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Determinants of Sustainable Corporate Bond Yields: The Impact of Macroeconomics and the Moderating Role of ESG on Company Fundamental Factors

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Abstract

The development of sustainable corporate bonds in Indonesia has shown significant growth alongside the integration of Environmental, Social, and Governance (ESG) principles into corporate financing practices. However, the yield formation mechanism of these instruments remains influenced by firm-specific fundamentals and macroeconomic conditions that have not been fully examined empirically within the context of an emerging market. This study aims to analyze the effects of liquidity (CR), profitability (ROE), solvency (DER), bond ratings, inflation, and interest rates on the yield of sustainable corporate bonds, while also examining the moderating role of ESG. The research adopts a quantitative causal approach using secondary data for the 2023–2024 period, with 82 observations selected through purposive sampling. The analysis employs Moderated Regression Analysis (MRA) to test both direct effects and ESG interaction effects. The findings indicate that bond ratings and interest rates have a significant impact on yield, while inflation is significant at the 10 percent level. Liquidity and profitability do not exhibit a direct effect on yield. Furthermore, ESG is found to moderate the relationship between profitability and bond ratings on yield, suggesting that sustainability factors can strengthen or alter the influence of certain fundamental variables on bond returns. The study contributes theoretically by integrating traditional financial models with sustainable finance through an ESG moderation framework and offers practical implications for investors, issuers, and regulators in developing more comprehensive and sustainability-based yield valuation models.

Keywords: Sustainable Bond Yield, ESG, liquidity, profitability, solvency, bond rating, inflation, interest rate.

INTRODUCTION

The rapid expansion of sustainable finance has fundamentally transformed global capital markets over the last decade (D'Orazio et al., 2023; DUPIR, 2024; Goel et al., 2022; Jurkowska-Zeidler & Janovec, 2024; Park, 2023). Among the most prominent instruments in this transformation are sustainable corporate bonds encompassing green, social, and sustainability bonds which integrate Environmental, Social, and Governance (ESG) principles into debt financing structures. Global sustainable bond issuance has grown substantially, reflecting increasing investor demand for instruments aligned with climate transition and social development objectives (Flammer, 2021). Empirical evidence suggests that sustainable bonds may exhibit distinct pricing dynamics compared to conventional bonds due to investor preference shifts, reputational considerations, and regulatory support mechanisms. In emerging markets, including Indonesia, the sustainable bond segment has expanded alongside national commitments to climate transition and sustainable development goals (Anisha et al., 2025; Nguyen & Duong, 2025; Prakash & Sethi, 2022; Sakyi et al., 2024; Satria, 2025; Setyowati, 2023). However, despite this

growth, the yield formation mechanism of sustainable corporate bonds remains insufficiently understood, particularly in contexts characterized by evolving market depth, regulatory heterogeneity, and information asymmetry.

From a theoretical standpoint, traditional bond pricing frameworks posit that yield is primarily determined by firm-specific fundamentals and macroeconomic conditions. Trade-off Theory suggests that firms with optimal capital structures and lower bankruptcy risk should face lower borrowing costs (Brealey et al., 2020). Similarly, Signaling Theory argues that high-quality firms transmit credible signals such as strong profitability or favorable credit ratings that reduce perceived default risk and consequently lower required yields (Flammer, 2021). Agency Theory further emphasizes that governance quality and financial transparency mitigate agency conflicts, reducing risk premiums embedded in debt pricing (Jensen & Meckling, 2004). Meanwhile, macroeconomic variables particularly inflation expectations and benchmark interest rates directly influence bond valuation through discount rate adjustments and purchasing power risk (Czech & Roberts-Sklar, 2019). Although these theoretical frameworks adequately explain conventional bond yields, their explanatory power in sustainable bond markets remains contested, especially when ESG performance potentially alters investor risk perception.

Recent empirical findings present mixed evidence regarding the determinants of sustainable bond yields. Some studies document the existence of a "greenium," where sustainable bonds are issued at lower yields relative to comparable conventional bonds, reflecting investors' willingness to accept lower returns for sustainability alignment (Zerbib, 2019). Other research, however, finds that yield differentials are conditional and sensitive to firm fundamentals, credit quality, and market conditions rather than sustainability labeling alone (Bachelet et al., 2019). In emerging markets, the evidence is even less conclusive, as ESG disclosure quality, investor sophistication, and liquidity constraints may weaken the pricing effect of sustainability attributes (Sihombing et al., 2025). This inconsistency reveals a critical research gap: while ESG is often treated as an independent determinant of yield, limited research examines its role as a moderating mechanism that interacts with firm fundamentals and macroeconomic factors in shaping sustainable bond returns.

Conceptually, ESG may function as a credibility-enhancing signal that strengthens the relationship between financial fundamentals and yield. High ESG performance could amplify the positive impact of strong profitability or high credit ratings by reinforcing investor confidence and reducing perceived non-financial risk (Fatica & Panzica, 2021). Conversely, ESG implementation may entail additional compliance and reporting costs, potentially moderating financial efficiency and altering risk-return expectations (Abdi et al., 2022). Therefore, ESG may not uniformly reduce yield; rather, its influence may depend on interaction effects with liquidity, profitability, solvency, and bond ratings. Integrating ESG as a moderating variable thus offers a more nuanced framework that bridges traditional corporate finance theory with sustainable finance literature.

In light of these theoretical and empirical inconsistencies, this study aims to analyze the determinants of sustainable corporate bond yields in Indonesia by examining the effects of liquidity (Current Ratio), profitability (Return on Equity), solvency (Debt-to-Equity Ratio), bond

ratings, inflation, and interest rates, while simultaneously testing the moderating role of ESG. Specifically, this research addresses the following questions: (1) Do firm fundamentals significantly influence sustainable bond yields? (2) Do macroeconomic variables affect yield formation in the Indonesian sustainable bond market? (3) Does ESG moderate the relationship between firm fundamentals and yield? By employing Moderated Regression Analysis (MRA) on 82 observations from the 2023–2024 period, this study seeks to provide empirical clarity regarding these relationships within an emerging market setting.

The contribution of this article is threefold. First, it advances corporate finance theory by integrating ESG as a moderating construct within a yield determination model, rather than treating it solely as an independent explanatory variable. Second, it enriches sustainable finance literature by providing evidence from an emerging market context, where institutional and informational characteristics differ from developed economies. Third, it offers practical implications for investors, issuers, and regulators by proposing a more comprehensive yield valuation framework that simultaneously incorporates financial fundamentals, macroeconomic risk, and sustainability performance. Through this integrated approach, the study contributes to a deeper understanding of how sustainable corporate bond markets evolve in response to both traditional financial signals and emerging sustainability considerations.

METHOD

Research Design

This study is designed using a quantitative approach with a type of causal associative research. According to Sugiyono (2019), the quantitative method is a research method based on the philosophy of positivism, used to study a specific population or sample, with data collected through research instruments and analyzed quantitatively or statistically, with the aim of testing predetermined hypotheses. The quantitative approach was chosen because this study uses numerical data in the form of financial statements and market data that are analyzed statistically.

The causal associative nature of this study aims to determine the cause-and-effect relationship between two or more variables (Sekaran & Bougie, 2016). In this context, the study aims to analyze and empirically test the influence of independent variables (Liquidity, Profitability, Solvency, Bond Rating, Inflation, and Interest Rates) on the dependent variable (Sustainable Corporate Bond Yield), as well as to examine the moderating role of ESG in strengthening or weakening these relationships.

Population and Sample

Population is a broad scope that includes objects or subjects with specific characteristics that have been determined by the researcher to be the focus of the study and from which research conclusions are drawn. The population in this study is all sustainable corporate bonds issued by companies in Indonesia and listed on the Indonesia Stock Exchange (IDX) during the study period. The sustainable corporate bonds in question include green bonds, sustainability bonds, and sustainability-linked bonds issued by financial and non-financial sector issuers.

A sample is a part that represents the number and characteristics of a given population. In this study, sampling uses the purposive sampling technique, which is a selection method based on special criteria or considerations from the researcher who is considered appropriate as a sample for the study (Sugiyono, 2019).

Based on the sampling criteria, 82 sustainable corporate bonds were obtained as a sample of a total population of 286. The sustainable corporate bonds selected as a sample are fixed rate sustainable corporate bonds listed on the Indonesia Stock Exchange with an active status during 2023-2024, from companies outside the financial sector that have bond ratings and issue bonds in rupiah. In addition, it also has complete financial reports.

Data Types and Sources

The data used in this study is secondary data with a cross-section data structure. The methods used to collect data in this study are as follows:

1) Documentation Study: The data used in this study are secondary data obtained through documentation study techniques. Documentation study is a method of data collection by observing or analyzing historical data relevant to the research topic, which is sourced from documents from related agencies and websites that provide the necessary information. Using this method, researchers can utilize the data that is already available by duplicating or copying it for research analysis purposes.
2) Library Research: The data collection in this study was carried out by studying various literature and books that discuss theories related to the problems being researched. In addition, additional sources of information are obtained through the use of internet media as a supporting means to find theories and data needed in research.

Variable Measurement

1) Sustainable Corporate Bond Yield (YIELD): Yield is measured as the annualized yield of sustainable corporate bonds during the observation period. Yield reflects the cost of debt financing borne by the issuer and the return required by investors.
2) Liquidity (CR): Measured using the Current Ratio.
3) Profitability (ROE): Measured using Return on Equity.
4) Solvency (DER): Measured using Debt-to-Equity Ratio.
5) Bond Rating (RATING): Measured using an ordinal or numerical scale based on official credit rating classifications.
6) Inflation (INF): Measured as the annual inflation rate during the bond issuance/trading period
7) Interest Rate (BIRATE): Measured using the benchmark policy rate applicable during the observation period.
8) Environmental, Social, and Governance (ESG): ESG is measured using an ESG performance score derived from publicly available sustainability assessments.

Data Analysis Techniques

The data analysis technique in this study was carried out with a quantitative approach, using statistical analysis methods to test the relationship between independent variables, dependent variables, and the role of moderation variables. Data processing and analysis is carried out with

the help of the statistical software EViews version 12. The data analysis in this study consists of several stages, namely descriptive statistics, classical assumption tests, Multiple Linear Regression Analysis, Moderated Regression Analysis (MRA), Coefficient of Determination (R^2), F-test and t-test.

RESULT AND DISCUSSION

Statistics Descriptive

Prior to conducting causal inference, it is essential to examine the underlying characteristics of the dataset employed in this study. Descriptive statistical analysis provides an overview of the risk profile and performance attributes of sustainable bond issuers in Indonesia. These preliminary insights serve as a foundation for subsequent empirical testing. The detailed results of the descriptive analysis are presented in Table 1.

Table 1. Descriptive Statistical Analysis Results

Variabel	Mean	Maximum	Minimum	Std. deviation
YIELD	0,0963	0,1125	0,0625	0,0139
CR	2,2640	4,3757	0,2092	0,9817
ROE	0,0639	0,1370	-0,0110	0,0373
DER	1,1904	3,4784	0,6875	0,7227
RATING	0,7972	1,0000	0,7368	0,0524
INFLATION	0,0238	0,0352	0,0155	0,0055
BIRATE	0,0600	0,0625	0,0575	0,0015
ESG	0,8072	1,0000	0,5875	0,0841
CR_ESG	0,0866	0,9692	-0,6748	0,3399
ROE_ESG	-0,0022	0,0400	-0,0476	0,0159
DER_ESG	-0,0734	0,2671	-0,5677	0,1511
RATING_ESG	-0,0064	0,0330	-0,0613	0,0160

1) The descriptive statistics indicate that the dependent variable, bond yield, has a mean of 9,63 % with a standard deviation of 1,39 %, suggesting substantial cross-sectional variation among sustainable corporate bonds. The highest yield 11,25 % is associated with a commodity-based issuer, reflecting higher exposure to input price volatility, cyclical demand fluctuations, and environmental and regulatory risks. These characteristics likely increase the risk premium required by investors. Conversely, the lowest yield 6,25 % is observed in a telecommunications infrastructure issuer, whose business model is characterized by stable and recurring cash flows supported by long-term contractual arrangements. Such financial stability reduces default risk and lowers the required return. Overall, the dispersion in yields reflects heterogeneity in credit quality, sectoral risk, and sustainability-related exposure across issuers. This variation provides an empirical basis for incorporating ESG as a moderating variable rather than merely a control variable, as sustainability performance may condition the relationship between firm fundamentals and bond yields.

2) The descriptive statistics for liquidity, measured by the current ratio (CR), show a mean value of 2,264, indicating that, on average, issuers in the sample maintain sufficient short-term assets to cover current liabilities. The highest CR values are observed in a commodity-based manufacturing issuer, reflecting a precautionary working capital strategy in response to input price volatility, inventory intensity, and cyclical business exposure. Maintaining higher liquidity buffers may serve as a risk management mechanism to mitigate operational disruptions and short-term financing constraints. In contrast, the lowest CR is recorded in a telecommunications infrastructure issuer. This relatively low liquidity ratio does not necessarily signal financial distress but instead reflects a business model characterized by stable and recurring cash flows supported by long-term contractual arrangements. In such cases, predictable operating cash flows reduce short-term liquidity risk, allowing firms to operate efficiently with lower current asset buffers.
3) Profitability, proxied by Return on Equity (ROE), exhibits substantial cross-sectional variation across issuers, with a mean value of 0,0639, indicating that firms in the sample generally generate positive returns on shareholders' equity. The highest ROE is observed in a telecommunications infrastructure issuer, reflecting efficient capital utilization supported by stable and recurring revenues and relatively controlled operating costs. Such profitability signals stronger internal cash-generating capacity, which may enhance investors' confidence in the issuer's ability to meet coupon obligations. Conversely, the lowest ROE, which is negative, is recorded in a petrochemical issuer. This outcome likely reflects pressure on profitability during a period characterized by capital-intensive expansion and exposure to input price volatility and cyclical industry dynamics. In this context, weaker short-term profitability may be associated with long-term investment strategies rather than persistent financial distress.
4) Solvency, measured by the Debt to Equity Ratio (DER), has a mean value of 1,1904, indicating that, on average, issuers employ a moderately leveraged capital structure with a relatively balanced mix of debt and equity financing. The highest DER is observed in a pulp and paper issuer, reflecting a more debt-intensive financing structure. Elevated leverage levels are commonly associated with capital-intensive industries that rely on long-term borrowing to finance large-scale assets and expansion projects. In such contexts, higher leverage may represent a strategic choice aimed at optimizing capital structure and enhancing equity returns, particularly when supported by stable operating cash flows. Conversely, the lowest DER is recorded in a telecommunications infrastructure issuer, indicating a more conservative capital structure. Lower leverage enhances financial flexibility and reduces exposure to refinancing and interest rate risk, which may strengthen creditworthiness from a bondholder's perspective.
5) Bond ratings in the sample exhibit a mean value of 0,7972, indicating that most sustainable corporate bonds are classified within the investment-grade category. This suggests that issuers generally maintain relatively strong credit quality and manageable default risk. The highest rating values are observed in a telecommunications infrastructure issuer, reflecting superior creditworthiness and financial stability. Higher credit ratings are typically associated with

lower perceived default risk, thereby reducing the yield required by investors as compensation. This pattern is consistent with standard credit risk pricing theory, which predicts an inverse relationship between credit quality and bond yield. In contrast, lower rating values are observed among issuers operating in sectors characterized by higher revenue volatility and greater exposure to cyclical or commodity-related risks. These firms may face higher operational uncertainty and long-term financing needs, contributing to elevated perceived credit risk. Consequently, bonds with relatively lower ratings tend to offer higher yields to compensate investors for additional risk exposure.

6) From a macroeconomic perspective, inflation during the observation period ranges between 1,55 % and 3,52 %, with a mean of 2,38 % and relatively low dispersion. These figures indicate a stable inflationary environment throughout the sample period. The limited variation suggests that inflationary pressures remained moderate and well-anchored, reducing the likelihood of substantial macroeconomic shocks affecting bond pricing dynamics. In such a context, the impact of inflation on sustainable corporate bond yields is expected to be moderate rather than disruptive. Stable inflation contributes to predictable real return expectations and supports monetary policy credibility, thereby limiting abrupt adjustments in required yields. Consequently, while inflation remains an important macroeconomic determinant in bond valuation, its relatively low volatility during the sample period implies that yield movements are more likely driven by firm-level fundamentals and policy rate changes than by inflation shocks.
7) The policy interest rate during the observation period ranges between 5,75 % and 6,25 %, with a mean of 6 % and very low dispersion. This narrow range indicates a relatively stable and consistent monetary policy stance throughout the sample period. Limited variation in the benchmark rate suggests the absence of abrupt tightening or easing cycles that could substantially disrupt bond market conditions. Given this stability, fluctuations in sustainable corporate bond yields are unlikely to be driven solely by short-term movements in the policy rate. Instead, yield differentials across issuers are more plausibly attributed to firm-specific fundamentals, credit quality, and risk profiles. While the policy rate remains a key macro-financial determinant in bond valuation, its low volatility during the sample period implies that cross-sectional yield variation is primarily shaped by issuer-level characteristics rather than by monetary shocks.
8) The Environmental, Social, and Governance (ESG) variable exhibits meaningful cross-sectional variation across issuers, with a relatively high mean score of 0,8071, indicating that most sustainable bond issuers demonstrate substantial alignment with ESG principles. The highest ESG score is associated with an issuer reflecting strong sustainability commitment, governance quality, and comprehensive ESG disclosure. Higher ESG performance appears to coincide with relatively lower bond yields, suggesting that sustainability practices may enhance perceived credit quality and reduce the risk premium required by investors. Conversely, lower ESG scores are observed among several infrastructure issuers. These lower scores do not necessarily indicate weak operational performance but may reflect limitations

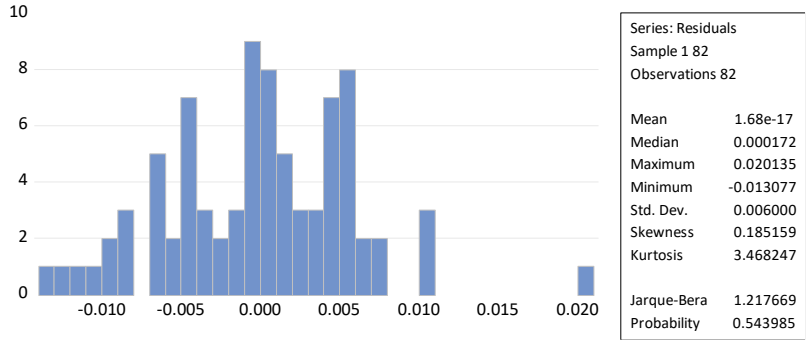
in ESG integration and disclosure, particularly in environmental and social dimensions. From a bond market perspective, weaker ESG performance may be perceived as higher non-financial risk, leading investors to demand higher yields as compensation for uncertainty.

Classic Assumption Test

To ensure that the regression model satisfies the properties of the *Best Linear Unbiased Estimator* (BLUE) and produces unbiased estimates, classical assumption tests must be conducted. These tests aim to verify the reliability, consistency, and accuracy of the multiple linear regression model employed in this study.

1) Normality Test

The normality test aims to examine whether the residuals (disturbance terms) in the regression model are normally distributed (Ghozali, 2018) . In this study, the normality assumption is tested using the Jarque–Bera statistic in EViews. The decision rule is based on the probability (p-value): if the p-value exceeds the 5 % significance level, the residuals are considered to be normally distributed.



Based on the Jarque–Bera test results, the probability value is 0,544, which is greater than 0,05. This result indicates that the residuals are normally distributed. Therefore, the regression model employed in this study satisfies the normality assumption.

2) Multicollinearity Test

The multicollinearity test was carried out by looking at the results *of the calculation of Variance Inflation Factors* (VIF) and *Tolerance*. The data is declared to have passed the multicollinearity test (no multicollinearity occurs) if the VIF value is < 10 and the Tolerance value is > 0,10. The following are the results of the calculation of multicollinearity in this study:(Ghozali, 2018)

Table 2. Multicollinearity Test Results

Variabel	Coefficient Variance	Uncetered VIF	Centered VIF
C	0,001555	3060,458	NA
CR	1,33E-06	15,91577	2,492745

Variabel	Coefficient Variance	Uncetered VIF	Centered VIF
ROE	0,001972	21,1897	5,329242
DER	3,86E-06	14,68322	3,918986
RATING	0,000825	1035,954	4,400213
INFLATION	0,022522	26,39658	1,335322
BIRATE	0,24129	1712,749	1,121818
ESG	0,000222	287,3376	3,046547
CR_ESG	9,11E-06	2,181587	2,047008
ROE_ESG	0,013033	6,542901	6,416418
DER_ESG	5,15E-05	2,834272	2,287682
RATING_ESG	0,00933	5,381032	4,629472

Source : Processed secondary data eviews (2026)

on Table 2, it is known that the centered value of the VIF of the Independent Variable <10, it can be concluded that there is no multicollinearity between independent variables in the regression model.

3) Heteroscedasticity Test

The heteroscedasticity test aims to test whether in the regression model there is an unevenness of variance from one residual observation to another. This study uses the Glejser Test, which is by regressing the absolute residual value to an independent variable. If the significance value > 0,05, then the regression model does not contain the presence of heteroscedasticity. The following are the results of the heteroscedasticity test in this study (Ghozali, 2018).

Table 3. Heteroscedasticity Test Results

F - Statistic	1,615390	Prob. F (11,70)	0,1444
Obs R* squared	10,86928	Prob. Chi Square (11)	0,1444
Scale explained SS	10,72615	Prob. Chi Square (11)	0,1510

Source : Processed secondary data eviews (2026)

Based on the Glejser test, the value of Prob. F of 0,1444 is greater than the significance level of 5 % (0,05), so that the regression model does not experience heteroscedasticity and meets the homoscedasticity assumption.

Moderated Regression Analysis

The results of the MRA model test are presented in the following Table 4:

Table 4. Moderated *Regression Analysis Test Results*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0,034155	0,039430	0,866214	0,3893
CR	0,000168	0,001153	0,145618	0,8846
ROE	0,043316	0,044405	0,975491	0,3327
DER	-0,004655	0,001964	-2,369875	0,0206

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RATING	-0,119744	0,028716	-4,169908	0,0001
INFLATION	0,274070	0,150074	1,826226	0,0721
BIRATE	1,711060	0,491213	3,483336	0,0009
ESG	0,059474	0,014889	3,994567	0,0002
CR_ESG	0,004255	0,003018	1,409770	0,1630
ROE_ESG	0,383501	0,114164	3,359212	0,0013
DER_ESG	-0,009242	0,007179	-1,287461	0,2022
RATING_ESG	-0,403192	0,096589	-4,174289	0,0001
R-Squred	0,813725			
Adjusted R-Squred	0,784454			
F-statistic	27,79902			
Prob (F-statistic)	0,000000			

Source : Processed secondary data eviews (2026)

The *Moderated Regression Analysis* (MRA) model in this study can be formulated as follows:

YIELD = 0,0342 + 0,0002*CR + 0,0433*ROE – 0,0047*DER – 0,1197*RATING + 0,2741*INFLATION + 1,7111*BIRATE + 0,0595*ESG + 0,0043*CR_ESG + 0,3835*ROE_ESG – 0,0092*DER_ESG – 0,4032*RATING_ESG

Based on the regression equation, the sign and magnitude of the regression coefficient (β) in each variable show the direction and strength of the relationship between independent variables, ESG moderation variables, and interaction variables with *bond yields.*

The Effect of Liquidity on Sustainable Corporate Bond Yields

Liquidity, proxied by the Current Ratio (CR), does not exhibit a statistically significant effect on sustainable bond yields (t = 0.1456; p = 0.8846). The magnitude and insignificance suggest that short-term liquidity conditions are not priced by investors in this market segment. This finding implies that investors in sustainable bonds prioritize long-term solvency and structural risk over short-term working capital adequacy. The result is consistent with the view that sustainable bond investors predominantly institutional and long-horizon oriented focus more on long-term project viability than temporary liquidity positions.

The Effect of Profitability on Sustainable Corporate Bond Yields

Profitability, measured by Return on Equity (ROE), also shows no significant direct effect on yield (t = 0,9755; p = 0,3327). From an agency perspective, profitability primarily benefits shareholders rather than bondholders, who hold fixed claims. As long as firms generate sufficient cash flows to service debt, incremental profitability does not reduce perceived default risk. This supports the notion that accounting-based profitability, being backward-looking, has limited explanatory power in bond pricing compared to forward-looking credit risk indicators.

The Effect of Leverage on Sustainable Corporate Bond Yields

Leverage (DER) demonstrates a statistically significant but negative relationship with yield (t = −2,3699; p = 0,0206). While significant at the 5% level, the direction contradicts the conventional risk hypothesis. Rather than penalizing higher leverage, the market appears to interpret debt usage as part of strategic capital structure optimization. In the context of capital-intensive ESG investments, leverage may signal growth and tax efficiency consistent with trade-off theory. This suggests that debt financing in sustainable issuers is not necessarily associated with heightened distress risk.

The Effect of Bond Ratings on Sustainable Corporate Bond Yields

Bond ratings exhibit a strong negative and highly significant effect on yield (t = −4,1699; p = 0,0001). The coefficient confirms that higher credit quality substantially reduces required yield. This result reinforces the dominance of traditional credit risk pricing mechanisms in the sustainable bond market. Despite ESG labeling, rating quality remains the primary determinant of yield spreads. The finding supports signaling theory and the risk–return trade-off framework.

The Effect of Inflation on Sustainable Corporate Bond Yields

Inflation has a positive effect on yield (t = 1,8262; p = 0,0721), significant at the 10% level. The positive sign aligns with the Fisher Effect, indicating that investors demand compensation for inflation expectations. However, the relatively weaker statistical strength compared to rating and policy rate variables suggests that macroeconomic risk is secondary to firm-level credit fundamentals in this market.

The Effect of Interest Rates on Sustainable Corporate Bond Yields

The benchmark interest rate has a positive and highly significant effect on yield (t = 3,4833; p = 0,0009). The strong statistical significance indicates high sensitivity of sustainable bond yields to monetary policy. This confirms that sustainable bonds remain fully exposed to interest rate risk and follow conventional fixed-income pricing mechanisms.

The Moderating Role of ESG in the Liquidity–Yield Relationship

The interaction between ESG and liquidity is insignificant (t = 1,4098; p = 0,1630). ESG does not moderate the relationship between short-term liquidity and yield. This suggests that sustainability performance does not compensate for short-term financial weaknesses in pricing decisions.

The Moderating Role of ESG in the Profitability–Yield Relationship

The ESG–profitability interaction is positive and statistically significant (t = 3,3592; p = 0,0013). This result contradicts the risk-reduction hypothesis. Instead, when highly profitable firms engage intensively in ESG activities, markets may perceive potential overinvestment or cost burdens, consistent with agency theory (free cash flow hypothesis). Consequently, yields increase rather than decrease.

The Moderating Role of ESG in the Leverage–Yield Relationship

The ESG–leverage interaction is insignificant (t = −1,2875; p = 0,2022). This indicates that sustainability performance does not mitigate leverage-related credit risk. Investors continue to price financial risk independently from ESG attributes.

The Moderating Role of ESG in the Rating–Yield Relationship

The ESG–rating interaction is negative and highly significant (t = −4,1743; p = 0,0001). This finding provides strong evidence of a "greenium" effect. ESG strengthens the negative impact of bond ratings on yield, meaning that highly rated firms with strong ESG performance experience substantially lower yields. ESG functions as a signal amplifier, reinforcing credit quality and reducing information asymmetry.

CONCLUSION

This study investigates the determinants of sustainable corporate bond yields in Indonesia by incorporating firm-level fundamentals, macroeconomic variables, and the moderating role of Environmental, Social, and Governance (ESG) performance within a Moderated Regression Analysis (MRA) framework. The empirical findings yield several important insights. First, liquidity (Current Ratio) and profitability (Return on Equity) do not exert statistically significant direct effects on sustainable bond yields. These results suggest that short-term liquidity positions and accounting-based profitability are not primary pricing factors in this market segment. Consistent with the fixed-claim nature of bondholders, investors appear to focus more on credit risk and long-term repayment capacity than on short-term financial performance indicators. Second, leverage (Debt-to-Equity Ratio) exhibits a statistically significant but negative association with yield, contrary to the conventional risk hypothesis. This finding indicates that higher leverage in sustainable issuers may be interpreted as a signal of strategic capital structure management rather than financial distress. In capital-intensive ESG projects, debt financing may reflect productive investment and tax efficiency, consistent with trade-off theory. Third, bond ratings emerge as the strongest determinant of yield. The negative and highly significant relationship confirms that credit quality remains the primary anchor in pricing sustainable bonds. Despite the "sustainability" label, traditional credit risk assessment continues to dominate investor decision-making. Fourth, macroeconomic conditions matter. Inflation positively affects yields at a moderate significance level, consistent with the Fisher Effect, while the benchmark policy rate (BI Rate) shows a strong and highly significant positive impact. These results confirm that sustainable bonds remain sensitive to monetary policy and macroeconomic risk.

Regarding the moderating role of ESG, the findings reveal asymmetric effects. ESG does not moderate the relationship between liquidity and yield, nor between leverage and yield, suggesting that sustainability performance does not compensate for short-term liquidity risk or structural financial risk. However, ESG significantly strengthens the positive relationship between profitability and yield, indicating a potential compliance cost or overinvestment perception in highly profitable firms. Most notably, ESG significantly reinforces the negative impact of bond ratings on yield, providing evidence of a "greenium" effect. ESG operates most effectively as a signal amplifier when combined with strong credit fundamentals.

Overall, the results suggest that Indonesia's sustainable bond market reflects a hybrid pricing mechanism in which traditional credit risk remains dominant, while ESG generates pricing benefits primarily when aligned with high credit quality. These findings contribute to the growing

literature on sustainable finance by demonstrating that ESG does not universally reduce financing costs, but rather interacts strategically with firm fundamentals in shaping bond yield dynamics.

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