Liquidity, Leverage, Profitability, Coupon Rate, and Maturity Structure: Determinants of Corporate Bond Ratings

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ABSTRACT

Recent instances of default among companies in the Basic Materials sector—despite their investment-grade bond ratings—have raised concerns about the reliability of these ratings as indicators of creditworthiness. Investment-grade classifications are intended to signal a firm's relatively robust capacity to meet its debt obligations and are typically grounded in assessments of key financial metrics. This study investigates the extent to which liquidity, leverage, profitability, coupon rate, and bond maturity influence bond ratings. A purposive sampling approach was adopted, yielding a sample of ten firms observed over the period 2020 to 2024. Employing panel data regression, the analysis explores both the individual and joint effects of the selected variables on bond ratings. The findings suggest that each of the examined factors—liquidity, leverage, profitability, coupon rate, and maturity—exerts a significant influence on bond ratings, both independently and in combination.

Keywords: Liquidity; Leverage; Profitability; Coupon; Bond Maturity; Bond Rating.

Pengaruh Likuiditas, Leverage, Profitabilitas, Kupon, Dan Umur Obligasi Terhadap Peringkat Obligasi

ABSTRACT

Adanya beberapa perusahaan dari sektor Basic Materials yang memiliki peringkat obligasi investment grade mengalami gagal bayar. Investment grade menunjukkan kemampuan perusahaan yang dinilai cukup baik dalam melunasi utangnya. Peringkat diberikan berdasarkan informasi keuangan perusahaan. Penelitian bertujuan untuk menganalisis pengaruh likuiditas, leverage, profitabilitas, kupon dan umur obligasi terhadap peringkat obligasi. Metode sampel yang digunakan adalah purposive sampling. Sebanyak 10 perusahaan digunakan sebagai sampel dan periode penelitian yang digunakan yakni 2020 hingga 2024. Analisis yang digunakan dalam penelitian ini adalah Regresi Data Panel. Hasil menunjukkan bahwa likuiditas, leverage, profitabilitas, kupon dan umur obligasi secara parsial dan simultan berpengaruh terhadap peringkat.

Kata Kunci: *Likuiditas;* Leverage*; Profitabilitas; Kupon; Umur Obligasi; Peringkat Obligasi.*

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INTRODUCTION

Investment involves the allocation of financial resources with the expectation of generating future returns. Such allocations may take the form of physical assets or financial instruments, including equities and fixed-income securities (OJK, 2025). A primary venue for these transactions is the capital market, which serves as a mechanism for channeling funds from investors to entities in need of capital. The capital market facilitates this exchange by providing investment opportunities in various financial instruments (Hati & Harefa, 2019).

Investor behavior within capital markets is often characterized along a rational–irrational spectrum. Rational investors tend to adopt a long-term orientation, evaluate alternatives comprehensively, and prioritize strategies that maximize returns while minimizing losses. Conversely, irrational investors may display traits such as overconfidence, short-termism, regret avoidance, and excessive trading activity, often without fully assessing underlying investment risks (Sumani et al., 2018).

From 2020 to 2023, corporate bonds ranked second among investment instruments in terms of volume, albeit with fluctuations, as reported in PT Kustodian Sentral Efek Indonesia's (KSEI) annual disclosures (Pefindo.com, 2025). Bonds are debt instruments issued by corporations or government entities to raise funds, with the issuer obligated to make periodic interest payments and repay the principal upon maturity (Ananda et al., 2024). Investors are attracted to bonds primarily due to their predictable coupon income and the potential capital gains or losses that arise from market price movements, which are reflected in the yield to maturity (Suriyanti & Hamzah, 2024).

Bondholders receive yields as compensation for investing their capital. The promised yield can be known at the time of purchase and remains fixed if the bond is held to maturity. Holding bonds to maturity helps mitigate price fluctuation risks associated with resale; however, it does not eliminate other risks such as inflation and reinvestment risk (Jones, 2023). Another significant risk is default—when the issuer fails to meet its obligations to pay interest or repay the principal upon maturity (Parulian et al., 2023).

To assess the issuer's capacity to meet its debt obligations, credit rating agencies assign bond ratings. These ratings serve as indicators of the issuer's creditworthiness, with higher ratings corresponding to a lower probability of default (Sihombing & Rachmawati, 2015; Harisman et al., 2022). Bonds categorized as investment grade are generally viewed as having a strong likelihood of timely repayment, making them appealing to risk-averse investors. In contrast, bonds rated below investment grade signal higher risk and often face challenges in attracting capital (Purba & Mahendra, 2023).

In Indonesia, recognized credit rating agencies include PT Moody's Indonesia, Standard & Poor's, and PT Pemeringkat Efek Indonesia (PEFINDO). PEFINDO plays a central role in assessing the credit risk of financial instruments such as bonds. Its ratings provide guidance for investors by evaluating an issuer's ability to fulfill payment obligations. Investors typically exhibit a preference for highly rated bonds, viewing them as more secure investment options (Ikhsan et al., 2012).

The information underlying these ratings is supplied by the party requesting the evaluation and supplemented by data from other credible sources. However, PEFINDO does not independently audit or verify the accuracy or completeness of this information. As such, it disclaims responsibility for any inaccuracies or losses resulting from reliance on its reports. The responsibility for data integrity lies entirely with the information providers. Rating fees are disclosed to clients prior to the issuance of the rating (Pefindo.com, 2025).

PEFINDO maintains policies and procedures to ensure objectivity and independence throughout the rating process, including a code of ethics to mitigate potential conflicts of interest. Ratings may be revised in response to material developments or withdrawn if data becomes insufficient or the rated entity fails to comply with disclosure obligations. In such cases, PEFINDO communicates the withdrawal publicly and reports it to the relevant regulatory bodies, including OJK, the Indonesia Stock Exchange, and the depository institution. In addition, credit ratings must be obtained and disclosed in the prospectus for any entity seeking to issue debt securities through a public offering. Credit rating agencies are also required to continuously monitor and update ratings to reflect any changes in the issuer's ability to meet its obligations.

Despite the safeguards and procedures governing the rating process, defaults have occurred among companies that previously held investment-grade ratings. A notable example is the Basic Materials sector, which includes firms engaged in the extraction, processing, and distribution of raw materials essential for industrial production. This sector encompasses subsectors such as metals and mining, chemicals, construction materials, and forestry products (Muflihah & Pamungkas, 2024). Given its critical role in the global supply chain, the sector's financial stability is of considerable interest.

One illustrative case is PT Waskita Beton Precast (WSBP), a company in the Basic Materials sector that received an idBBB- rating—indicative of adequate capacity to meet financial commitments. Despite this, WSBP was placed in default status and prohibited from servicing any debt obligations, including coupon payments, as of January 31, 2022. The company's rating was downgraded to idD in January 2022, only a few months after the initial investment-grade assessment in September 2021. This incident underscores the limitations of credit ratings as forward-looking indicators and highlights the need for ongoing scrutiny of issuer fundamentals.

PT Kapuas Prima Coal Tbk was assigned a bond rating of idBBB by PEFINDO in October 2023, reflecting an adequate capacity to meet its financial obligations. However, the company failed to repay the bond principal due on December 21, 2023, prompting a series of rating downgrades: to idCCC in December 2023, idSD in January 2024, and ultimately idD in August 2024. A similar trajectory was observed for PT Tridomain Performance Materials Tbk (TDPM), whose bonds initially held an idA– rating in February 2021—classified as investment grade and indicative of strong repayment capacity relative to other Indonesian issuers. The rating was downgraded to idCCC in April 2021 and further to idD in May 2021, following TDPM's failure to allocate sufficient funds to repay the principal of MTN II/2018 and MTN I/2017 on their respective

maturity dates. The existence of cross-default clauses triggered a technical default across TDPM's remaining debt instruments.

PT Barito Pacific Tbk also experienced a downgrade, from idA to idA– in 2020, due to anticipated pressure on short-term liquidity stemming from declining cash inflows from its subsidiaries. Similarly, PT J Resources Asia Pasifik Tbk (PSAB) saw its Sustainable Bond I rating downgraded from idA to idBBB in 2021, reflecting heightened refinancing and liquidity risk related to maturing bank obligations. PT Timah Tbk's rating was revised downward from idA+ to idA in 2020, reflecting deteriorating financial performance amid a global decline in tin demand due to the COVID-19 pandemic.

Bond ratings are determined based on a combination of qualitative and quantitative factors. Qualitative assessments involve the evaluation of business risks, industry competition, and management quality. Quantitative assessments include key financial ratios that signal the issuer's financial condition and are essential components of credit analysis (Brigham & Houston, 2020).

This study draws on signaling theory, which posits that parties with superior information can convey their position to external stakeholders through observable signals (Spence, 1973). In the context of bond markets, credit ratings function as such signals, informing investors about the issuer's creditworthiness and influencing investment decisions. Ratings are communicated through standardized symbols (e.g., AAA, BBB, etc.) that represent varying degrees of default risk (Jones, 2019).

Empirical studies on the determinants of bond ratings have produced mixed findings. Several researchers have identified liquidity as a significant factor influencing bond ratings (Azizah et al., 2022; Darmawan et al., 2020; Herlinasari, 2021; Sulistiani & Meutia, 2021), whereas others have reported no such relationship (Anandia & Nur, 2019; Kurniawan & Suwarti, 2017). Among studies that find a significant effect, some argue that higher liquidity improves bond ratings by enhancing short-term solvency, while others observe an inverse relationship. Liquidity is commonly assessed using the current ratio, which compares short-term assets—such as cash, marketable securities, inventories, and receivables—to short-term liabilities (Brigham & Houston, 2020).

Profitability has also been examined as a potential determinant of bond ratings. Several studies suggest a positive association between profitability and credit quality (Azizah et al., 2022; Herlinasari, 2021; Kurniawan & Suwarti, 2017), as higher profitability signals the issuer's ability to generate earnings to service debat. However, other findings show no significant relationship between profitability and bond ratings (Anandia & Nur, 2019; Alisha & Ananda, 2023; Darmawan et al., 2020), indicating that profitability alone may not be a reliable predictor.

Leverage is another frequently analyzed factor. Some studies report that high leverage reduces bond ratings due to increased financial risk Sulistiani & Meutia (2021), while others identify a positive or insignificant relationship (Azizah et al., 2022; Darmawan et al., 2020; Alisha & Ananda, 2023; Herlinasari, 2021). Leverage, defined as the proportion of debt used to finance a firm's assets, reflects financial structure and solvency risk (Kasmir, 2022).

The bond coupon—the fixed interest promised to investors—is also suggested to affect bond ratings. Christiaan & Karim (2024) argue that higher coupons indicate stronger issuer capacity to meet interest obligations, thus increasing investor confidence and potentially enhancing the bond's rating.

Bond maturity is another debated determinant. Some studies find that longer maturities are associated with lower ratings due to greater uncertainty and risk over time (Veronica, 2020; Darmawan et al., 2020), whereas others argue that maturity length does not significantly influence ratings (Wijaya, 2019; Estiyanti & Yasa, 2012; Kustiyaningrum et al., 2017; Hasan & Dana, 2017). These conflicting findings suggest that maturity may interact with other factors, such as macroeconomic conditions or issuer-specific risks.

Bond ratings carry significant informational value for both issuing firms and investors. For investors, these ratings serve as a crucial tool for assessing a company's financial performance and creditworthiness (Sihombing & Rachmawati, 2015). This study investigates the factors influencing bond ratings within the raw materials sector—a domain that has shown inconsistencies in prior empirical findings and thus warrants further examination.

Liquidity is frequently cited in the literature as a key determinant of bond ratings. A high level of liquidity suggests that a firm is capable of meeting its short-term obligations, which in turn reflects financial stability and implies a reduced level of investment risk. Firms demonstrating sound liquidity positions are generally perceived as more likely to meet long-term debt commitments. Prior studies have confirmed a positive relationship between liquidity and bond ratings (Purba & Mahendra, 2023; Lubis et al., 2024; Azizah et al., 2022; Darmawan et al., 2020). Based on this evidence, the following hypothesis is proposed:

H_1: Liquidity has a positive influence on bond ratings.

Leverage, defined as the proportion of debt used to finance a firm's assets, has also been shown to affect bond ratings. A high level of leverage may indicate increased financial risk, as firms with higher debt levels may face greater difficulty in fulfilling interest and principal payments. Several empirical studies have demonstrated that leverage is negatively associated with bond ratings (Anandia & Nur, 2019; Purba & Mahendra, 2023; Kurniawan & Suwarti, 2017; Wijaya, 2019). Pinanditha & Suryantini (2016) further support this view by showing that higher debt ratios correspond to lower bond ratings. Accordingly, the second hypothesis is formulated as:

H_2: Leverage has a negative influence on bond ratings.

Profitability is another critical indicator of a firm's financial health and its ability to generate returns from its resources. Firms with high profitability are perceived as better equipped to meet their financial obligations, including timely interest and principal payments. Numerous studies affirm a positive association between profitability and bond ratings (Purba & Mahendra, 2023; Herlinasari, 2021; Azizah et al., 2022; Wijaya, 2019), reinforcing the rationale for the third hypothesis:

H_3: Profitability has a positive influence on bond ratings.

Bond coupons represent the periodic interest payments made to investors and serve as a reward for the risk assumed. While higher coupons may imply higher risk, they also reflect the issuer's capacity to offer more attractive returns,

thereby increasing investor interest. Christiaan & Karim (2024) argue that bond coupons influence bond ratings positively by enhancing demand and market value. Wahyuningsih et al.(2025) further explain that strong bond ratings signal a lower probability of default and a higher likelihood of coupon payments being made as promised. Based on this evidence, the fourth hypothesis is stated as follows:

H_4: Coupon has a positive influence on bond ratings.

Bond maturity refers to the time horizon until the bond issuer repays the principal to the bondholder. Longer maturities may introduce greater uncertainty and risk, which could be reflected in lower bond ratings. Empirical findings suggest a negative relationship between bond maturity and ratings (Darmawan et al., 2020; Veronica, 2020). Therefore, the final hypothesis of this study is:

H_5: Bond maturity has a negative influence on bond ratings.

Based on the preceding hypotheses, the conceptual framework underlying this study is illustrated in Figure 1, outlining the proposed relationships between liquidity, leverage, profitability, coupon, and maturity, and their influence on bond ratings.

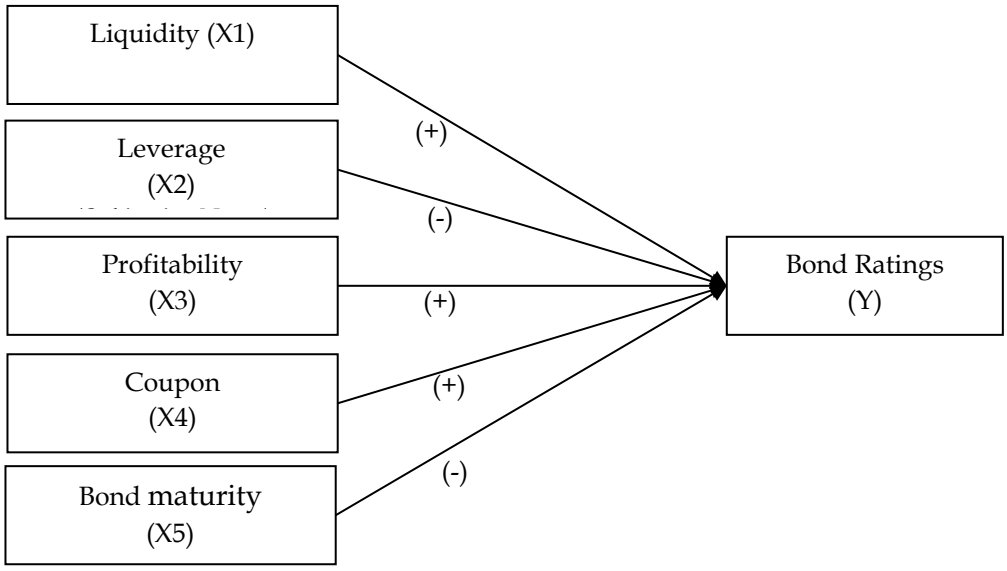

Figure 1. Conceptual Model

Source: Research Data, 2025

RESEARCH METHODS

This study adopts a quantitative approach employing a causal research design to investigate the relationship between firm-specific variables and bond ratings. The analysis is based on secondary data comprising corporate financial statements retrieved from the Indonesia Stock Exchange and bond rating data sourced from the official website of PT Pemeringkat Efek Indonesia (PEFINDO) for the period 2020–2024.

The study sample consists of 10 firms selected from a population of 103 companies operating within the Basic Materials sector. A purposive sampling

method was employed, using the following criteria: (i) the company must be listed on the Indonesia Stock Exchange as of 2023; (ii) the company must have been continuously rated by PT PEFINDO throughout the 2020–2024 observation period; (iii) the firm's bond ratings must be publicly available on the PEFINDO website; and (iv) the company must have published complete financial statements during the study period. The selected sample firms meeting these criteria are presented in Table 1.

Table 1. Research Sample

No	Company name	Company Code
1	PT Waskita Beton Precast Tbk	WSBP
2	PT Kapuas Prima Coal Tbk	ZINC
3	PT Barito Pacific Tbk	BRPT
4	PT Indah Kiat Pulp & Paper Tbk	INKP
5	PT Lautan Luas Tbk	LTLS
6	PT Merdeka Copper Gold Tbk	MDKA
7	PT J Resources Asia Pacific Tbk	PSAB
8	PT Semen Indonesia (Persero) Tbk	SMGR
9	PT Timah Tbk	TINS
10	PT Chandra Asri Petrochemical Tbk	TPIA

Source: Research Data, 2025

This study uses five independent variables and one dependent variable. Variables refer to anything determined to be analyzed, examined, and used to obtain information and draw conclusions (Purwanto, 2019). Table 2 presents the measurement scales of the variables used in this study.

Table 2. Variable Measurement Scale

No	Variables	Definition	Measurement
1	Liquidity (X_1)	Measuring the extent of the ability to meet short-term obligations with the amount of current assets	$CR = \frac{\text{Current assets}}{\text{Current liabilities}}$
2	Leverage (X_2)	Measuring the amount of funding coming from debt compared to equity	$DER = \frac{\text{Total Debt}}{\text{Total Equity}}$
3	Profitability (X_3)	Measuring the company's performance in generating profits or returns from total assets.	$ROA = \frac{\text{Net profit}}{\text{Total Assets}}$
4	Coupon (X_4)	Calculating the return from investing funds in bonds	Coupons for each bond obtained from the IDX website
5	Bond Maturity (X_5)	The bond period starts from issuance to maturity	The age of each bond obtained from the IDX website
6	Bond Rating (Y)	Indicator of the level of a company's ability to pay the principal and interest on bonds	The highest level is given a score of 19 to a score of 1 for the lowest level

Source: Research Data, 2025

Following the measurement of the research variables, panel data regression analysis was performed. Prior to estimation, classical assumption tests were conducted to ensure the robustness of the model, including tests for multicollinearity and heteroscedasticity. Model specification was determined through the application of the Chow test, Hausman test, and Lagrange Multiplier test, to identify the most appropriate estimation technique among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), in accordance with the diagnostic results (Napitupulu et al., 2021).

The panel data regression was employed to examine the influence of current ratio (CR), debt-to-equity ratio (DER), return on assets (ROA), bond coupon, and bond maturity on bond ratings. Statistical significance was assessed using both the t-test for partial effects and the F-test for joint significance. All analyses were conducted using EViews version 12.

RESULTS AND DISCUSSION

Liquidity in the Basic Materials sector, measured using the current ratio, demonstrated a significant improvement from 1.27 in 2020 to 2.10 in 2021. This increase was largely driven by sharp liquidity gains in several firms, including PT Kapuas Prima Coal Tbk (ZINC), whose ratio rose from 1.17 to 6.63, PT Barito Pacific Tbk (BRPT) from 1.87 to 3.14, and PT Timah Tbk (TINS) from 1.11 to 1.30. On average, firms in this sector improved their ability to meet short-term liabilities through current assets. However, this upward trend did not persist. The current ratio declined to 1.80 in 2022 and further to 1.69 in 2023, indicating a moderate weakening in liquidity following the initial post-2020 rebound.

Leverage exhibited a sharp rise from 0.03 in 2020 to 0.59 in 2021, and remained elevated at 0.60 in 2022, suggesting a growing reliance on debt financing. This trend was partly influenced by firms with negative equity positions, where total liabilities exceeded total assets. In 2023, leverage decreased significantly to 0.25, indicating a shift toward deleveraging and an attempt to improve capital structure. This reduction in leverage may enhance financial stability and positively influence the risk assessments of credit rating agencies.

Profitability, proxied by return on assets (ROA), showed signs of recovery during the observation period. From a negative ROA of –0.035 in 2020, profitability improved to 0.008 in 2021 and 0.029 in 2022. However, this positive trend reversed in 2023, with ROA falling to 0.006, suggesting challenges in maintaining operational efficiency. While the sector experienced initial gains in earnings performance, the fluctuations highlight continued volatility in profitability, which may affect credit evaluations.

The average bond coupon in the Basic Materials sector saw a modest increase from 9.93% in 2020 to 10.11% in 2021. However, this was followed by successive declines to 10.33% in 2022 and 9.45% in 2023. The reduction in coupon rates may reflect heightened bond risk or reduced investor appetite. Simultaneously, the average bond maturity extended from 2.90 years in 2020 to 4.35 years in 2023, suggesting a gradual shift toward longer-term debt instruments.

Descriptive statistics (Table 3) indicate that the highest bond rating during the study period was achieved by PT Semen Indonesia (Persero) Tbk in 2024, with

an idAAA rating, reflecting exceptional creditworthiness. Conversely, the lowest rating, idD, was recorded by PT Waskita Beton Precast Tbk in 2022, indicating default on financial obligations.

The mean current ratio of 1.64 implies that, on average, companies had current assets 1.64 times greater than current liabilities. The highest liquidity was recorded by PT Kapuas Prima Coal Tbk in 2021, with a ratio of 6.63, driven by a substantial increase in current assets from IDR 363 billion in 2020 to IDR 714 billion in 2021, alongside a decrease in current liabilities. The lowest liquidity was observed in PT Waskita Beton Precast Tbk in 2022 (0.34), signaling severe short-term financial constraints. A standard deviation of 1.14 indicates notable variation in liquidity across firms.

Average leverage stood at 0.57, indicating a moderate use of debt relative to equity. The maximum value of 2.87, recorded by PT Timah Tbk in 2019, suggests that the firm's liabilities nearly tripled its equity. In contrast, the minimum leverage was –10.83, again reported by PT Waskita Beton Precast Tbk in 2020, reflecting negative equity. A high standard deviation of 2.32 highlights substantial disparities in capital structures across firms, from highly leveraged to financially distressed entities.

The mean profitability (ROA) of 0.009 suggests minimal returns on asset bases. PT Kapuas Prima Coal Tbk recorded the highest ROA (0.125) in 2019, reflecting strong asset utilization. Meanwhile, the lowest ROA (–0.499) was reported by PT Waskita Beton Precast Tbk in 2020, which incurred a loss of IDR 4.86 trillion, or approximately 49% of its total assets. The standard deviation of 0.092 indicates significant variability in earnings performance, with several firms experiencing either robust returns or substantial losses during the period.

The average bond coupon was 9.82%, with the highest yield of 16.80% observed in PT Kapuas Prima Coal Tbk, typically indicative of elevated credit risk. The lowest coupon, 2.00%, was offered by PT Waskita Beton Precast Tbk, suggesting low risk during the issuance period. A relatively low standard deviation of 0.027 suggests modest variability in coupon rates across the sample.

Bond maturity averaged 3.94 years, with the longest durations recorded by PT Semen Indonesia and PT Chandra Asri Petrochemical Tbk (2024) at 7 years. The shortest maturities were observed in PT Barito Pacific Tbk (2024), PT Indah Kiat Pulp & Paper Tbk (2020 and 2021), and PT Merdeka Copper Gold Tbk (2020), indicating differing debt duration strategies across firms.

In sum, firms in the Basic Materials sector exhibit considerable heterogeneity in financial structure, operating performance, and bond characteristics. These differences are evident in the wide dispersion of values across liquidity, leverage, profitability, coupon rates, and bond maturities. The highest variability is seen in leverage, reflecting contrasting capital structures—from highly indebted firms to those with negative equity. Similarly, profitability ranges from high returns to significant losses, pointing to varying levels of operational efficiency. Understanding these disparities is critical for analyzing the link between firm-level financial indicators and bond ratings in this sector.

Table 3. Descriptive Statistics Results

Statistic	X1	X2	X3	X4	X5	Y
Mean	1.641	0.574	0.009	0.098	3.940	13.200
Median	1.340	0.992	0.024	0.093	3.000	14.000
Maximum	6.631	2.872	0.125	0.168	7.000	19.000
Minimum	0.343	-10.826	-0.499	0.020	1.000	1.000
Std. Dev.	1.137	2.316	0.092	0.027	1.514	3.876

Source: Research Data, 2025

Table 4 is the result of the research model determination test. The Chow test produces a probability value of 0.0000, meaning it is smaller than the significance level of 0.05. This shows that FEM is more appropriate to use than CEM. The Hausman test produces a probability value of 0.0000 which is also smaller than 0.05, so the more appropriate model is FEM compared to REM. Next, the Lagrange Multiplier Test shows the probability value 0,0016 less than 0.05 so REM more suitable than CEM. Based on these three tests, the most appropriate model is FEM because the results of all tests support the suitability of this model in analyzing data.

Table 4. Results of Determining the Research Model

Types of Testing	Mark	Results	Model Selection
Uji Chow	Prob.	0.000	Fixed Effect Model
Hausman test	Prob	0.000	Fixed Effect Model
Uji Lagrange Multiplier	Breusch-Pagan	0.002	Random Effect Model

Source: Research Data, 2025

Table 5 shows the results of the classical assumption test conducted on the research sample. Based on Table 5 Correlation matrix between independent variables, all pairs of variables do not have values above the threshold of 0.85, indicating no strong correlation between variables. The lowest correlation value was recorded at 0.035213 between variables X2 and X5, while the highest value is 0.635254 between variables X2 and X3, which remains within safe limits. Thus, this study can be concluded to be free from multicollinearity problems so that no redundancy can affect the validity of the regression model.

Table 5. Multicollinearity Test Results

	X1	X2	X3	X4	X5
X1	1.000	0.233	0.189	0.210	0.053
X2	0.233	1.000	0.635	0.379	-0.035
X3	0.189	0.635	1.000	-0.059	0.043
X4	0.210	0.379	-0.059	1.000	-0.037
X5	0.053	-0.035	0.043	-0.037	1.000

Source: Research Data, 2025

Figure 2 presents the results of the heteroscedasticity test using the residual graph. Based on the graph, it can be observed that the residual values (shown with the blue line) fluctuate but remain within a reasonable range and do not show extreme deviations. No residual values exceed the upper and lower thresholds, which are in the range of ±500. It can be concluded that there is no indication of heteroscedasticity, so the model can be said to have passed the heteroscedasticity test.

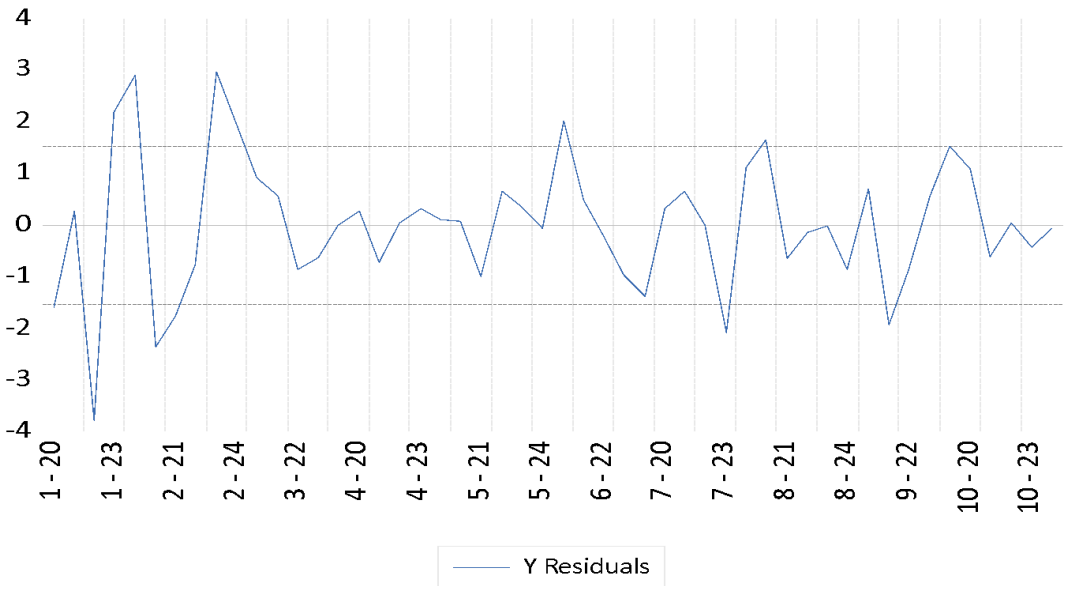

Figure 2. Results of Heteroscedasticity Test

Source: Research Data, 2025

Table 6 is a panel data regression test. Testing using a fixed effect model to test the influence of independent variables (X1 to X5) on the dependent variable (Y).

Table 6. Regression Test Results

Variable	Coefficient	t-Statistic	Prob.
C	8.242	3.692	0.001
X1	0.878	3.139	0.003
X2	-0.846	-3.481	0.001
X3	15.170	3.118	0.004
X4	61.574	2.660	0.012
X5	-0.552	-2.924	0.006
R-squared	0.887		
Adjusted R-squared	0.842		
F-statistic	19.633		
Prob(F-statistic)	0.000		

Source: Research Data, 2025

The results of this study demonstrate that liquidity (X1), leverage (X2), profitability (X3), coupon (X4), and bond maturity (X5) each have a statistically significant partial effect on corporate bond ratings within the Basic Materials sector. As shown in Table 6, the t-statistics for each variable exceed the critical t-table value of 2.0106: liquidity (3.139), leverage (3.481), profitability (3.118), coupon (2.660), and bond maturity (2.924). Each variable's corresponding p-value is also significant at the 5% level: 0.0034 (X1), 0.0014 (X2), 0.0036 (X3), 0.0117 (X4), and 0.0060 (X5).

In addition to the partial effects, the F-statistic indicates that all independent variables jointly exert a significant influence on bond ratings. The model's overall p-value is 0.0000, well below the α = 5% threshold, confirming the simultaneous

significance of the predictors. The adjusted R-squared value of 0.8418 suggests that 84.18% of the variation in bond ratings is explained by the independent variables in the model, with the remaining 15.82% attributed to other factors not included in the analysis.

The finding that liquidity positively affects bond ratings aligns with prior studies by Darmawan et al.(2020) and Azizah et al.(2022). High liquidity enhances a firm's ability to meet short-term obligations, which strengthens investor confidence and reflects positively in the firm's credit rating. This suggests that liquidity serves as a signal of near-term solvency, which rating agencies interpret favorably when assessing default risk.

Leverage is also shown to significantly influence bond ratings, consistent with the findings of Anandia & Nur (2019) and Kurniawan & Suwarti, (2017). A higher leverage ratio indicates increased reliance on debt financing, which elevates financial risk. When debt levels exceed asset values, the risk of default becomes more pronounced, which negatively impacts the firm's bond rating. This aligns with credit market expectations that high leverage correlates with diminished financial flexibility.

Profitability exerts a positive effect on bond ratings, supporting the conclusions of Herlinasari, (2021), Azizah et al., (2022), and Wijaya, (2019). Greater profitability reflects operational efficiency and robust earnings capacity. Firms with higher profit margins are better positioned to meet interest and principal obligations, thereby enhancing creditworthiness. For instance, PT Waskita Beton Precast Tbk (WSBP) exhibited a bond rating upgrade from idD in 2022 to idB in 2023, concurrent with improvements in profitability, moving from negative returns to positive earnings.

The study also confirms the role of bond coupons in influencing ratings, in line with Christiaan & Karim (2024). Variations in coupon rates signal changes in credit risk, which are critical to rating agency evaluations. Higher coupon payments may indicate greater issuer risk, but also attract investor interest, thereby influencing market perception and rating decisions.

Bond maturity is found to have a negative impact on ratings, corroborating prior work by Veronica (2020) and Darmawan et al., (2020). Longer bond tenures increase exposure to economic uncertainty, interest rate fluctuations, and firm-specific risks over time. These factors elevate the probability of default in the eyes of rating agencies, particularly in sectors sensitive to market volatility. Consequently, bonds with extended maturities are generally assigned lower ratings.

Overall, the findings underscore that in the context of the Basic Materials sector, key financial indicators—liquidity, leverage, profitability—as well as bond-specific characteristics—coupon rate and maturity—collectively shape credit ratings. High liquidity and profitability contribute positively to credit standing, while elevated leverage and extended maturities are perceived as risk factors. Bond coupons, although potentially indicative of risk, can also enhance investor appeal, thereby influencing the rating outcome.

From a managerial perspective, these findings offer strategic implications. Firms seeking favorable bond ratings must focus on maintaining strong liquidity, optimizing capital structure to manage debt exposure, and improving operational

efficiency to sustain profitability. Additionally, issuers should be mindful of bond terms—specifically coupon rates and maturities—when structuring debt instruments, as these factors directly influence investor perception and rating agency assessments. Maintaining a solid credit profile is essential not only for sustaining investor trust but also for ensuring access to capital markets under favorable terms.

CONCLUSION

The results of the analysis indicate that liquidity, leverage, profitability, coupon, and bond maturity each exert a significant partial effect on bond ratings, and collectively influence bond ratings among firms in the Basic Materials sector. Liquidity demonstrates a positive association with bond ratings, suggesting that firms with greater capacity to meet short-term obligations are more likely to receive higher ratings. This reinforces the view that strong liquidity serves as a signal of near-term financial stability.

Leverage, in contrast, negatively affects bond ratings. Firms with high levels of debt relative to equity are perceived to face greater financial risk, which increases the potential for default and, in turn, lowers credit ratings. Profitability is shown to positively influence bond ratings, highlighting that firms with stronger earnings performance are more capable of fulfilling their financial commitments. High profitability is generally interpreted as an indicator of operational efficiency and financial resilience.

The analysis further confirms the effect of bond coupons on ratings. Bonds offering higher coupon rates are more likely to receive favorable ratings, as these rates may reflect both the issuer's ability to meet periodic interest payments and the attractiveness of the instrument to investors. However, higher coupons may also signal elevated credit risk, which rating agencies factor into their assessments.

Bond maturity is found to have a negative effect on bond ratings, indicating that longer tenors are associated with increased uncertainty regarding future financial conditions, interest rate changes, and macroeconomic stability. As such, bonds with extended maturities are often assigned lower ratings due to the higher embedded risk over time.

The coefficient of determination (Adjusted R^2) for the regression model is 84.18%, implying that the variables examined—liquidity, leverage, profitability, coupon, and bond maturity—account for a substantial proportion of the variation in bond ratings. The remaining 15.82% is attributable to other factors not included in this model, potentially encompassing qualitative considerations or macroeconomic conditions.

This study is subject to several limitations that provide avenues for future research. The sample size and observation period may be expanded to enhance generalizability. Additionally, this study does not incorporate external factors that are also considered by rating agencies, such as industry competition, regulatory environment, macroeconomic volatility, and managerial quality. These qualitative dimensions represent important determinants of creditworthiness and should be explored in subsequent analyses.

Future research could broaden the analytical scope by incorporating these external variables and examining firms across different industrial sectors.

Comparative studies may offer deeper insights into how sector-specific risks and firm characteristics interact to influence bond ratings, thereby enriching the understanding of credit risk assessment in emerging markets.

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