



The Effect of ESG Ratings on Bank Leverage Evidence From Non-Financial Sector Companies Listed on Indonesia Stock Exchange (IDX) in 2022-2024

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Abstract. This study examines the effect of ESG ratings on bank leverage among non-financial sector companies listed on the Indonesia Stock Exchange (IDX) during 2022–2024. ESG ratings are measured using Bloomberg ESG scores, while bank leverage is measured as bank debt divided by total assets. Using panel data from 46 companies (138 firm-year observations), this study applies panel data regression and selects the Random Effects Model (REM) based on model selection tests. The results show that ESG ratings have a positive but statistically insignificant effect on bank leverage. These findings indicate that higher ESG ratings does not necessarily increase firms' reliance on bank financing. The results do not support Signaling Theory but are more consistent with the view that firms with stronger ESG ratings may rely less on external debt. This study contributes to the sustainable finance literature by providing evidence from an emerging market context where bank financing remains an important source of corporate funding.

Keywords: Bank Leverage; ESG Ratings; Indonesia; Non Financial Sector; Sustainable Finance.

1. BACKGROUND

In recent years, Environmental, Social, and Governance (ESG) has become a global concern as awareness of sustainability in business and financial activities continues to increase. Companies are no longer expected to focus solely on profitability but are also required to consider their environmental, social, and governance responsibilities (Sullivan & Mackenzie, 2016). Liang and Renneboog (2020) further reported that more than 80% of large firms in developed economies have incorporated ESG considerations into their corporate disclosures. In Indonesia, the implementation of ESG has accelerated following the issuance of Financial Services Authority Regulation (POJK) No. 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. The regulation requires financial institutions and public companies to implement sustainable finance principles and publish sustainability reports, indicating that ESG has become an increasingly important component of Indonesia's financial system. Recent evidence also shows that ESG disclosure has become an integral part of sustainability reporting among Indonesian companies (Prihandini, 2025).

The growing implementation of sustainable finance has been accompanied by an increase in environmentally friendly financing. According to the Financial Services Authority, commercial bank financing for environmentally sustainable business activities increased consistently from approximately Rp700 trillion in 2019 to Rp2,047 trillion in 2024 (OJK Sustainable Finance Instrument Statistics, 2025). This trend indicates that sustainability considerations are becoming increasingly relevant in financing activities. At the same time,

companies continue to require substantial external funding to support their operational and investment activities, making leverage an important component of corporate capital structure.

Indonesia's financial system remains predominantly bank-based, where bank loans constitute the primary source of external financing for non-financial firms (Beck, Demirgüç-Kunt, & Maksimovic, 2008). Consequently, bank leverage provides an appropriate measure for examining corporate dependence on bank financing. This study focuses on non-financial companies listed on the Indonesia Stock Exchange (IDX) because these companies generally require substantial external financing while simultaneously facing greater environmental, social, and governance challenges than financial institutions (Rahman et al., 2025).

From a theoretical perspective, Signaling Theory argues that companies with higher ESG ratings provide positive signals regarding their governance quality, transparency, and long-term sustainability, thereby improving creditors' confidence and facilitating access to bank financing (Ross, 1977). Conversely, pecking order theory suggests that firms prefer internal financing over external debt, implying that companies with stronger ESG ratings may rely less on bank borrowing because they possess stronger internal financial resources (Myers & Majluf, 1984). Furthermore, firms with stronger ESG ratings tend to exhibit lower reputational and litigation risks, which may also influence financing decisions (Albuquerque, Koskinen, & Zhang, 2019). These contrasting theoretical perspectives suggest that the relationship between ESG ratings and bank leverage remains inconclusive.

Previous empirical studies also provide mixed findings. Asimakopoulou et al. (2023) reported that companies with higher ESG ratings tend to reduce leverage and rely more on bank financing than public debt because ESG reduces information asymmetry and perceived risk. Similar findings were reported by Lai and Zhang (2022) and Verwijmeren and Derwall (2010), who found that firms with stronger ESG ratings generally maintain more conservative leverage policies. In contrast, Adeneye et al. (2024) found that ESG ratings increases book leverage, while Li et al. (2024) identified a non-linear U-shaped relationship between ESG and corporate debt structure. Cheng et al. (2014) further argued that firms with superior ESG ratings obtain easier access to external financing because ESG serves as a positive signal for creditors.

Although numerous studies have investigated the relationship between ESG and corporate leverage, empirical findings remain inconsistent, particularly in emerging economies such as Indonesia. Moreover, most previous studies focus on total corporate leverage rather than bank leverage, despite the dominant role of banks in Indonesia's financial system. Therefore, this study examines the effect of ESG ratings on bank leverage among non-financial companies listed on the Indonesia Stock Exchange during the 2022–2024 period. The findings

are expected to contribute to the sustainable finance literature by providing empirical evidence on whether ESG ratings influence corporate reliance on bank financing in an emerging market context.

2. LITERATURE REVIEW

Corporate financing decisions can be explained through both Signaling Theory and Pecking Order Theory. Signaling Theory (Ross, 1977) argues that firms communicate their quality to external stakeholders through observable information to reduce information asymmetry. In the context of sustainable finance, ESG ratings represent an important non-financial signal regarding a firm's environmental, social, and governance performance. Companies with higher ESG ratings are generally perceived as having stronger governance, lower operational risk, and better long-term sustainability, enabling financial institutions to evaluate creditworthiness more accurately. Consequently, firms with stronger ESG ratings may obtain better access to bank financing because creditors perceive them as less risky.

In contrast, Pecking Order Theory (Myers & Majluf, 1984) suggests that firms prioritize internal financing over external financing. Companies with stronger financial conditions tend to rely on retained earnings before using debt. From this perspective, firms with higher ESG ratings may experience improved operational efficiency, lower business risk, and stronger internal cash flows, thereby reducing their dependence on bank financing. Therefore, the relationship between ESG ratings and bank leverage may be either positive or negative depending on firms' financing preferences and creditors' responses.

Previous empirical studies provide mixed evidence regarding the relationship between ESG and leverage. Asimakopoulos et al. (2023) found that firms with higher ESG ratings tend to reduce overall leverage while reallocating debt toward bank financing because ESG reduces information asymmetry and perceived credit risk. Similarly, Lai and Zhang (2022) reported that ESG-certified firms adopt more conservative leverage policies, whereas Verwijmeren and Derwall (2010) showed that firms with stronger social performance generally maintain lower leverage to reduce bankruptcy risk. On the other hand, Cheng et al. (2014) demonstrated that firms with superior ESG ratings obtain better access to external financing because sustainability information serves as a positive signal for lenders. Likewise, Adeneye et al. (2024) found that ESG ratings increases book leverage, while Birindelli et al. (2025) emphasized that the effect of ESG on leverage depends on the level of financial institution development.

Although the relationship between ESG and leverage has been widely investigated, previous findings remain inconclusive, particularly in emerging economies where bank financing remains the dominant source of external funds. In Indonesia, empirical evidence examining the influence of ESG ratings on bank leverage among non-financial companies is still limited. Therefore, this study examines whether ESG ratings influence bank leverage in non-financial companies listed on the Indonesia Stock Exchange during the 2022–2024 period. Based on the theoretical arguments and previous empirical findings, this study expects that ESG ratings are associated with firms' bank leverage.

3. RESEARCH METHOD

This study employed a quantitative research design using secondary panel data to examine the effect of ESG ratings on bank leverage among non-financial companies listed on the Indonesia Stock Exchange (IDX). The observation period covered 2022–2024, while ESG ratings were measured using a two-year lag to capture the delayed effect of sustainability performance on corporate financing decisions.

The population consisted of all non-financial companies listed on the Indonesia Stock Exchange (IDX). Samples were selected using purposive sampling based on the following criteria: (1) non-financial companies listed on the IDX during 2022–2024; (2) companies with Bloomberg ESG ratings available throughout the observation period; (3) companies publishing complete annual reports; and (4) companies providing complete data required to measure bank leverage. Based on these criteria, 46 companies were selected, resulting in 138 firm-year observations.

The independent variable was ESG ratings, obtained from the Bloomberg database. To reduce potential reverse causality and capture the time required for sustainability information to influence financing decisions, this study employed a two-year lagged ESG ratings variable (ESG_{it-2}). The dependent variable was bank leverage, measured as the ratio of bank debt to total assets. Financial data used to calculate bank leverage were obtained from companies' audited annual reports, while ESG ratings were collected from the Bloomberg database.

Panel data regression analysis was employed to examine the relationship between ESG ratings and bank leverage. Model selection was conducted using the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. Based on these tests, the Random Effects Model (REM) was selected as the most appropriate estimation model. Classical assumption tests were also performed to ensure the robustness of the regression model. Data processing and statistical analyses were conducted using STATA 19.

The regression model used in this study is expressed as:

$$BL_{it} = \alpha + \beta ESG_{it-2} + \varepsilon_{it}$$

Where BL_{it} represents the bank leverage of firm i in year t , α is the constant, β is the regression coefficient of ESG ratings, ESG_{it-2} represents the two-year lagged ESG ratings of firm i in year t , and ε_{it} is the error term. A positive coefficient indicates that higher ESG ratings are associated with higher bank leverage, whereas a negative coefficient indicates the opposite relationship.

4. RESULTS AND DISCUSSION

Research Sample

The population of this study consisted of all non-financial companies listed on the Indonesia Stock Exchange (IDX) during 2022–2024. The final sample was selected using purposive sampling based on the availability of Bloomberg ESG ratings and complete financial data. A total of 46 companies met the selection criteria, resulting in 138 firm-year observations.

Table 1. Research Sample Selection.

Description	Total
Non-financial sector companies listed on the Indonesia Stock Exchange (IDX) in 2022-2024	869
Financial services companies without ESG ratings in the Bloomberg database or incomplete financial reports	(823)
Financial services companies with ESG ratings in the Bloomberg database and published complete annual reports from 2022-2024	46
Total companies for research sample	46
Total research period	3
Total research sample	138

Based on the sample selection process presented in Table 1, the final sample consists of 138 firm-year observations from 46 companies over the 2022–2024 period.

Descriptive Statistics

Descriptive statistics are presented to provide an overview of the characteristics of the research variables. Table 2 reports the number of observations, mean, standard deviation, minimum, and maximum values for ESG ratings and bank leverage.

Table 2. Descriptive Statistics Result.

Variable	Obs	Mean	Std. Dev	Min	Max
Bank Leverage	138	.1392304	.1174574	0	.5366
ESG Ratings	138	44.25319	10.87769	18.23	73.87

Source: Processed by the author using STATA 19.

Table 2 presents the descriptive statistics of the research variables. ESG ratings exhibit moderate variation across firms, while bank leverage indicates differences in companies' dependence on bank financing. The descriptive statistics provide an overview of the characteristics of the sample before hypothesis testing.

Panel Data Model Selection

To determine the most appropriate estimation model, panel data model selection tests were conducted using the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. The results are presented in Table 3.

Table 3. Panel Data Model Selection Test Result.

Test	Probability	Selected Model
Chow Test	0.0000	Fixed Effect Model
Hausman Test	0.9348	Random Effect Model
Lagrange Multiplier Test	0.0000	Random Effect Model

Source: Processed by the author using STATA 19.

Based on the results presented in Table 3, the Random Effects Model (REM) was selected as the most appropriate estimation model. Therefore, hypothesis testing in this study was conducted using the Random Effects Model.

Regression Analysis

The hypothesis was tested using panel data regression with the Random Effects Model. The regression results are presented in Table 4.

Table 4. Regression Analysis with Random Effect Model (REM) Result.

Variabel/Statistik Model	Koefisien/Nilai	Std. Error	z-statistic	p-value
ESG Ratings	0.0001178	0.0007310	0.16	0.872
Konstanta	0.1340173	0.0354225	3.78	0.000
Jumlah Observasi	138	—	—	—
Jumlah Perusahaan (Firms)	48	—	—	—
Wald Chi ²	0.05	—	—	—
Prob > Chi ²	0.820	—	—	—

Source: Processed by the author using STATA 19.

Table 4 shows that ESG ratings have a positive regression coefficient of 0.0001178. However, the p-value of 0.820 exceeds the 5% significance level, indicating that ESG ratings do not have a statistically significant effect on bank leverage. Therefore, the proposed hypothesis is not supported.

Discussion

The regression results indicate that ESG ratings have a positive but statistically insignificant effect on bank leverage, with a probability value of 0.872, which exceeds the 5% significance level. Therefore, the proposed hypothesis is rejected. Although the positive regression coefficient suggests that firms with higher ESG ratings tend to obtain slightly higher

levels of bank financing, the relationship is not statistically significant. This finding indicates that improvements in ESG ratings have not yet translated into greater reliance on bank financing among non-financial companies listed on the Indonesia Stock Exchange during the 2022–2024 period.

The rejection of the hypothesis suggests that ESG ratings are not yet a key determinant of bank lending decisions in Indonesia. One possible explanation is that Indonesian banks continue to prioritize conventional financial indicators when assessing creditworthiness, including profitability, liquidity, collateral availability, cash flow stability, and repayment capacity. While ESG information provides insights into a firm's sustainability practices, lenders may still consider financial performance and credit risk as more reliable indicators when evaluating loan applications. This finding is consistent with the characteristics of Indonesia's bank-based financial system, where lending decisions remain primarily driven by borrowers' financial fundamentals rather than non-financial information (Beck, Demirgüç-Kunt, & Maksimovic, 2008)

From a theoretical perspective, the findings do not provide empirical support for Signaling Theory (Ross, 1977). Signaling Theory argues that firms with stronger ESG ratings send positive signals regarding their governance quality, transparency, and long-term sustainability, thereby reducing information asymmetry and increasing creditors' confidence. However, the insignificant relationship found in this study suggests that ESG ratings have not yet functioned as an effective signal in influencing bank financing decisions. Although sustainability disclosure has become increasingly important following the implementation of sustainable finance regulations in Indonesia, banks may not yet fully integrate ESG information into their credit evaluation processes

Instead, the findings are more consistent with Pecking Order Theory (Myers & Majluf, 1984), which proposes that firms prioritize internal financing before seeking external debt. Companies with higher ESG ratings may have stronger financial performance, better operational efficiency, and lower non-financial risks, allowing them to rely more on internally generated funds rather than bank loans. Previous studies also suggest that firms with superior ESG ratings generally experience lower reputational and litigation risks, which may strengthen their financial position without necessarily increasing their dependence on bank financing (Albuquerque, Koskinen, & Zhang, 2019).

The results of this study differ from several previous studies that reported a significant relationship between ESG and corporate financing. Cheng et al. (2014) found that firms with better ESG ratings face fewer financing constraints because sustainability practices reduce

information asymmetry and improve stakeholder confidence. Similarly, Adeneye et al. (2024) reported that stronger ESG ratings is associated with higher corporate leverage due to lower perceived risk among creditors. Conversely, Asimakopoulos et al. (2023) found that firms with higher ESG ratings tend to adopt more conservative leverage policies and shift toward bank financing rather than public debt, while Lai and Zhang (2022) and Verwijmeren and Derwall (2010) also documented that firms with stronger ESG ratings generally maintain lower leverage to reduce financial risk. These mixed findings indicate that the effect of ESG ratings on financing decisions is highly dependent on institutional environments, financial market structures, and the extent to which ESG considerations have been incorporated into lending practices.

Another possible explanation for the insignificant relationship is the measurement of the dependent variable used in this study. Unlike Total Leverage, which captures all sources of debt financing, bank leverage specifically measures debt obtained from banking institutions. Consequently, this variable reflects banks' lending decisions rather than firms' overall financing structure. It is therefore possible that ESG ratings exert a stronger influence on other financing channels, such as bond financing or equity financing, than on bank loans. This distinction may partly explain why ESG ratings do not significantly affect bank leverage in the Indonesian context.

Overall, the findings suggest that although ESG ratings contribute to corporate reputation, transparency, and long-term sustainability, they have not yet become a primary factor influencing bank financing decisions for Indonesian non-financial companies. This study therefore contributes to the sustainable finance literature by providing evidence that the influence of ESG ratings on financing decisions may differ depending on the characteristics of the financial system, lending practices, and the stage of ESG implementation within a country.

5. CONCLUSIONS

This study aims to examine the effect of ESG ratings on bank leverage among non-financial companies listed on the Indonesia Stock Exchange (IDX) during the 2022–2024 period. The empirical results indicate that ESG ratings have a positive but statistically insignificant effect on bank leverage. These findings suggest that ESG ratings have not become a primary consideration in bank lending decisions for non-financial companies in Indonesia. Therefore, improvements in corporate ESG ratings do not necessarily increase firms' reliance on bank financing. This finding also indicates that factors other than ESG ratings may play a more important role in determining bank leverage.

This study has several limitations. First, the observation period is limited to three years, which may not fully capture the long-term impact of ESG ratings on corporate financing decisions. Second, the analysis only includes ESG ratings as the independent variable without considering other firm-specific characteristics that may influence bank leverage. Therefore, future studies are encouraged to extend the observation period, incorporate additional control variables such as firm size, profitability, liquidity, and growth opportunities, and compare the relationship between ESG ratings and bank leverage across different industries or countries. Such approaches are expected to provide a more comprehensive understanding of the role of ESG ratings in corporate financing decisions.

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