income or value of the investment declines. Too much leverage can also lead to an increased risk of bankruptcy. Research shows that firms adjust their leverage after credit rating changes, such as a reduction in net debt by 1.5% to 2.0% after a downgrade (Kisgen, 2019). However, the “ratchet” effect suggests that firms that are already leveraged are less likely to reduce their debt (Admati et al., 2018). Companies with access to public bond markets tend to have higher leverage ratios, although excessive leverage can increase bankruptcy risk, negatively impacting bond ratings (Cheng & Tzeng, 2014).

H2 : Lverage has a significant positive effect on bond ratings

2. 4. LIQUIDITY

Liquidity is the ability of an asset to be quickly converted into cash without a significant decrease in value. In the context of bonds, liquidity plays an important role in influencing their rating. Research shows that a lack of liquidity can increase yield spreads due to increased default risk (Chen et al., 2021). Bonds with higher liquidity are typically priced higher than their credit default swap (CDS) equivalents, reflecting their impact on perceived credit risk (Goldberg & Nozawa, 2021). In addition, credit rating changes may trigger abnormal liquidity reactions in the corporate debt market, which depend on the rating announcement and the characteristics of the issuing company (Saadaoui et al., 2022).

H3 : Liquidity has a significant positive effect on bond ratings

2. 5. PROFITABILITY

Securities valuation theory emphasizes the importance of fundamental analysis in determining the value of a security, including bonds. In this case, profitability as a mediator shows how companies can influence investors' risk perception through their financial performance. Thus, a deep understanding of the relationship between interest rates, financial ratios and profitability is crucial for investors in assessing the value of securities.

Profitability as a mediator shows how companies can influence investors' risk perception through

their financial performance. Profitability ratios are essential financial indicators for businesses (Kushnir et al., 2023). A deep understanding of the relationship between interest rates, financial ratios, and profitability is essential for investors in assessing the value of securities. Profitability can show how a company is able to manage and optimize its resources to generate significant profits, which in turn will increase the value of bonds and company ratings.

In this context, the signaling theory proposed by Ross (1976) plays an important role. This theory suggests that companies that provide transparent and clear financial information can improve investors' perception of the value of their securities. Therefore, profitability becomes an important element that influences investment decisions, especially in terms of determining bond ratings. Bond ratings, as explained by (Zutter & Smart, 2019), Profitability is a key indicator of a company's financial health, especially in terms of its ability to meet its interest and principal payment obligations. Companies with good profitability tend to get higher bond ratings because they are considered to have a lower risk of default.

Furthermore, interest rates and leverage also play a significant role in influencing a company's profitability and stability. The interest rate determines the cost of borrowing that must be borne by the company (Motaze, 2022), while leverage indicates the extent to which a company uses debt to fund its operations (Younas & Sarmad, 2020). High leverage can increase a company's financial risk, but it can also provide greater profits if managed properly. Hung et al. (2021) found that companies with lower leverage tend to have better bond ratings, given the lower risk of debt default.

Analysis of other financial ratios such as liquidity ratios and profitability ratios also provide important insights into a company's ability to meet short-term obligations and its ability to generate profits (Kasmir, 2016). A high liquidity ratio indicates that the company is able to pay off its short-term debt using its current assets. Meanwhile, profitability ratios illustrate the company's efficiency in utilizing assets and capital to generate profits. The higher the profitability of the company, the lower the risk of default and the higher the bond rating.

H4 : Profitability has a significant positive effect on bond ratings

H5 : Interest rates have a significant positive effect on profitability

H6 : Leverage has a significant positive effect on profitability

H7 : Liquidity has a significant positive effect on profitability

H8 : Interest rates have a significant positive effect on bond ratings through profitability as a mediating variable

H9 : Leverage has a significant positive effect on bond ratings through profitability as a mediating variable

H10 : Liquidity has a significant positive effect on bond ratings through profitability as a mediating variable

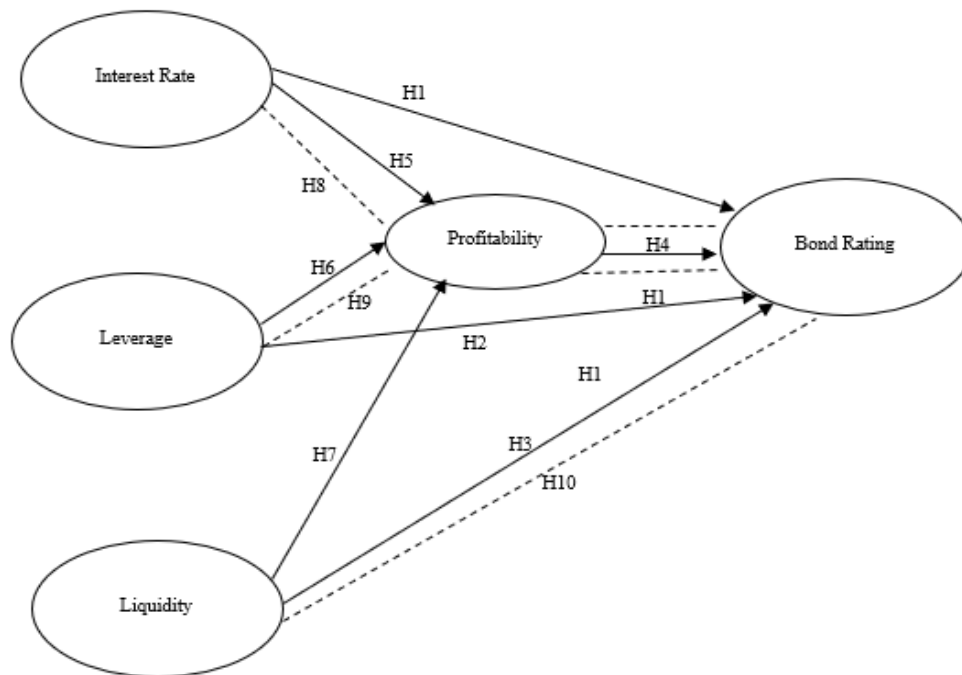
2. 6. CONCEPTUAL FOUNDATIONS

This study is dedicated to analyzing how interest rates, financial ratios, and bond ratings affect firm performance by considering profitability as a mediating variable. Based on the theory and relevant literature review, Figure 1 displays interest rates, financial ratios, and bond ratings as independent variables, with profitability as the mediating variable, and firm performance as the dependent variable. Each variable is operationally described, and the relationship between variables is explained. The hypothesis formulated from this relationship pattern has been presented in the previous section.

This study focuses on firms in the non-financial sector in Indonesia, with the aim of explor-

ing the relationship in the context of a unique national economy. Strong profitability not only improves firm performance, but also increases investment attractiveness through better bond ratings, reduces default risk, and provides security for investors.

Figure 1. Conceptual framework



Source: Own author's

3. METHODOLOGY

This research uses a quantitative approach. This study involved 91 non-financial companies that issued bonds on the IDX for the 2018-2023 period. A sample of 27 companies was selected purposively. Sampling using purposive sampling is based on certain considerations that are in accordance with the research objectives. The criteria used in the sample selection include that the selected companies must come from the non-financial sector, such as the industrial, trade, mining, infrastructure, or property sectors. Second, the company must issue bonds in the period 2018-2023 on the IDX. Third, only companies that have complete and publicly accessible financial statement data during the research period are included in the sample. In addition, the selected companies can be determined based on certain performance measures, such as assets, profits, or other financial ratios relevant to the research objectives. To maintain data quality, companies under special circumstances, such as bankruptcy or delisting, are excluded from the sample.

In this study, researchers used financial reports as a primary data source, while secondary data was obtained from official websites, including the Indonesia Stock Exchange website through the site www.idx.co.id and the company's official website as well as literature books and economic journals. The data collection techniques used in this study are as follows literature study and indirect observation

The relationship between interest rates, financial ratios, and bond ratings with profitability
as a mediating variables in non-financial sector companies in Indonesia

Table 1. Operational Variables

Variables		Formula	Scale of Measurement
Dependent Variable	Bond Rating	Score 1 for the bond that is rated high and 0 for bonds that are ranked low	Nominal
Independent Variable	Interest Rate	Interest per Month = $\frac{\text{Initial Loan Principal} \times \text{Interest rate per year} \times \text{number of years of credit term}}{\text{number of months in the credit term}}$	Nominal
	Leverage	Debt to Asset Ratio = $\frac{\text{debts}}{\text{assets}}$	Ratio
	Liquidity	Current Ratio = $\frac{\text{Total Current Assets}}{\text{All current liabilities}}$	Ratio
Mediation Variable	Profitability	Return On Asset = $\frac{\text{Net profit after tax}}{\text{Total Assets}}$	Ratio

Source: Own author's

The data analysis method for partial hypothesis testing used the t test, to determine the effect of the independent variable on the dependent variable both directly and indirectly the path analysis model was used and to determine the effect of mediation the Sobel test was used. The model used in this study is:

Equation for Profitability (Mediating Variable)

$$\text{Profitability} = \alpha + \beta_1 \text{ Interest Rate} + \beta_2 \text{ Leverage} + \beta_3 \text{ Liquidity} + \varepsilon \quad (1)$$

Equation for Bond Rating (Dependent Variable with Mediating Variable)

$$\begin{aligned} \text{Bond Rating} = \alpha + \beta_4 \text{ Interest Rate} + \beta_5 \text{ Leverage} + \\ + \beta_6 \text{ Liquidity} + \beta_7 \text{ Profitability} + \varepsilon \end{aligned} \quad (2)$$

4. RESULTS

Descriptive Analysis

Table 2 Results of Descriptive Analysis

	ROA	Interest Rate (IR)	CR	DAR	Bond Rating (BR)
Mean	2.656296	4.750000	151.3141	59.96985	4.111111
Median	2.600000	5.000000	120.2100	58.64000	4.000000
Maximum	13.08000	6.000000	1385.970	85.82000	9.000000
Minimum	-9.740000	3.500000	27.96000	31.71000	1.000000
Std. Dev.	4.322425	0.978310	146.9713	14.37521	2.348917
Slope	-0.121452	-0.121497	5.357905	0.093475	0.164358
Curtosis	3.798950	1.374654	40.90856	1.806157	2.088379
Jarque-Bera	3.922439	15.19198	8729.367	8.213685	5.282478
Probability	0.140687	0.000502	0.000000	0.016460	0.071273
Sum	358.6000	641.2500	20427.40	8095.930	555.0000
Number of Sq. Dev.	2503.570	128.2500	2894476.	27690.65	739.3333
Observation	135	135	135	135	135

Source: Own author's

Based on the information provided in Table 2, the average value of the independent factor

Interest Rate is 4.750000, showing a standard deviation of 0.978310. This indicates a narrow range of data points, suggesting a high level of accuracy in relation to the mean. The variability in interest rates is considered to be satisfactory. The mean of the independent variable DAR is approximately 59.91505 with a standard deviation of around 14.29554. In contrast, the independent variable CR has an average of 151.3141 and a standard deviation of 146.9713. Both variables exhibit a smaller deviation from their respective means, indicating a close alignment with the average values.

Conversely, the independent variable bond rating has an average value of 2.656296 and a standard deviation of 4.322425. This indicates a larger range of data points in relation to the average, emphasizing a more varied distribution of variables. The average value of the intermediate profitability (Z) is 4.111111 with a standard deviation of 2.348917. The data points are closely grouped around the mean, showing a small standard deviation compared to the average value.

Path Analysis Test

When examining the intervening hypothesis, the focus is on comparing the impact of the indirect connection versus the direct connection between the main factor and the outcome, which is influenced by the intervening factor. The indirect link involves multiplying the path coefficient from the main factor to the intervening factor with the path coefficient from the intervening factor to the outcome. Conversely, the direct link is solely the path coefficient from the main factor to the outcome. The outcomes of data analysis have been presented as evidence supporting the intervening hypothesis, namely:

Table 3 Results of Interest Rate Mediation against Bond Rating with the mediation of ROA

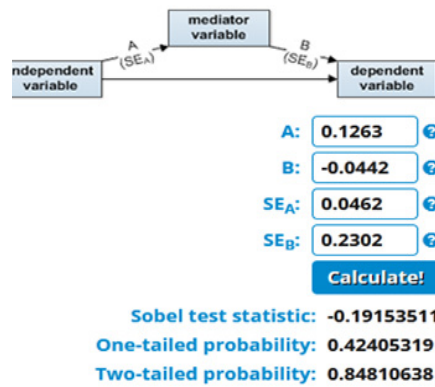
Direct Effects	
IR → Bond Rating	
(p. 1)	= 0,919
Indirect Effects	
IR → ROA → Bond Rating	
(P3 × p. 5)	= 0.000 × -0,044 = -0.005
Total Effect	
(Direct Effects + Indirect Effects) = 0.919 + -0.005 = 0.914	

Source: Own author's

Based on Table 3, the relationship between interest rates and bond ratings is indirectly influenced by return on assets, as shown by the coefficient of -0.005. This means that return on assets has a small negative impact on the relationship. The direct impact of interest rates on bond ratings was recorded at 0.919, which indicates a strong positive influence. Overall, the total effect obtained is 0.914, indicating that despite the slight negative influence of asset returns, the total impact of interest rates on bond ratings remains positive and significant.

In this research, the Sobel test was utilized to evaluate how the mediation factor, bond rating, influenced the outcome. The Sobel test was used to determine the significance of the mediation effect in the following way:

Figure 2. Calculation of Interest Rate against Bond Rating with the mediation of ROA



Source: Own author's

After analysing the data and finding that the value of t is -0.191, the value is below the critical threshold of 1.96 at a significance level of 5%, we can draw the conclusion that the variable ROA has a significant impact and there is no mediating effect present. Thus, the hypothesis results state that "IR has an effect on Bond Rating mediated by ROA" is rejected.

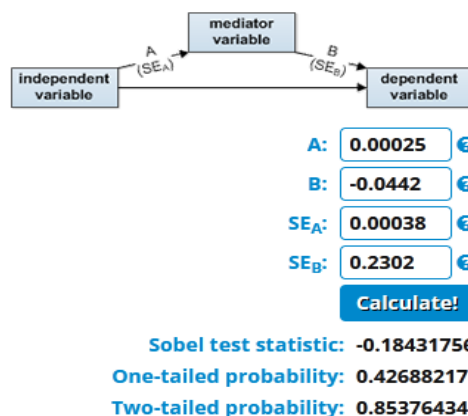
Table 4. Results of CR Mediation against Bond Rating with the mediation of ROA

Direct Effects	
CR → Bond Rating	
(p. 1) = 0,001	
Indirect Effects	
CR → ROA → Bond Rating	
(P3 × P5) = -0,000 × -0,044	= 0.000
Total Effect	
(Direct Effects + Indirect Effects) = 0.001 + 0.000	= 0.001

Source: Own author's

According to the data in table 4, it is evident that CR has an indirect impact on bond rating through ROA as an mediating variable, with a value of 0.000. The direct impact was measured at 0.001, resulting in a total impact of 0.001. The direct influence of 0.000 outweighs the indirect influence of 0.001, indicating that the ROA variable does not serve as a mediator.

Figure 3. Calculation of CR Sobel Test against Bond Rating with the mediation of ROA



Source: Own author's

This study employed the Sobel test to evaluate the effects of mediation factors, particularly ROA. Through the use of the Sobel test, the significance of the mediation impact variable was determined in the following manner:

After obtaining a t value of $-0.184 < t$ table 1.96 at a 5% significance level, it can be inferred that the ROA variable holds significance, indicating the absence of a mediating effect. Consequently, the initial hypothesis that "CR affects bond rating through the ROA " has been disproven.

Table 5. Results of DAR Mediation against Bond Rating with the mediation of ROA

Direct Effects	
DAR → Bond Rating	
(p. 1)	= -0,128
Indirect Effects	
DAR → ROA → Bond Rating	
(P3 × P5) = 0,019 × -0,044	= -0.000
Total Effect	
(Direct Effects + Indirect Effects) = -0.112 + -0.013 = -0.125	

Source: Own author's

Referring to table 5, it is evident that DAR has an indirect impact on Bond Rating through ROA as an mediating variable. It could be seen from the table that the result of the calculation is -0.000. The direct impact recorded was -0.128, resulting in a total impact of -0.125. The direct impact of -0.125 outweighs the indirect impact of -0.000, indicating that the PR variable does not serve as a mediator.

The Sobel test was utilised in this research to assess the role of mediation variables, particularly ROA. The Sobel test was utilized to determine the importance of the mediation variable's influence in the subsequent way:

Figure 4. Calculation of DAR Mediation Sobel Test against Bond Rating with the mediation of ROA



Source: Own author's

At a 5% significance level, the t value of -0.191 is lower than the t table value of 1.96, suggesting that the ROA variable is significant and there is no mediating effect present. Therefore, the proposed scenario linking "DAR impacting bond rating through ROA" is disproven.

5. DISCUSSION

This study aims to investigate the impact of interest rate, liquidity, and leverage on the profitability of non-financial firms issuing bonds from 2018 to 2023, with bond rating serving as a moderating factor. The first finding shows that interest rates have a significant negative effect on bond ratings, where a 1-point increase in interest rates results in a -0.126358 decrease in bond ratings (p-value 0.0072). This indicates that investors tend to see higher risk in bonds when interest rates increase, thus reducing the attractiveness of the bonds. An increase in interest rates generally causes the cost of borrowing for bond issuers to increase, which can result in a decrease in expected cash flows and harm the financial health of the issuer. Bond ratings are often based on the issuer's ability to meet debt repayment obligations, and when interest rates rise, the risk of default increases, reflected in a downgrade. In addition, rising interest rates are often interpreted as a signal that economic conditions may worsen or inflation may increase, so investors become more cautious. In this context, alternative investment instruments such as time deposits and new bonds with higher yields become more attractive, causing a decrease in demand for existing bonds and reducing their value and rating. Previous research by Fasa et al. (2022) also showed that interest rate fluctuations have a direct impact on the cost of debt and bond quality, supporting these findings. Awareness of the relationship between interest rates and bond ratings is crucial for investors in managing portfolios as well as for issuers in planning bond issuances, especially in a changing interest rate environment.

Meanwhile, liquidity measured through current ratio (CR) shows that there is no significant influence on bond ratings, with a p-value of 0.5058. A one-unit increase in CR only results in a small increase of 0.000255 in the bond rating. This finding indicates that companies' ability to meet short-term obligations has no direct impact on the quality of their bonds. While liquidity is an important factor in a company's financial health, this result suggests that other factors, such as profitability and debt management, are more influential in determining bond ratings. This is in line with previous research by Adria & Susanto (2020), which emphasizes the importance of profitability and good debt management as the main determinants in assessing bond risk and quality. Thus, while liquidity remains an important indicator in financial analysis, bond ratings are more influenced by a company's ability to generate profits and manage debt effectively.

In contrast, leverage as measured by the debt-to-asset ratio (DAR) shows a significant positive relationship, where a one-unit increase in DAR results in a rating upgrade of 0.019757 with a very low p value (0.0039). This reflects that investors view the use of debt as a signal of management's confidence in the company's future growth. In other words, when the company decides to increase leverage, this can be interpreted as management's belief that the company is able to generate sufficient cash flow to meet its debt obligations. This finding is in line with previous research which shows that effective use of leverage can increase returns for shareholders without sacrificing financial stability (Fasa et al., 2022; Adria & Susanto, 2020). However, while leverage can increase returns, excessive use of debt also brings risks, such as potential bankruptcy and financial instability. Therefore, companies need to balance between the potential for higher returns and the risks associated with the use of debt. Management should consider market conditions, cash flow, and long-term strategy in making decisions regarding the use of debt. With a prudent approach, companies can utilize leverage to increase shareholder value while still maintaining the financial stability necessary for operational continuity.

The combined analysis of interest rate, Current Ratio (CR), and Debt to Asset Ratio (DAR) shows that these three variables collectively only explain 13.09% of the variation in bond ratings, with an R^2 value of 0.111004. This shows that the model used has not been able to fully describe the factors that influence bond ratings. The relatively low R^2 value indicates that

86.91% of the variation in bond ratings is still influenced by other factors that are not captured in the model, such as macroeconomic conditions, industry dynamics, and market sentiment that can fluctuate.

The F test results, with a value of 6.577254 and a p-value of 0.000355, show that the interest rate, CR, and DAR variables have a significant influence on bond ratings, so the null hypothesis can be rejected. This indicates that at least one of the three variables significantly contributes to the determination of bond ratings. However, this result also emphasizes the importance of considering other external factors that can affect bond ratings. For example, favorable macroeconomic conditions can increase investor confidence, which in turn can potentially improve bond ratings. In addition, positive market sentiment can affect the demand and supply of bonds, leading to a change in rating.

Hence, although interest rate, CR, and DAR contribute significantly, further research is needed to understand more about other influential factors. This study is in line with previous findings which show that macroeconomic factors and market sentiment play an important role in determining bond ratings (Harisman et al., 2022; Rahim, 2023). Therefore, to get a more comprehensive picture of bond ratings, it is important to conduct a broader analysis that includes a variety of relevant variables and market conditions.

The findings further show that interest rates have a significant positive influence on profitability, where every 1 point increase in interest rates correlates with an increase in ROA of 0.919131, with a p-value of 0.0011 indicating that this result is highly statistically significant. The explanation behind this phenomenon lies in the ability of companies to pass on the higher cost of debt to customers, especially for companies that issue bonds. Thus, although there is a negative relationship between interest rates and bond ratings, increasing interest rates may provide an opportunity for companies to increase their revenue, which in turn has a positive impact on their profitability. This is in line with research conducted by Pradnyani (2023), which confirms that interest rates can act as a factor that strengthens a company's financial performance.

On the other hand, liquidity does not seem to have a significant effect on ROA, with a p-value of 0.4610, indicating that this variable does not have a strong impact on firm profitability in the context of this analysis. While there are indications that liquidity could potentially provide a small boost to profitability, these results suggest that liquidity is not the only determining factor. Instead, other factors such as operational efficiency and cost management appear to have more influence on firm profitability. This finding supports the argument put forward by Adria and Susanto (2020), which states that while liquidity is an important aspect for day-to-day operational sustainability, greater focus should be placed on how companies manage costs and operational efficiency to achieve optimal financial results. While interest rates can positively impact a company's profitability, the role of liquidity appears more limited, demonstrating the importance of a holistic management strategy to achieve sustainable financial success.

In the context of financial analysis, leverage is often an important indicator in assessing company performance. High leverage, while it may increase profit potential, also carries significant risks, especially in the form of debt obligations. The results showed that there is a significant negative effect between leverage and Return on Assets (ROA), with a p-value of 0.0001. This indicates that an increase in leverage by 1 unit has the potential to reduce ROA by -0.128730. In other words, when firms increase their debt, they risk facing a greater burden of interest obligations, which in turn can reduce the overall profitability of the firm.

An increase in debt often brings additional implications, where the company has to allocate more resources to pay interest and debt installments. This leads to less funds available for investments or operations that could improve the company's future performance and value. In this

context, debt management becomes crucial; excessive debt can result in a significant decline in financial performance. This finding is in line with studies conducted by [Helfiardi & Suhartini \(2021\)](#) and [Adria & Susanto \(2020\)](#), which also show that imprudent debt management can have a negative impact on company profitability. Although leverage can provide benefits in terms of financing and growth, companies must be careful in their management. Too much debt can backfire, lowering ROA and jeopardizing the company's financial viability. Therefore, it is important for company management to implement prudent debt management strategies in order to maximize financial performance and minimize the risks associated with debt.

Bond ratings are often considered an important indicator in assessing the financial health of a company, the results showed a p-value of 0.8480, which indicates that there is no significant influence between ROA and bond ratings. Although bond rating does not serve as a mediator in the relationship, it can be interpreted as an important signal for investors. This signal can reflect the financial strength and stability of the company. When the bond rating increases, although it does not directly affect ROA, it may indicate that the company has good risk management and the ability to generate higher profits in the future. This is in line with the view expressed by [Purba & Mahendra \(2023\)](#), which emphasizes the importance of bond ratings as an indicator of a company's potential performance.

Furthermore, although the direct relationship between bond ratings and ROA is not significant, this situation reflects the reality that investors often use bond ratings as part of their fundamental analysis. A higher rating can give investors confidence that the company has stable cash flows and lower risks, which in turn can increase investor confidence and long-term investment potential. As revealed by several studies, including the research by Purba and Mahendra, external factors such as market and macroeconomic conditions can also affect this relationship, so further analysis is needed to understand the more complex dynamics in the relationship between bond ratings and corporate financial performance. Overall, these findings confirm the importance of a deeper understanding of how bond ratings can serve as an indicator of firm health, despite the insignificant direct relationship with ROA. This encourages investors and stakeholders to view bond ratings as an important tool in the evaluation of corporate performance and stability ([Purba & Mahendra, 2023](#)).

The results of the regression analysis in this study provide a clear picture of the effect of interest rate, liquidity, leverage, and bond rating variables on profitability as measured by Return on Assets (ROA). From the analysis, it is found that these four variables collectively explain 22% of the variation in ROA ($R^2 = 0.196029$). The F-statistic value of 9.168172 with a very small p-value (0.000001) indicates that this regression model is significant and can reject the null hypothesis, which states that there is no influence between the independent and dependent variables. This confirms that the variables studied have a significant impact on the profitability of the company.

However, while these results indicate the relevance of the variables studied, it is important to note that there is 78% of the variation in ROA that cannot be explained by this model. This suggests that there are other factors beyond the analyzed variables that may contribute more to profitability. In the context of this study, researchers need to consider other variables that may be relevant, such as economic conditions, industry, or internal company factors, which may provide deeper insights into the factors that affect profitability.

Furthermore, the analysis shows that bond ratings do not serve as a mediator in the relationship between interest rates and profitability. The results of the Sobel test show a value below 1.96 at the 5% significance level, which rejects the hypothesis that interest rates affect ROA through bond ratings. This rejection also applies to the relationship between liquidity and profitability, as well as between leverage and profitability, indicating that bond ratings do not play a medi-

ating role in this context. This illustrates that the relationship between these variables is more direct and not affected by bond ratings as an intermediary factor.

6. CONCLUSION

Based on the results of this study, it can be concluded that interest rates have a significant influence on the bond ratings of non-financial companies in Indonesia. An increase in interest rates has a negative impact on bond ratings as it increases the company's borrowing costs, which reduces the attractiveness of bonds for investors. On the other hand, leverage as measured by the debt-to-asset ratio shows a significant positive influence on bond ratings. Investors tend to see higher leverage as a sign of company management's confidence in future growth. However, liquidity as measured by the current ratio does not have a significant influence on bond ratings, although the company's ability to meet short-term obligations remains important in financial analysis.

In addition, profitability as measured by Return on Assets (ROA) does not function as a significant mediating variable between interest rates, leverage, and bond ratings. This means that the relationship between these variables is more direct without being influenced by the level of company profitability. Thus, interest rates and leverage play a more dominant role in determining bond ratings than profitability. This research provides important guidance for non-financial companies in managing their capital structure, especially in utilizing debt and understanding the impact of interest rate fluctuations to maintain stable bond ratings. For investors, the results of this study help in understanding the key factors that affect bond stability, so as to support more informed investment decision-making.

DECLARATIONS

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Ethical considerations the present study adhered to ethical research principles in conducting it. Human subjects were not used in the research since this study relied only on financial data from non-financial companies listed on the Indonesia Stock Exchange that can be accessed publicly. Each piece of information was obtained legally and applied in accordance with applicable regulations. The results were quantitatively analyzed and reported without manipulation at all stages of analysis. For all sources used proper citation is given together with acknowledgement where necessary. In reporting these results everything was done transparently and thoroughly indeed. The manuscript has not been submitted elsewhere for publication purposes yet. Full responsibility for the content rests upon its authors' shoulders.

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