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Research Article

Impact of ESG Risk Ratings on Stock Prices: Evidence from ESG Leaders Index Companies (2020–2023)

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Abstract: This study investigates the impact of Environmental, Social, and Governance (ESG) Risk Ratings on stock prices of companies listed in the ESG Leaders Index on the Indonesia Stock Exchange during the period 2020–2023. Using the Ohlson (1995) valuation model as the theoretical framework, the research examines the value relevance of financial information—proxied by Book Value per Share (BVPS) and Earnings per Share (EPS)—and non-financial information in the form of ESG risk ratings. The study employs purposive sampling, resulting in an unbalanced panel dataset of 120 firm-year observations. Panel regression analysis with the Random Effect Model (REM) is applied, supported by classical assumption tests and sensitivity analysis. The findings reveal that BVPS has a positive and significant effect on stock prices, highlighting its role as a stable and value-relevant measure for investors. By contrast, EPS shows a positive but insignificant relationship, confirming the declining relevance of earnings in the Indonesian market. Moreover, ESG Risk Ratings exhibit a negative but statistically insignificant effect, suggesting that while firms with higher ESG risks tend to be valued lower, sustainability considerations are not yet consistently incorporated into equity valuation by Indonesian investors. These results imply that financial fundamentals, particularly BVPS, remain the dominant factor in stock price determination, whereas ESG information has not yet achieved value relevance in the Indonesian context. The study underscores the need for stronger regulatory enforcement, standardized ESG disclosure, and greater investor awareness to enhance the integration of sustainability risks into capital market decision-making.

Keywords: BVPS; EPS; ESG; IDX; REM

1. Introduction

In recent years, global business and investment landscapes have experienced a major shift, with sustainability emerging as a key element in corporate assessment and decision-making. Companies are no longer evaluated solely on financial performance, but also on how they manage environmental, social, and governance (ESG) factors. Investors increasingly recognize ESG practices as critical for long-term corporate sustainability, with strong ESG performance enhancing corporate reputation and shareholder value. Conversely, high ESG risks may negatively impact firm valuation and investor confidence.

The growing importance of ESG is reflected in the surge of global ESG investment, which reached approximately USD 41 trillion in 2022 and is projected to surpass USD 50 trillion by 2025 (Bloomberg Intelligence). In Indonesia, regulatory frameworks such as OJK Regulation No. 51/2017 on Sustainable Finance and the introduction of the IDX ESG Leaders Index underscore the strategic role of ESG in national development and capital markets.

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The IDX ESG Leaders Index, launched in 2020, highlights companies with strong ESG scores, robust financial performance, and high market liquidity.

Despite increasing interest, debates remain on whether ESG-related information is fully reflected in stock pricing. ESG Risk Ratings, such as those provided by Morningstar Sustainalytics, offer investors insights into material ESG risks that may influence long-term financial performance. However, empirical evidence on the value relevance of ESG risk ratings remains limited, particularly in emerging markets.

To address this gap, this study applies the Ohlson (1995) valuation model by incorporating ESG risk ratings as non-financial variables alongside accounting-based measures, namely earnings per share (EPS) and book value per share (BVPS). The objective is to examine the impact of ESG risk ratings on stock prices of companies listed in the IDX ESG Leaders Index during the period 2020–2023, thereby providing insights into the role of sustainability in capital market valuation in Indonesia.

2. Preliminaries or Related Work or Literature Review

2.1 Value Relevance

2.1.1 Financial Information

Accounting information plays a fundamental role in supporting strategic decision-making. Its relevance is defined by the extent to which it assists stakeholders in evaluating historical implications, current conditions, and future prospects (Kieso, 2007). According to Ohlson's (1995) Clean Surplus Theory, there exists a symbiotic relationship between market valuation and reported accounting data, where earnings and book value per share (BVPS) serve as key determinants of firm value. Francis and Schipper (1999) classify value relevance into four approaches: (i) fundamental analysis, (ii) predictive, (iii) interest-based, and (iv) estimation. These perspectives highlight how financial information contributes to efficient market valuation.

2.1.2 Non-Financial Information

Beyond financial metrics, non-financial information has gained significant relevance as investors increasingly seek insights into long-term risks and opportunities not fully captured by earnings or book value (Jiambalvo et al., 2002). Studies have demonstrated the value relevance of Corporate Social Responsibility (CSR) disclosures (Bowerman & Sharma, 2016), environmental performance (Sarumpaet et al., 2017), and financial risk disclosures (Thai & Birt, 2019). Although such information may not directly affect current profitability, it often influences future earnings potential, thereby impacting firm valuation.

2.2 Stakeholder Theory

Stakeholder Theory, introduced by Freeman (1984), emphasizes that firms are accountable not only to shareholders but also to a broader range of stakeholders. Donaldson and Preston (1995) distinguish three perspectives: descriptive, instrumental, and normative.

Within the ESG context, this theory underscores how stakeholder expectations shape corporate sustainability practices and transparency. Poor ESG risk ratings may damage corporate reputation and investor confidence, while strong ratings foster legitimacy, trust, and long-term market value (Agustina et al., 2023; Yadav et al., 2024).

2.3 ESG Risk Ratings

Morningstar Sustainalytics provides ESG risk ratings to quantify a firm's exposure to environmental, social, and governance-related risks and its capacity to manage them effectively. The methodology considers (i) risk exposure, (ii) management capacity, and (iii) residual unmanaged risk. Companies are categorized into five levels, ranging from negligible (0–10) to severe (>40) (Fachrezi et al., 2024). These ratings enable investors to directly compare ESG performance across industries, thereby influencing capital allocation decisions. Empirical studies confirm that ESG risk ratings can impact firm reputation, perceived investment risk, and ultimately stock prices (Muck & Schmidl, 2024).

2.4 Stock and Capital Market Considerations

Stocks, as high-risk and high-return instruments, are sensitive to both financial and non-financial information (Darmadji & Hendy, 2011). Investor behavior is increasingly driven not only by traditional accounting measures but also by ESG-related disclosures, which influence perceptions of risk, sustainability, and long-term profitability (Gantino & Jonathan, 2020).

2.5 The Ohlson (1995) Model

The Ohlson model remains one of the most widely used frameworks for testing the value relevance of accounting and non-financial information. It establishes stock price as a function of book value, earnings, and additional relevant information (Ohlson, 1995). Numerous studies have extended this model to incorporate non-financial metrics such as CSR disclosure (Bowerman & Sharma, 2016), environmental reporting (Clarkson et al., 2013), and ESG-related risks (Thai & Birt, 2019). The model's adaptability makes it an appropriate theoretical foundation for assessing the impact of ESG risk ratings on firm valuation.

2.6 Prior Studies

Empirical evidence highlights the mixed but growing significance of ESG in stock market valuation. Bowerman & Sharma (2016) found CSR disclosure positively associated with market value in the UK, though results were less consistent in Japan. Sarumpaet et al. (2017) reported that good environmental performance correlated positively with stock prices in Indonesia.

Thai & Birt (2019) demonstrated that financial risk disclosure was value relevant in the Australian mining sector. More recently, Yadav et al. (2024), Yin et al. (2023), and Kevser et al. (2023) confirmed the positive link between ESG scores and stock returns across India, China, and Europe, respectively. However, other studies (e.g., Zehir & Aybars, 2020) indicate that high ESG scores do not always translate into superior portfolio performance, suggesting context-specific dynamics.

2.7 Research Gap

While ESG and stock valuation have been extensively studied in developed markets, limited research exists within the Indonesian context, particularly using ESG risk ratings within the Ohlson (1995) framework. With the introduction of the IDX ESG Leaders Index in 2020 and the increasing emphasis on sustainable finance regulations, examining how ESG risk ratings affect stock prices in Indonesia presents both theoretical and practical contributions.

3. Proposed Method

3.1 Research Design

This study adopts a quantitative research design by employing secondary data to examine the value relevance of financial and non-financial information. The non-financial factor analyzed is the Environmental, Social, and Governance (ESG) Risk Rating, while the financial indicators include Book Value per Share (BVPS) and Earnings per Share (EPS).

3.2 Data and Sample

The population consists of all companies listed in the ESG Leaders Index on the Indonesia Stock Exchange (IDX) during the period 2020–2023. The sampling technique applied is purposive sampling, where only firms meeting the following criteria are included: (1) vailability of complete and audited annual reports during 2020–2023. (2) Completeness of supporting data required for the analysis.

Due to variations in index composition and data availability across years, the dataset forms an unbalanced panel. Data sources include: (1) Indonesia Stock Exchange (www.idx.co.id). (2) Morningstar Sustainalytics (www.sustainalytics.com). (3) Yahoo Finance (www.finance.yahoo.com). (4) Official websites of each company

3.3 Variables and Measurement

3.3.1. Dependent Variable:

Stock Price (Pit), measured as the average weekly closing price between April 1 and June 30 (t+1) following the release of annual reports (Migliavacca, 2024).

3.3.2. Independent Variables:

Book Value per Share (BVPS) = Equity ÷ Outstanding Shares (Darmadji & Hendy, 2011). Earnings per Share (EPS) = Net Income ÷ Outstanding Shares (Darmadji & Hendy, 2011). ESG Risk Rating, sourced from Sustainalytics, categorized into five levels: negligible (0–10), low (10–20), medium (20–30), high (30–40), and severe (>40).

3.4 Model Specification

The research applies the Ohlson (1995) valuation model, adjusted following Barth & Clinch (2009). The baseline model is:

$$Pit = \beta_0 + \beta_1 BVPS_{i,t} + \beta_2 EPS_{i,t} + e_{i,t}$$

To test the value relevance of ESG risk rating, the extended model is:

$$Pit = \beta_0 + \beta_1 BVPS_{i,t} + \beta_2 EPS_{i,t} + \beta_3 ESGRisk_{i,t} + e_{i,t}$$

3.5 Data Analysis Procedure

Descriptive Statistics, to summarize mean, minimum, maximum, and standard deviation of all variables.

Classical Assumption Tests, including normality (Jarque-Bera test), multicollinearity (VIF and tolerance), autocorrelation (Durbin-Watson test), and heteroskedasticity (Glejser test).

Regression Analysis, using panel regression to evaluate the effect of BVPS, EPS, and ESG Risk Rating on stock price**.**

Hypothesis Testing: (1) t-test: to assess the significance of individual coefficients. (2) Coefficient of Determination (R^2): to measure the explanatory power of the model.

4. Results and Discussion

4.1 Descriptive Statistics

The descriptive statistics indicate considerable variation in stock prices, BVPS, EPS, and ESG risk ratings among the 30 companies listed in the ESG Leaders Index during 2020–2023 (120 firm-year observations). (1) Stock Price (Pit): The mean stock price is IDR 2,159.59, with a wide range from IDR 61.40 (lowest, GoTo in 2023) to IDR 12,105.18 (highest, Indocement in 2020). The high standard deviation (2,248.64) indicates substantial cross-firm and cross-year volatility. (2) Book Value per Share (BVPS): The mean BVPS is IDR 1,197.44, ranging from IDR 33.36 to IDR 6,707.03. The variation reflects structural differences across industries. (3) Earnings per Share (EPS): The average EPS is 131.25, but with a wide dispersion (from -131.9 to 983), indicating earnings instability across firms. (4) ESG Risk Rating: The mean rating is 22.29, placing most firms in the medium risk category. The lowest rating was 11.31 (Erajaya, 2021–2022) and the highest was 30.26 (BTN, 2021). (5) These variations suggest heterogeneity across firms, with BVPS showing more stability compared to EPS, and ESG risk ratings clustering in the medium range.

4.2 Model Selection

Panel regression model testing indicates that the Random Effect Model (REM) is the most appropriate specification. Chow and LM tests reject the Common Effect Model (CEM), while the Hausman test shows that REM is superior to Fixed Effect Model (FEM).

4.3 Classical Assumption Tests

(1) Normality: Jarque-Bera probability ($0.322 > 0.05$) confirms residuals are normally distributed. (2) Multicollinearity: Correlation values < 0.85 and VIF < 10 indicate no multicollinearity issues. (3) Heteroskedasticity: Glejser test ($p > 0.05$) confirms homoskedasticity. (4) Autocorrelation: Durbin-Watson value of 1.99 indicates no autocorrelation. Thus, the regression model satisfies classical assumptions.

4.4 Regression Results

Table 1. regression results show.

	(1)	*(2)*
	$P_{it} = \beta_0 + \beta_1 BVPS_{i,t} + \beta_2 EPS_{i,t} + e_{i,t}$	$P_{it} = \beta_0 + \beta_1 BVPS_{i,t} + \beta_2 EPS_{i,t} + \beta_3 ESGRisk_{i,t} + e_{i,t}$
Intercept	-143,0149	-159,4492
	(0,0844)	(0,0631)
BVPS	1,193630	1,172106
	(0,0002) **	(0,0003) **
EPS	0,405761	0,425489
	(0,4593)	(0,4420)
ESGRISK		**-35,38907**
		(0,3553)
N	71	71
R-Squared	0,256434	0,266290
Adj.*R^2*	0,234565	0,233437
F Statistics	11,72561	8,105580
Prob>F	0.000042	0.000011

- Model 1 (BVPS, EPS): BVPS has a positive and significant effect on stock price ($p < 0.05$). EPS is positive but not significant.
- Model 2 (BVPS, EPS, ESGRisk): BVPS remains significant ($p < 0.05$). EPS remains insignificant. ESG Risk Rating has a negative coefficient (-35.389) but is statistically insignificant ($p = 0.355$).

The adjusted R^2 for Model 1 is 0.2346 and decreases slightly to 0.2334 in Model 2, indicating that adding ESG risk rating does not improve the explanatory power of the model.

4.5 Sensitivity Analysis

Alternative measurements of stock price (3 months and 6 months after fiscal year-end) confirm the robustness of results: (1) BVPS consistently shows a positive and significant effect. (2) EPS remains insignificant. (3) ESG Risk Rating continues to show a negative but insignificant effect.

4.6 Analysis and Interpretation

Book Value per Share (BVPS), BVPS emerges as the most reliable determinant of stock price. This aligns with the notion that in uncertain periods (e.g., during COVID-19), investors rely more on balance-sheet indicators that provide stability. The result is consistent with Barth et al. (1998) and Collins et al. (1997), who found BVPS to be highly value relevant across industries and crises.

Earnings per Share (EPS), The insignificant impact of EPS suggests declining earnings relevance in Indonesia's capital market. This supports the international trend that earnings are increasingly volatile and affected by transitory items, thus losing explanatory power (Collins et al., 1999; Barth et al., 2023). In ESG-oriented firms, investors may place less emphasis on short-term profitability and more on long-term stability.

ESG Risk Rating, Although negatively associated with stock price, ESG risk rating is not statistically significant. This implies that Indonesian investors have not yet fully integrated ESG considerations into pricing decisions, even for companies listed as ESG Leaders. This finding is consistent with Demers et al. (2021) and Trisnowati et al. (2022), who also found weak or inconsistent ESG-stock price relationships in certain markets. Stronger ESG regulation, as evidenced by Kevser et al. (2023) in Germany, may be required for ESG to become value relevant in Indonesia.

5. Comparison

The findings of this study reveal that Book Value per Share (BVPS) remains positively and significantly associated with stock prices, while Earnings per Share (EPS) shows a positive but insignificant effect. In addition, ESG Risk Rating demonstrates a negative yet statistically insignificant influence on firm valuation. These results provide both similarities and contrasts with previous international studies.

First, the significant role of BVPS is consistent with Barth et al. (1998) and Collins et al. (1997, 1999), who highlight the enduring value relevance of book value across different industries and market conditions. In particular, during periods of economic uncertainty such as the COVID-19 pandemic, BVPS has been found to serve as a more stable valuation metric compared to EPS, a pattern also observed in U.S. and European markets.

Second, the diminishing significance of EPS aligns with international evidence that the value relevance of earnings has declined over time. Barth et al. (2023) and Collins et al. (1997) demonstrate that EPS is increasingly less reliable due to earnings volatility, special items, and the growing dominance of intangible assets in modern economies. This trend resonates with our findings, where EPS fails to exert a significant influence on stock prices among ESG Leaders firms in Indonesia.

Third, with regard to ESG risk ratings, the negative but insignificant relationship echoes mixed results in international literature. For instance, Demers et al. (2021) and Trisnowati et al. (2022) similarly report that ESG factors do not consistently translate into higher stock valuations across global and regional markets. Conversely, Kevser et al. (2023) find that in countries with stricter ESG disclosure regulations, such as Germany, ESG scores exhibit stronger value relevance. This contrast suggests that institutional and regulatory environments play a pivotal role in shaping how ESG information is priced by investors.

Overall, while this study confirms the universal relevance of BVPS and the declining role of EPS, it also underscores the context-dependent nature of ESG information. Unlike in developed markets with robust ESG frameworks, Indonesian investors appear not to fully incorporate ESG risks into equity valuation. This divergence highlights the need for enhanced ESG disclosure standards and investor awareness in emerging markets.

6. Conclusions

This study investigates the value relevance of financial information (Book Value per Share and Earnings per Share) and non-financial information (ESG Risk Rating) for firms listed in the ESG Leaders Index of the Indonesia Stock Exchange during the period 2020–2023, using the Ohlson (1995) valuation model. The findings can be summarized as follows: (1) Book Value per Share (BVPS) demonstrates a consistently positive and significant effect on stock prices. This confirms that balance sheet-based information remains highly value relevant, even within firms recognized for their sustainability practices. (2) Earnings per Share (EPS) shows a positive but insignificant effect on stock prices, suggesting that earnings are losing their relevance in the Indonesian market. This is consistent with global evidence showing the declining explanatory power of earnings due to volatility, transitory items, and the increasing importance of intangible assets and sustainability factors. (3) ESG Risk Rating exhibits a negative but statistically insignificant relationship with stock prices. This indicates that, while firms with higher ESG risks tend to be valued lower, ESG considerations are not yet fully integrated into investment decisions in Indonesia. Unlike in developed markets with stricter ESG regulations, the Indonesian capital market has yet to consistently price sustainability risks. (4) Overall, the results imply that investors in Indonesia continue to rely more heavily on traditional financial fundamentals—particularly BVPS—while ESG factors have not yet achieved significant value relevance. These findings highlight the importance of regulatory enforcement, disclosure standardization, and investor education in strengthening the role of ESG in emerging markets.

Author Contributions:

The researchers were actively involved throughout all stages of this study. Specifically:

Conceptualization and Design: The researchers developed the research framework, formulated the hypotheses, and determined the methodology by adapting the Ohlson (1995) valuation model to the Indonesian context.

Data Collection and Processing: The authors gathered secondary data from multiple sources, including the Indonesia Stock Exchange, Sustainalytics, Yahoo Finance, and company annual reports, and ensured its accuracy and completeness.

Data Analysis: The researchers conducted descriptive statistical analysis, panel regression testing, classical assumption testing, and sensitivity analysis to validate the robustness of the results.

Interpretation of Findings: The authors analyzed the implications of the results in relation to prior international studies and provided contextual explanations relevant to the Indonesian

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Data Availability Statement: All data employed in this study are derived from open-access and publicly available sources, including the Indonesia Stock Exchange (www.idx.co.id), Morningstar Sustainalytics (www.sustainalytics.com), Yahoo Finance (www.finance.yahoo.com), and the official websites of the sampled companies. No proprietary or restricted datasets were used. Therefore, all data supporting the findings of this research are fully accessible to the public and can be retrieved directly from the aforementioned sources.

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