Journal of Business and Information Systems
Vol. 8, No. 1, June (2026)
www.thejbis.upy.ac.id
DOI: https://doi.org/10.31316/jbis.v8i1.345
ISSN:2685-2543

Accepted, February 2026
Revised, March 2026
Published, June 2026

The Effect of ESG and Financial Characteristics on Firm Value: Evidence from Non-Financial IDX ESG Leaders

Dita Nugroho
Nilmawati*

Universitas Pembangunan Nasional "Veteran" Yogyakarta
**Corresponding author:* nilmawati@upnyk.ac.id

Abstract: *Firm value is one of the financial indicators that is of interest to investors before deciding to invest in a particular entity. This study examines the effects of Environmental, Social, and Governance (ESG), liquidity, and leverage on firm value, with profitability as a mediating variable, using non-financial firms listed in the IDX ESG Leaders Index during 2021–2024, resulting in 102 firm-year observations, and employs Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results indicate that ESG and liquidity have significant negative effects on firm value, while leverage has a significant positive effect. ESG and leverage do not significantly affect profitability, whereas liquidity does. Profitability negatively affects firm value and does not mediate the relationships between ESG, liquidity, leverage, and firm value. Overall, the findings suggest that firm value among ESG leader firms in emerging markets is primarily influenced by direct sustainability and capital-structure signals rather than by short-term accounting profitability.*

Keywords: *ESG; Liquidity; Leverage; Profitability; Firm value*

1. Introduction

Firm value is widely used in empirical research as a market-based indicator that reflects investors' assessments of a firm's performance, risk profile, and long-term growth potential, and also captures managerial effectiveness in creating shareholder value (Jihadi et al., 2021). In competitive and information-intensive markets, firm value serves as an important benchmark for capital allocation and long-term investment evaluation (Hoang et al., 2024). Previous studies indicate that firm value is influenced not only by financial performance but also by strategic factors related to governance quality, risk management, and sustainability orientation (Wu et al., 2022). Empirical research on the determinants of firm value continues to yield mixed results, particularly in emerging markets where institutional frameworks, regulatory enforcement, and information asymmetry differ substantially from those in developed economies (Bui et al., 2023; Gautam et al., 2025; Vijayappan & Biju, 2025). In such contexts, market-based measures of firm value may reflect not only firm fundamentals but also the efficiency of investment allocation under information asymmetry (Bilyay-Erdogan et al., 2024).

Among the internal financial determinants of firm value, liquidity and leverage have received considerable empirical attention (Hikmah & Daljono, 2023; Jihadi et al., 2021). Liquidity represents a firm's capacity to meet short-term obligations and maintain operational continuity, which is essential for preserving financial stability and investor confidence. Although adequate liquidity is generally associated with lower financial distress and higher firm value, excessive liquidity may indicate inefficient asset utilization and

lead to lower market valuation due to reduced profit-generating capacity (Hoang et al., 2024). Leverage, as a key element of capital structure decisions, can influence firm value through tax benefits and disciplinary effects on management; nonetheless, excessive dependence on debt financing increases financial risk and may adversely affect firm value, particularly under uncertain economic conditions (Bui et al., 2023; Mohamed & Nahia, 2024). Although adequate liquidity and moderate leverage are theoretically expected to enhance firm value, empirical findings remain inconsistent, with some studies reporting positive effects (Bui et al., 2023; Jihadi et al., 2021; Hoang et al., 2024) and others documenting negative or neutral outcomes, particularly in emerging markets where sustainability-oriented firms exhibit distinct financial behaviors (Hikmah & Daljono, 2023; Mubaraq et al., 2025).

Beyond financial characteristics, corporate sustainability, as reflected in Environmental, Social, and Governance (ESG) practices, has increasingly been recognized as a strategic determinant of firm value (Postiglione et al., 2024). Recent developments in sustainable finance, driven by stronger regulatory pressure, growing stakeholder awareness, and the incorporation of non-financial criteria into investment decision-making, have elevated the visibility of firms identified as ESG leaders, defined as companies that exhibit superior ESG performance and disclosure relative to industry peers (Zhou et al., 2022). ESG integration is expected to improve operational efficiency, strengthen stakeholder trust, and mitigate long-term business risks, thereby contributing to superior corporate performance (Aydoğmuş & Ergun, 2022). Capital markets increasingly respond to ESG-related information as a signal of firm quality and long-term viability, particularly for risk mitigation and reputational benefits (Hoang et al., 2024; Wu et al., 2022). Several empirical studies report a positive relationship between ESG performance and firm value, indicating that firms with strong ESG engagement are more likely to achieve sustainable competitive advantages (Postiglione et al., 2024; Rohendi et al., 2024). However, evidence from emerging market contexts suggests that ESG initiatives may generate additional costs that are not fully capitalized by the market, particularly when sustainability investments are not immediately translated into financial returns, such that ESG implementation may exert a neutral or even negative effect on firm value (Su et al., 2025; Vaihekoski & Yahya, 2025). These divergent findings suggest that the ESG–firm value relationship may depend on firm-specific characteristics and underlying transmission mechanisms, warranting further investigation in the Indonesian context (Bilyay-Erdogan et al., 2024; Vijayappan & Biju, 2025).

The inconsistent empirical evidence regarding the direct effects of ESG, liquidity, and leverage on firm value suggests the need for additional explanatory mechanisms to clarify these relationships. Profitability is commonly viewed as a potential transmission channel linking strategic and financial decisions to market valuation (Mubaraq et al., 2025). From a theoretical perspective, effective ESG implementation, prudent liquidity management, and optimal capital structure choices may enhance cost efficiency, reduce operational risk, and improve productivity, which are ultimately reflected in higher profitability and, subsequently, higher firm value (Aydoğmuş & Ergun, 2022; Zhou et al., 2022). However, empirical evidence on the mediating role of profitability remains limited and inconclusive,

particularly in emerging market contexts (Hikmah & Daljono, 2023). Moreover, prior studies often examine ESG, liquidity, and leverage in isolation, without explicitly focusing on ESG leader firms that may exhibit distinct behavioral and financial characteristics compared to conventional firms (Postiglione et al., 2024; Vijayappan & Biju, 2025).

2. Literature Review & Hypotheses development

2.1. ESG and Firm Value

Signaling Theory argues that firms strategically disclose information to reduce information asymmetry between managers and investors, with ESG disclosure signaling managerial quality, sustainability commitment, and long-term risk management capabilities to the market (Spence, 1973). Investors who receive ESG signals may perceive such firms as more credible and strategically oriented toward sustainable value creation, potentially enhancing firm value (Postiglione et al., 2024). However, ESG activities often require substantial resource allocations, including compliance costs, reporting systems, and organizational restructuring, which may constrain short-term financial performance and reduce market valuation (Narula et al., 2025). In emerging market contexts, where investor ESG awareness remains limited and institutional infrastructure is underdeveloped, ESG adoption costs may outweigh perceived benefits, leading to a negative market response (Rohendi et al., 2024). Furthermore, investors in emerging markets tend to prioritize short-term financial returns over long-term sustainability, leading to ESG expenditures being perceived as value-destroying rather than value-enhancing (Yolanda & Chalid, 2021). Consequently, in emerging market settings characterized by high ESG adoption costs and limited investor awareness, ESG performance is more likely to negatively affect firm value (Zairis et al., 2025).

ESG performance and firm value exhibit a negative relationship, particularly in emerging markets where ESG costs are prominent, and investor recognition of ESG benefits remains limited (Narula et al., 2025). Empirical studies conducted in emerging market settings report that ESG engagement is associated with lower market valuation when implementation and compliance costs reduce short-term earnings and are not immediately rewarded by investors (Rohendi et al., 2024; Su et al., 2025). Additional findings indicate that although ESG disclosure signals long-term sustainability orientation, capital markets do not consistently translate such signals into proportional valuation gains in the short run (Postiglione et al., 2024). Based on Signaling Theory and prior empirical evidence demonstrating that ESG costs suppress firm value in emerging markets, the following hypothesis is proposed:

H_1: ESG has a negative effect on firm value

2.2. Liquidity and Firm Value

Liquidity Preference Theory posits that firms with adequate liquidity are perceived as financially stable and capable of sustaining operational continuity, thereby reducing perceived financial risk and strengthening investor confidence (Keynes, 1936). However, maintaining excessive liquidity levels carries significant opportunity costs, as liquid assets

held in reserve yield lower returns than productive investments, thereby reducing overall firm efficiency (Li, 2024). Agency Theory further suggests that excess liquidity may exacerbate principal-agent conflicts, as managers may retain liquidity for discretionary purposes rather than deploy it in value-maximizing activities, thereby reducing shareholder returns and market valuation (Myers, 1984). Market participants evaluating firm value consider not only the presence of liquid assets but also the efficiency with which those assets are deployed to generate returns, meaning that firms with disproportionate liquidity may be penalized with lower valuations (Akin, 2025). In emerging-market contexts, the retention of excess liquidity is more likely to be perceived as a signal of managerial conservatism and suboptimal resource allocation, prompting negative market responses to high liquidity levels (Vijayappan & Biju, 2025). Collectively, these arguments suggest that beyond a certain threshold, liquidity negatively affects firm value by generating opportunity costs and signaling managerial inefficiency (Gautam et al., 2025).

Liquidity and firm value exhibit a negative relationship when excess liquidity reflects suboptimal resource allocation and managerial inefficiency rather than financial strength (Li, 2024). Empirical studies in emerging and developing markets find that firms with higher cash and current asset ratios tend to have lower market valuations when liquid resources are not efficiently allocated to productive investments (Hoang et al., 2024). Further evidence from South Korean listed firms suggests that the relationship between cash holdings and firm performance follows an inverted U-shape, indicating that excessive liquidity beyond an optimal level may reduce return efficiency and market performance due to resource underutilization (Lim & Jeong, 2025). Additional findings show that high liquidity does not automatically translate into higher firm value when firms fail to convert liquid assets into earnings-generating activities (Ahmed et al., 2024). Collectively, these studies consistently indicate that excessive liquidity in emerging markets reduces firm value when liquid resources are not efficiently deployed into productive investments (Ahmed et al., 2024; Hoang et al., 2024; Zhu et al., 2025). Based on Liquidity Preference Theory and prior empirical evidence demonstrating that excessive liquidity suppresses firm value, the following hypothesis is proposed:

H_2: Liquidity has a negative effect on firm value.

2.3. Leverage and Firm Value

Trade-Off Theory explains that firms determine their optimal capital structure by balancing the tax benefits of debt against the potential costs of financial distress (Myers, 1984). At optimal levels, debt financing provides tax-shield benefits that reduce the effective cost of capital and enhance firm value. Debt commitments may also mitigate agency problems between managers and shareholders by enhancing monitoring and disciplinary mechanisms (Bui et al., 2023). In emerging market environments, maintaining sustainable leverage levels may improve the efficiency of capital allocation and strengthen firm performance (Dsouza et al., 2025). Furthermore, moderate leverage can serve as a credible signal of managerial confidence in future cash flows and growth prospects, thereby positively influencing investor perceptions, consistent with Signaling Theory (Spence, 1973). When capital

markets interpret debt usage as an indicator of financial strength rather than distress risk, firms may experience improved market valuation (Akin, 2025; Gautam et al., 2025). Consequently, when leverage is maintained within optimal thresholds, it is expected to positively affect firm value through tax benefits, monitoring effects, and favorable market signaling (Vijayappan & Biju, 2025). Leverage and firm value exhibit a positive relationship when debt financing remains within optimal capital structure levels (Myers, 1984). Evidence from emerging markets such as Vietnam and Turkey indicates that sustainable leverage ratios may enhance firm value through tax efficiency, governance strengthening, and positive signaling effects (Bui et al., 2023; Akin, 2025; Dsouza et al., 2025). Based on Trade-Off Theory and Signaling Theory, as well as prior empirical evidence demonstrating that optimal leverage enhances firm value, the following hypothesis is proposed:

H_3: Leverage has a positive effect on firm value.

2.4. Profitability and Firm Value

Signaling Theory posits that profitability serves as one of the most direct and credible signals of managerial efficiency and competitive strength, with higher profitability conveying favorable information about a firm's capacity to generate sustainable earnings and capitalize on market opportunities (Spence, 1973). Higher profitability signals effective resource utilization and strengthens investor confidence in the firm's future cash-flow-generation capacity, thereby enhancing market valuation (Diantara & Budiarto, 2025; Zhou et al., 2022). In emerging market contexts, market-based firm value metrics, such as Tobin's Q, are influenced by investor expectations of growth and sustainability, and profitable firms are more likely to be perceived as financially resilient and strategically competitive (Narula et al., 2025). Furthermore, although profitability measures such as ROA capture historical earnings performance, consistent profitability provides forward-looking signals that support positive investor expectations and valuation premiums (Dinarjito, 2025). In emerging economies where information asymmetry persists, strong profitability performance reduces uncertainty and improves market perceptions of firm stability (Vijayappan & Biju, 2025). Consequently, in emerging-market contexts characterized by investor sensitivity to financial performance, accounting-based profitability is expected to positively affect market-based firm value (Zhu et al., 2025).

Profitability and firm value exhibit a positive relationship in emerging market contexts where higher accounting earnings strengthen investor confidence and support forward-looking valuation assessments (Dinarjito, 2025). Firms with higher return on assets tend to experience superior market valuation due to improved earnings quality and growth prospects (Aydoğmuş & Ergun, 2022). Sustained profitability enhances firm value by signaling operational efficiency and financial strength (Zhou et al., 2022). Evidence from Vietnamese listed firms indicates that profitability positively contributes to Tobin's Q when earnings performance is consistently maintained (Hoang et al., 2024). Based on Signaling Theory and prior empirical evidence demonstrating that profitability enhances market-based firm value, the following hypothesis is proposed:

H_4: Profitability has a positive effect on firm value.

2.5. The Mediating Role of Profitability in the ESG and Firm Value Relationship

Signaling Theory suggests that ESG engagement signals managerial quality and a long-term commitment to sustainability, which may enhance corporate reputation, reduce regulatory risks, and improve operational efficiency, ultimately contributing to improved profitability (Spence, 1973). However, ESG adoption involves substantial upfront costs, including compliance systems, sustainability reporting infrastructure, and organizational restructuring, particularly in emerging markets where ESG frameworks are not yet fully institutionalized (Postiglione et al., 2024). In emerging market contexts, limited investor and consumer responsiveness to ESG signals may further attenuate the profitability benefits of ESG engagement, as firms may incur ESG costs without receiving proportional revenue or efficiency gains (Rohendi et al., 2024). Despite these constraints, ESG engagement is theoretically expected to improve profitability over the long term by building competitive advantages, reducing operational risks, and strengthening stakeholder relationships that support sustainable earnings growth (Zhou et al., 2022). Financial performance serves as a key transmission channel through which ESG performance influences firm value, as evidenced by the significant mediating effect documented among Chinese listed firms (Zhou et al., 2022). The mediation pathway from ESG through profitability to firm value, therefore, represents an important mechanism through which sustainability engagement ultimately creates shareholder value (Rohendi et al., 2024).

ESG performance and profitability exhibit a positive relationship through operational efficiency and reputational channels, although this relationship may be attenuated in emerging markets due to high ESG adoption costs (Narula et al., 2025). Evidence from Indonesian firms listed on the ESG Leaders Index shows that profitability mediates the relationship between ESG performance and firm value, suggesting that improved financial performance strengthens market valuation (Setioko et al., 2024). Based on Signaling Theory and prior empirical evidence identifying profitability as a mediating mechanism in the ESG–firm value relationship, the following hypotheses are proposed:

H_5: ESG has a positive effect on profitability.
H_6: Profitability mediates the effect of ESG on firm value.

2.6. The Mediating Role of Profitability in the Liquidity and Firm Value Relationship

Liquidity Preference Theory posits that firms with adequate liquidity are better positioned to sustain uninterrupted operations and capitalize on investment opportunities without incurring costly emergency financing, thereby supporting improved profitability (Keynes, 1936). Adequate liquidity reduces financial friction in day-to-day business activities, lowers the risk of operational disruptions, and enables firms to negotiate favorable terms with suppliers and creditors, thereby improving earnings (Li, 2024). Firms with strong liquidity positions are also better able to absorb unexpected financial shocks without resorting to distressed asset sales or costly short-term borrowing, thereby protecting earnings stability (Zhu et al., 2025). In emerging-market contexts where access to external financing is more constrained, liquidity plays a particularly critical role in supporting operational continuity and profitability (Gautam et al., 2025). Evidence from Vietnamese listed firms shows that

liquidity improves profitability, highlighting a potential transmission mechanism to firm value (Hoang et al., 2024). Collectively, these arguments support the expectation that liquidity positively influences profitability, which, in turn, mediates the effect of liquidity on firm value (Zhu et al., 2025).

Liquidity and profitability exhibit a positive relationship through operational efficiency and financial flexibility, which reduce financing costs and support consistent earnings generation (Keynes, 1936). Evidence from Vietnam confirms that liquidity improves profitability, functioning as a transmission channel to firm value (Hoang et al., 2024). Based on Liquidity Preference Theory and prior empirical evidence confirming profitability as a mediating mechanism in the liquidity–firm value relationship, the following hypotheses are proposed:

H_7: Liquidity has a positive effect on profitability.
H_8: Profitability mediates the effect of liquidity on firm value.

2.7. The Mediating Role of Profitability in the Leverage and Firm Value Relationship

Trade-Off Theory posits that at moderate debt levels, leverage reduces the overall cost of capital through tax-shield benefits from interest payments, thereby increasing after-tax earnings and enhancing profitability (Myers, 1984). Debt financing also imposes financial discipline on managers by creating fixed repayment obligations that incentivize efficient resource allocation and cost management, further improving operational profitability (Dsouza et al., 2025). Furthermore, leverage provides firms with access to capital for productive investments that generate returns exceeding borrowing costs, enabling firms to expand operations and improve earnings performance (Bui et al., 2023). In emerging market contexts where internal cash generation may be insufficient to fund growth opportunities, debt financing is a critical enabler of business expansion and operational scaling, thereby supporting profitability improvements (Gautam et al., 2025). Profitability, when improved through leverage-supported investment, functions as a transmission channel through which capital structure decisions influence market valuation (Dsouza et al., 2025). Collectively, these arguments support the expectation that leverage positively influences profitability, which in turn mediates the effect of leverage on firm value (Zhu et al., 2025).

Leverage and profitability exhibit a positive relationship when debt financing is deployed at optimal levels that generate tax shields and fund productive investments that yield returns exceeding borrowing costs (Myers, 1984). Empirical evidence from India, Vietnam, and the United States indicates that moderate leverage positively influences profitability through tax advantage mechanisms and operational discipline, as debt financing at optimal levels supports earnings improvement that subsequently mediates the effect of leverage on firm value (Akin, 2025; Bui et al., 2023; Dsouza et al., 2025). Based on Trade-Off Theory and prior empirical evidence confirming profitability as a mediating mechanism in the leverage–firm value relationship, the following hypotheses are proposed:

H_9: Leverage has a positive effect on profitability.
H_{10}: Profitability mediates the effect of leverage on firm value.

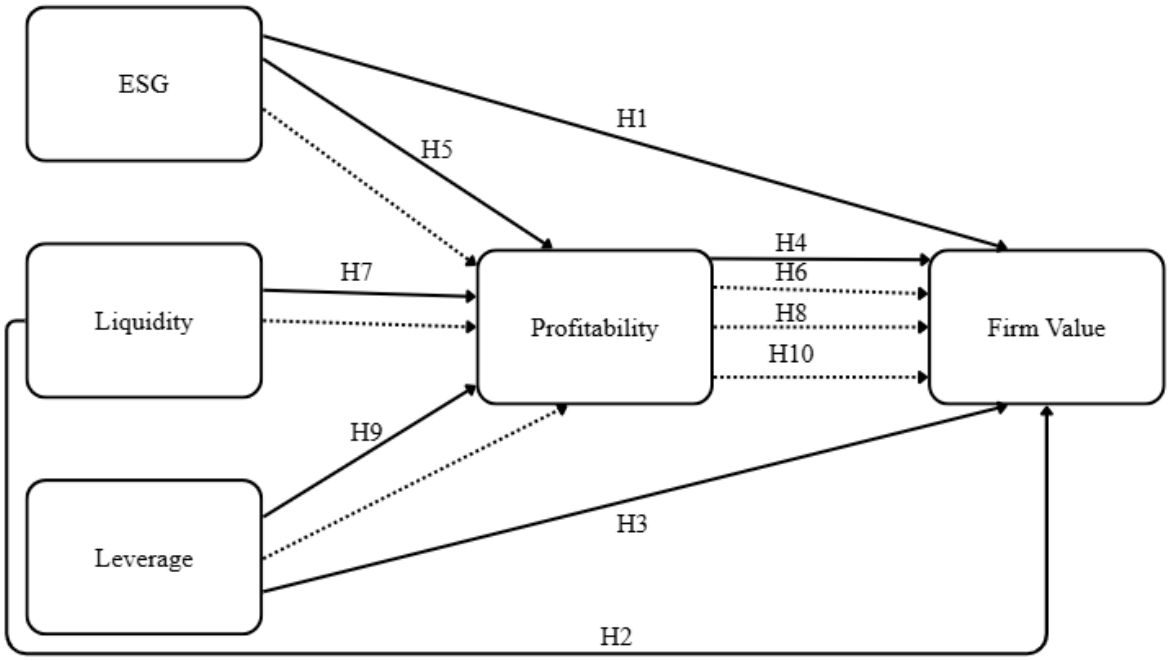

Figure 1. Research Model

Figure 1 presents the conceptual framework of this study. ESG, liquidity, and leverage are specified as independent variables that directly affect firm value. At the same time, profitability is introduced as a mediating variable to explain the indirect effects of these variables on firm value. The model assumes that ESG performance, liquidity conditions, and capital structure decisions influence firm value both directly and indirectly through their impact on profitability. This framework is intended to capture the underlying mechanisms through which sustainability practices and financial characteristics contribute to firm value creation among ESG leader firms in Indonesia.

3. Method

3.1. Research Design

This study employs an explanatory quantitative approach to examine the causal relationships among ESG performance, liquidity, and leverage, with profitability as a mediating variable and firm value as the outcome. The unit of analysis consists of non-financial publicly listed companies included in the IDX ESG Leaders Index (ESGL) during the 2021–2024 period, representing firms with superior sustainability performance in Indonesia as determined by ESG risk assessments conducted by Sustainalytics. The dataset is constructed from firm-year observations of the annual constituents of the ESGL index. Because the composition of the IDX ESG Leaders Index may change each year, the firms included in the sample are not necessarily identical across all observation years. Each firm-year observation is treated independently in the analysis, so not all firms appear in every year of the study period. Consequently, each observation represents a company included in the index in a given year, rather than repeated observations of the same firms over the entire study period. This

quantitative approach is appropriate because it enables objective and measurable testing of relationships among variables through statistical analysis.

3.2. Population and Sample

Financial sector firms are excluded from the sample because their distinct regulatory frameworks, capital structures, and risk profiles differ substantially from those of non-financial firms and may confound the estimation of leverage and performance effects (Hikmah & Daljono, 2023; Rohendi et al., 2024). This exclusion is consistent with common practice in empirical corporate finance research to ensure comparability across sampled firms. The annual year-end index review is used to determine index constituents for the subsequent full year, ensuring consistency in the sample selection. Given that the ESGL index comprises approximately 30 firms per year, this study employs saturated sampling by including all population members to avoid selection bias, which is methodologically appropriate when the population is relatively small (Hair et al., 2019). Each observation corresponds to a firm-year of a company included in the ESGL index for that year. The final sample comprises firms with complete annual reports, sustainability reports, and year-end stock price data for the observation period, yielding 102 firm-year observations.

This study employs ESG performance, liquidity, and leverage as independent variables, firm value as the dependent variable, and profitability as the mediating variable. All variables are measured using objective financial and ESG indicators obtained from companies' annual reports, sustainability reports, and market data. Because these variables are directly observable quantitative indicators derived from secondary financial data, they are operationalized as single-item constructs, which are appropriate in PLS-SEM when constructs are measured with objective metrics rather than perceptual survey indicators. This approach is supported by previous research, which used directly observable financial and ESG indicators as single-item constructs in PLS-SEM (Hair et al., 2019; Henseler et al., 2016). Table 1 presents the definitions of the research variables.

Table 1. Research Instrument

Variables	Measurement
Environmental, Social, and Governance (ESG) (Galicia-Sanguino & Lago-Balsalobre, 2025).	ESG Score from IDX ESG Leaders Index
Liquidity (Li, 2024).	$\text{CR} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$
Leverage (Ahmed et al., 2024).	$\text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$
Profitability (Gibbs et al., 2025).	$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$
Firm Value (Zairis et al., 2025).	$\text{Tobin}'\text{Q} = \frac{(\text{Market Value of Equity} + \text{Total Liabilities})}{\text{Total Assets}}$

3.3. Data Collection Procedure

This study utilizes secondary data collected through document analysis. Data sources include corporate annual reports, sustainability reports, official publications of the Indonesia Stock Exchange, and IDX ESG Leaders data. Document analysis is employed because all research

variables, ESG score, profitability (ROA), liquidity (CR), leverage (DER), and firm value (Tobin's Q) can be objectively and reliably measured using formally published and verifiable documents. Document analysis is a systematic data collection technique for extracting relevant quantitative and qualitative information from written sources without direct respondent involvement (Chand, 2025; Morgan, 2022).

3.4. Data Treatment

To minimize the influence of extreme values (outliers) that may distort estimation results, this study applies a 5 percent winsorization technique, which limits the impact of extreme observations without eliminating data points, thereby preserving sample size and improving estimation stability. This approach has been widely used in empirical finance and accounting research and has been shown to enhance the robustness of estimation (Brownen-Trinh, 2019). However, ESG scores are not winsorized because they represent standardized composite indices derived from multidimensional assessments of corporate sustainability risks and practices; variations in ESG scores reflect substantive differences in ESG performance across firms rather than statistical outliers and therefore retain conceptual and empirical relevance (Drempetic et al., 2020).

3.5. Data Analysis

Data analysis is conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM is selected because it is suitable for analyzing complex structural relationships involving mediating variables, accommodates relatively small sample sizes, and does not require strict normality assumptions (Hair et al., 2019). In addition, PLS-SEM is appropriate for models that use single-item constructs derived from objective secondary data, such as financial ratios and ESG scores, because these variables represent directly observable indicators rather than perceptual survey-based measures. This study also includes year dummy variables as controls to capture potential time effects during the 2021–2024 observation period. Year dummy variables (D2022, D2023, and D2024) are included as control variables to capture potential time effects, with 2021 serving as the reference category. The inclusion of time controls aims to account for macroeconomic fluctuations, regulatory changes, and overall market conditions that may influence firm value beyond firm-specific financial and ESG factors. Dummy variables are created for 2022, 2023, and 2024, with 2021 serving as the reference year, and incorporated into the structural model to improve estimation robustness and reduce potential omitted-variable bias. The analysis procedure begins with descriptive statistics to summarize the sample data, followed by evaluation of the structural model (inner model) using path coefficients and the coefficient of determination (R^2) to assess the model's explanatory power. Collinearity among predictors is examined using variance inflation factors (VIF), while predictive relevance is assessed using the Q^2 statistic. Hypothesis testing is conducted using a bootstrapping procedure with 5,000 subsamples to obtain t-statistics and p-values, and the mediating role of profitability is evaluated by analyzing indirect effects among ESG performance, liquidity, leverage, and firm value within the structural model.

4. Results and Discussion

Descriptive statistics are presented to provide an overview of the characteristics of the research variables, including the mean, median, minimum, maximum, and standard deviation. The statistics are calculated based on winsorized data to reduce the influence of extreme values.

Table 2. Descriptive Statistics

Variable	N	Mean	Median	Min	Max	Std. Dev.
ESG	102	20.650	20.300	7.960	28.180	4.800
Liquidity	102	2.470	1.880	0.330	7.160	1.930
Leverage	102	1.140	0.830	0.110	3.580	1.070
ROA	102	7.870	5.570	0.260	25.620	6.740
Firm Value	102	0.420	0.450	0.100	0.790	0.210

Table 2 presents the descriptive statistics of 102 firm-year observations during the 2021–2024 period. The ESG variable has a mean of 20.65 and a median of 20.30, indicating that, on average, sampled firms demonstrate a moderate level of ESG disclosure and performance. The minimum value of 7.96, recorded by PT Chandra Asri Petrochemical Tbk (2023), and the maximum value of 28.18, achieved by PT Telkom Indonesia (Persero) Tbk (2024), reflect disparities in sustainability practices across companies. The standard deviation of 4.80 confirms moderate variability. Liquidity reports a mean of 2.47, suggesting that, on average, firms hold current assets approximately 2.47 times their current liabilities, which generally indicates adequate short-term solvency. The wide range, from 0.33 (PT Tower Bersama Infrastructure Tbk) to 7.16 (PT Ace Hardware Indonesia Tbk), indicates differences in working capital management. Leverage has a mean of 1.14, indicating that total debt slightly exceeds equity on average, and a moderate reliance on external financing. The range from 0.11 to 3.58 reflects heterogeneity in capital structure strategies.

Furthermore, ROA averages 7.87%, suggesting that firms generate approximately 7.87% on their total assets, indicating moderate profitability within the sample. However, the substantial standard deviation (6.74) and the wide range from 0.26% (PT GoTo Gojek Tokopedia Tbk) to 25.62% (PT Unilever Indonesia Tbk and PT Industri Jamu dan Farmasi Sido Muncul Tbk) suggest significant performance disparities across firms. Lastly, Firm Value has a mean of 0.42 and a median of 0.45, with the mean below 1.0, suggesting that sampled firms are, on average, valued below their asset replacement costs and indicating potential undervaluation in the Indonesian capital market. The standard deviation of 0.21 indicates relatively stable valuation levels despite observable cross-sectional differences. Overall, the dataset demonstrates adequate variability and meaningful economic dispersion, supporting further regression and hypothesis testing.

Table 3. R-square

	R-square	Adj. R Square
Firm Value	0.883	0.874
ROA	0.038	0.009

The R^2 value for firm value (0.883) indicates substantial explanatory power, suggesting that ESG, liquidity, leverage, and profitability jointly explain a large proportion of the variation in market valuation among non-financial firms in the IDX ESG Leaders Index. In contrast, the R^2 value for profitability (0.038) is comparatively low. However, low R^2 values are common in social science and corporate finance research because firm performance is inherently influenced by numerous operational, strategic, and industry-specific factors that are not captured by a single model. Modest R^2 values may still be considered acceptable when the primary objective is theory testing rather than maximizing explained variance, particularly in multifactorial contexts (Ozili, 2023). Therefore, the model's low explanatory power for profitability does not invalidate it; rather, it reflects the complex determinants of firm performance. The collinearity assessment results presented in Table 4 indicate that all VIF values are below the threshold of 5, indicating the absence of multicollinearity among the predictor variables (Hair et al., 2019).

Table 4. VIF Testing

Variables	VIF
ESG	1.022
Leverage	1.248
Liquidity	1.209
ROA	1.027

Table 5. Structural Model Results

	Original sample (O)	P-value	Results
ESG => FV	-0.128	0.003**	H1: Accepted
Liq => FV	-0.281	0.000**	H2: Accepted
Lev => FV	0.683	0.000**	H3: Accepted
ROA => FV	-0.078	0.014**	H4: Rejected
ESG => ROA	0.032	0.777	H5: Rejected
ESG => ROA => FV	-0.003	0.793	H6: Rejected
Liq=>ROA	0.236	0.027**	H7: Accepted
Liq=>ROA=>FV	-0.020	0.120	H8: Rejected
Lev=>ROA	0.239	0.149	H9: Rejected
Lev=>ROA=>FV	-0.020	0.242	H10: Rejected

Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS, with the significance and direction of the path coefficients serving as the evaluation criteria. ESG has a significant negative effect on firm value ($\beta = -0.128$, $p = 0.003$), supporting H_1. This finding suggests that among IDX ESG Leaders firms, ESG performance may not yet be fully reflected in market valuation, potentially because Indonesian investors tend to prioritize financial performance metrics over sustainability credentials (Su et al., 2025; Zairis et al., 2025). Liquidity also has a significant negative effect on firm value ($\beta = -0.281$, $p < 0.001$), supporting H_2. This pattern indicates that although firms maintain higher levels of liquid assets, the market may interpret such excess liquidity as inefficient capital allocation or underutilized resources (Hoang et al., 2024; Li, 2024).

Leverage shows a significant positive effect on firm value ($\beta = 0.683$, $p < 0.001$), supporting H_3 and consistent with trade-off theory predictions that optimal debt utilization

may enhance firm value through tax-shield benefits (Akin, 2025; Bui et al., 2023). Profitability has a significant negative effect on firm value (β = −0.078, p = 0.014), contrary to the positive direction predicted in H_4, leading to the rejection of H_4. This indicates that higher ROA does not necessarily increase firm value among IDX ESG Leader firms. One possible explanation is that many firms in the index are relatively mature, with stable operations but limited growth opportunities. In such cases, high profitability may signal operational efficiency rather than expansion potential, potentially reducing growth expectations embedded in market valuation. Since firm value proxied by Tobin's Q reflects forward-looking expectations, investors may respond more strongly to anticipated future growth than to current accounting returns (Gibbs et al., 2025; Vijayappan & Biju, 2025).

Regarding the relationship with profitability, ESG shows no significant effect (β = 0.032, p = 0.777), leading to the rejection of H_5 and indicating that ESG engagement has not yet translated into measurable short-term improvements in ROA (Postiglione et al., 2024). Liquidity, however, has a significant positive effect on profitability (β = 0.236, p = 0.027), supporting H_7 and suggesting that firms with stronger short-term financial capacity may be better positioned to sustain operational performance. In contrast, leverage does not significantly affect profitability (β = 0.239, p = 0.149), thereby rejecting H_9.

The indirect effect results indicate that profitability does not mediate the relationship between the explanatory variables and firm value. The indirect effect of ESG on firm value through profitability is not significant (β = −0.003, p = 0.793), thereby rejecting H_6. Similarly, the indirect effect of liquidity on firm value via profitability is not significant (β = −0.020, p = 0.120), leading to the rejection of H_8. The indirect effect of leverage on firm value through profitability is also not significant (β = −0.020, p = 0.242), thereby rejecting H_{10}. This finding indicates that profitability does not mediate the relationship between ESG, liquidity, and leverage with firm value. Finally, regarding the control variables, D2022 (β = −0.059, p = 0.514) and D2023 (β = −0.096, p = 0.422) do not show significant effects on firm value relative to the base year (2021). However, D2024 has a significant negative effect on firm value (β = −0.263, p = 0.012), indicating that firm value among IDX ESG Leader firms was significantly lower than in the base year.

5. Discussion

The significant negative effect of ESG on firm value among IDX ESG Leader firms can be attributed to the cost-intensive nature of ESG implementation in the Indonesian context. Firms included in the IDX ESG Leaders Index are required to maintain comprehensive sustainability reporting systems, governance structures, and environmental compliance mechanisms, all of which impose substantial operational and administrative costs that reduce short-term earnings and market valuation (Su et al., 2025). Furthermore, the relatively homogeneous ESG performance among leader firms diminishes the incremental informational value of ESG scores for investors, as sustainability credentials become less differentiating within an ESG-screened sample. In emerging markets such as Indonesia, institutional investors have not yet fully integrated ESG metrics into their valuation frameworks, leading ESG expenditures to be more likely interpreted as cost burdens rather

than value-creating investments (Zairis et al., 2025). The absence of strong market mechanisms rewarding ESG performance further reinforces this negative valuation effect, as retail-dominated capital markets tend to prioritize observable short-term financial outcomes over long-term sustainability positioning (Yolanda & Chalid, 2021). From the perspective of Signaling Theory, ESG disclosure should reduce information asymmetry and enhance firm value; however, when ESG signals are perceived as homogeneous and insufficiently differentiating, their effectiveness in influencing market valuation is limited (Postiglione et al., 2024).

The negative effect of liquidity on firm value, combined with its positive effect on profitability, reflects a divergence between internal operational efficiency and external market valuation among Indonesian non-financial firms. While adequate liquidity enables firms to meet short-term obligations, reduce financing friction, and sustain uninterrupted operations that support profitability, the market interprets high liquidity retention as evidence of suboptimal capital allocation (Li, 2024). Investors tend to discount firms that accumulate excess current assets rather than deploy liquid resources into productive investments, as retained liquidity may suggest limited investment in growth-generating activities (Hoang et al., 2024). The opportunity cost of holding idle liquid assets further explains why liquidity, although beneficial for operational stability and earnings generation, may simultaneously reduce market valuation (Zhu et al., 2025). This pattern indicates that market participants prioritize capital efficiency and growth prospects over precautionary liquidity buffers when forming valuation judgments (Ahmed et al., 2024).

The positive effect of leverage on firm value, despite its non-significant impact on profitability, suggests that debt financing among IDX ESG Leaders firms primarily operates through market perception rather than through immediate operational improvements. At optimal capital structure levels, debt provides tax shields and can lower the weighted average cost of capital, thereby enhancing firm valuation (Bui et al., 2023). Investors appear to interpret moderate leverage as a credible signal of managerial confidence in future cash flow generation and expansion capacity. However, the absence of a significant leverage effect on profitability indicates that debt-funded investments have not yet translated into measurable improvements in return on assets within the observed period (Dsouza et al., 2025). This finding implies that leverage influences firm value through forward-looking market expectations rather than contemporaneous accounting performance.

The significant negative effect of profitability on firm value suggests that higher current ROA does not function as a strong valuation signal within ESG-index firms. Under Signaling Theory, accounting performance can serve as a signal of managerial efficiency; however, in ESG-focused firms, market participants may place greater emphasis on long-term sustainability positioning and strategic growth potential rather than short-term asset returns (Gibbs et al., 2025). Tobin's Q, as a forward-looking market-based measure, captures investor expectations about future opportunities, which may not align with contemporaneous accounting profitability (Dinarjito, 2025). Consequently, high ROA may be interpreted as reflecting mature asset utilization with limited reinvestment prospects, thereby generating a

negative association with market valuation in this specific sample context (Vijayappan & Biju, 2025).

The rejection of all mediation hypotheses indicates that profitability is not an effective transmission channel among IDX ESG Leader firms for the relationships between ESG, liquidity, leverage, and firm value. Given the very low explanatory power of the profitability model, ROA fails to capture the mechanisms by which financial and non-financial decisions influence market valuation (Rohendi et al., 2024). This suggests that firm value in ESG-oriented firms is shaped more directly by investor expectations and strategic signals than by short-term accounting performance, reinforcing the dominance of market-based signaling mechanisms over accounting-based pathways in this emerging market context (Zhou et al., 2022).

6. Conclusion, Limitation, and Suggestions for the Future

This study examines the effects of ESG performance, liquidity, and leverage on firm value, with profitability as a mediating variable, among non-financial firms listed in the IDX ESG Leaders Index during 2021–2024. The findings indicate that ESG performance and liquidity negatively affect firm value. In contrast, leverage positively affects firm value, suggesting that in the Indonesian capital market, investors respond more strongly to capital structure signals and capital deployment efficiency than to sustainability credentials or precautionary liquidity buffers. Profitability also has a significant negative effect on firm value, contrary to conventional assumptions about accounting performance and valuation, suggesting that market participants in ESG-index firms place greater emphasis on forward-looking growth expectations than on contemporaneous accounting returns. Furthermore, the rejection of all mediation hypotheses indicates that profitability is not an effective transmission channel, suggesting that value formation operates primarily through direct market-perception mechanisms.

This study has several limitations. First, the ESG score used in this study is sourced solely from Sustainalytics via the IDX ESG Leaders Index, which may not fully capture the multidimensional nature of ESG performance, as different rating agencies often produce divergent scores for the same firm. Second, profitability is measured solely by ROA, which may not fully capture firm profitability compared with alternative measures such as ROE or net profit margin. Third, the relatively narrow cross-sectional variation in ESG scores within the IDX ESG Leaders Index, as all sampled firms already meet minimum ESG thresholds, may attenuate the observed ESG–firm value relationship and limit the generalizability of findings to broader firm populations.

Future research is encouraged to explore alternative mediating variables that better reflect value creation mechanisms, such as investment efficiency and growth opportunities, as these factors remain underexplored in ESG-focused firm contexts (Bilyay-Erdogan et al., 2024). Expanding the sample to include non-ESG-index firms or conducting cross-country comparisons across emerging markets may provide deeper insights into the contextual nature of ESG valuation, given that institutional environments significantly moderate the ESG-firm value relationship (Gawęda, 2025; Zairis et al., 2025). In addition, future studies may employ

alternative ESG measurement frameworks or examine the environmental, social, and governance dimensions separately to capture more nuanced effects and reduce potential measurement bias associated with composite ESG scoring methodologies (Adiwardhana et al., 2025; Gawęda, 2025).

References

Adiwardhana, G., Rahmawati, R., Sangka, K. B., Prasetyani, D., Kurniawati, E. M., & Jayanti, R. D. (2025). Impact of environment, social, and governance pillars on firm value in oil and gas sector. *International Journal of Energy Economics and Policy*, 15(5), 18–25. https://doi.org/10.32479/ijeep.17805

Ahmed, F., Rahman, M. U., Rehman, H. M., Imran, M., Dunay, A., & Hossain, M. B. (2024). Corporate capital structure effects on corporate performance pursuing a strategy of innovation in manufacturing companies. *Heliyon*, *10*(3), e24677. https://doi.org/10.1016/j.heliyon.2024.e24677

Akin, I. (2025). Influence of growth, capital structure, profitability, and size on FTSE 100 enterprise value. *Journal of Corporate Accounting & Finance*, 36(2), 157–168. https://doi.org/10.1002/jcaf.22761

Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22(S2), S119–S127. https://doi.org/10.1016/j.bir.2022.11.006

Bilyay-Erdogan, S., Danisman, G. O., & Demir, E. (2024). ESG performance and investment efficiency: The impact of information asymmetry. *Journal of International Financial Markets, Institutions and Money*, *91*, 101919. https://doi.org/10.1016/j.intfin.2023.101919

Brownen-Trinh, R. (2019). Effects of winsorization: The cases of forecasting non-GAAP and GAAP earnings. *Journal of Business Finance and Accounting*, *46*(1–2), 105–135. https://doi.org/10.1111/jbfa.12365

Bui, T. N., Nguyen, X. H., & Pham, K. T. (2023). The effect of capital structure on firm value: A study of companies listed on the Vietnamese stock market. *International Journal of Financial Studies*, *11*(3). https://doi.org/10.3390/ijfs11030100

Chand, S. P. (2025). Methods of data collection in qualitative research: interviews, focus groups, observations, and document analysis. *Advances in Educational Research and Evaluation*, *6*(1), 303–317. https://doi.org/10.25082/aere.2025.01.001

Diantara, E. H., & Budiarto, D. S. (2025). The impact of financial risk on leverage, profitability, and firm value in Indonesian Companies. *InFestasi*, *21*(1), 90–101. https://doi.org/10.21107/infestasi.v21i1.30162

Dinarjito, A. (2025). The influence of ESG performance on firm value with cash holding as a moderating variable. *Jurnal Ilmiah Akuntansi Kesatuan*, *13*(3), 497–510. https://doi.org/10.37641/jiakes.v13i3.3227

Drempetic, S., Klein, C., & Zwergel, B. (2020). The influence of firm size on the ESG score: corporate sustainability ratings under review. *Journal of Business Ethics*, *167*(2), 333–360. https://doi.org/10.1007/s10551-019-04164-1

Dsouza, S., Kathavarayan, K., Rishnamoorthy, M., F., B., D., & AlKhawaja, A. (2025). Leveraging success: The hidden peak in debt and firm performance. *Econometrics*, *13*(2), 1–22. https://doi.org/10.3390/econometrics13020023

Galicia-Sanguino, L., & Lago-Balsalobre, R. (2025). Is the ESG score part of the set of information available to investors? A conditional version of the green capital asset pricing model. *International Journal of Financial Studies*, *13*(2). https://doi.org/10.3390/ijfs13020088

Gautam, P. K., Silwal, P. P., & Joshi, P. R. (2025). Predicting capital structure decisions through firm performance, firm size, and corporate governance. *Investment Management and Financial Innovations*, 22(1), 160–172. https://doi.org/10.21511/imfi.22(1).2025.13

Gawęda, A. (2025). Does environmental, social, and governance performance elevate firm value? International evidence. *Finance Research Letters*, 73, 105314. https://doi.org/10.1016/j.frl.2024.105314

Gibbs, R. A., Simcoe, T. S., & Waguespack, D. M. (2025). Does earnings management matter for strategy research? *Strategic Management Journal*, *46*(13), 3095–3117. https://doi.org/10.1002/smj.3742

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2–20. https://doi.org/10.1108/IMDS-09-2015-0382

Hikmah, N., & Daljono. (2023). The impact of ESG disclosure, liquidity, and leverage on firm value mediated by profitability performance. *Kontigensi: Jurnal Ilmiah Manajemen*, 11(2), 817–831. https://doi.org/10.56457/jimk.v11i2.504

Hoang, N., Nam, P., Thi, T., & Tuyen, M. (2024). Impact of liquidity on capital structure and financial performance of non - financial - listed companies in the Vietnam stock market. *Future Business Journal*, *10*(1), 1–19. https://doi.org/10.1186/s43093-024-00412-7

Jihadi, M., Vilantika, E., Hashemi, S. M., Arifin, Z., Bachtiar, Y., & Sholichah, F. (2021). The effect of liquidity, leverage, and profitability on firm value: Empirical evidence from Indonesia. *Journal of Asian Finance, Economics and Business*, *8*, 423–431. https://doi.org/10.13106/jafeb.2021.vol8.no3.0423

Keynes, J. M. (1936). The general theory of employment, interest and money. Macmillan.

Li, K. (2024). Liquidity ratios and corporate failures. *Accounting and Finance*, *64*(1), 1111–1134. https://doi.org/10.1111/acfi.13174

Lim, J., & Jeong, B. K. (2025). The impact of cash holding decisions on firm performance in the IT industry. *Journal of Risk and Financial Management*, *18*(11), 625. https://doi.org/10.3390/jrfm18110625

Mohamed, A., & Nahia, H. (2024). The influence of environmental, social, and governance (ESG) practices on US firms' performance: Evidence from the coronavirus crisis. *Journal of the Knowledge Economy*, 15(3), 2549–2570. https://doi.org/10.1007/s13132-023-01278-w

Morgan, H. (2022). Conducting a qualitative document analysis. *Qualitative Report*, *27*(1), 64–77. https://doi.org/10.46743/2160-3715/2022.5044

Mubaraq, F. M., Musyaffi, A. M., & Buchdadi, A. D. (2025). The effect of leverage and liquidity on company value with profitability as a mediation variable. *Indonesian Journal of Advanced Research*, 4(7), 1523–1542. https://doi.org/10.55927/ijar.v4i7.15012

Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, *39*(3), 574–592. https://doi.org/10.1111/j.1540-6261.1984.tb03646.x

Narula, R., Rao, P., Kumar, S., & Paltrinieri, A. (2025). ESG investing & firm performance: Retrospections of past & reflections of future. *Corporate Social Responsibility and Environmental Management*, 32(1), 1096–1121. https://doi.org/10.1002/csr.2982

Ozili, P. K. (2023). The acceptable R-square in empirical modeling for social science research. SSRN. https://ssrn.com/abstract=4128165

Postiglione, M., Carini, C., & Falini, A. (2024). ESG and firm value: A hybrid literature review on cost of capital implications from Scopus database. *Corporate Social Responsibility and Environmental Management*, *31*(6), 6457–6480. https://doi.org/10.1002/csr.2940

Rohendi, H., Ghozali, I., & Ratmono, D. (2024). Environmental, social, and governance (ESG) disclosure and firm value: The role of competitive advantage as a mediator. *Cogent Business & Management*, *11*(1). https://doi.org/10.1080/23311975.2023.2297446

Setioko, B., Moeljadi, & Andarwati. (2024). The effect of environmental social governance (ESG) performance, capital structure, and firm size on firm value mediated by profitability on ESG Leaders Index in IDX. *International Journal of Research in Business and Social Science*, 13(8), 14–25. https://doi.org/10.20525/ijrbs.v13i8.3905

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355–374. https://doi.org/10.2307/1882010

Su, W., Zhang, M., & Han, P. (2025). The impact of negative ESG disclosure on firm value: enhancing or diminishing? *SAGE Open*, *15*(4), 1–16. https://doi.org/10.1177/21582440251383232

Vaihekoski, M., & Yahya, H. (2025). Environmental, social, and governance (ESG) and firm valuation: The moderating role of audit quality. *Journal of Risk and Financial Management*, *18*(3). https://doi.org/10.3390/jrfm18030148

Vijayappan, A., & Biju, N. (2025). ESG and firm performance nexus: Evidence from an emerging economy. *Business Strategy and the Environment*, 34(5), 3469–3496. https://doi.org/10.1002/bse.4152

Wu, S., Li, X., Du, X., & Li, Z. (2022). The impact of ESG performance on firm value: The moderating role of ownership structure. *Sustainability (Switzerland)*, *14*(21), 1–22. https://doi.org/10.3390/su142114507

Yolanda, J., & Chalid, D. A. (2021). The impact of ESG score on company value in Southeast Asia: The role of competitive advantage as a moderating variable. *Indonesian Interdisciplinary Journal of Sharia Economics* (IIJSE), 8(3), 11260–11276.

Zairis, G., Apostolopoulos, N., & Liargovas, P. (2025). How do ESG ratings impact the valuation of the largest companies in Southern Europe? *Sustainability (Switzerland)*, *17*(22), 1–20. https://doi.org/10.3390/su172210347

Zhou, G., Liu, L., & Luo, S. (2022). Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Business Strategy and the Environment*, 31(7), 3371–3387. https://doi.org/10.1002/bse.3089

Zhu, C., Liang, X., & Yao, J. (2025). The role of market value management and liquidity management in the shareholder equity management-firm performance relationship. *Cogent Business and Management*, *12*(1). https://doi.org/10.1080/23311975.2025.2464950