

SECTORAL DIFFERENCES IN ESG-FINANCIAL PERFORMANCE RELATIONSHIP: A COMPARATIVE STUDY OF INDONESIAN NON-FINANCIAL COMPANIES

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ABSTRACT

Environmental, Social, and Governance (ESG) practices have become strategic priorities globally, yet evidence on their financial performance implications remains inconsistent, revealing substantial variation across industries, especially in emerging markets. This study examines sectoral heterogeneity in the relationship between ESG performance and financial performance among Indonesian non-financial listed companies, highlighting why ESG value creation differs across sectors.

Using correlation analysis and ordinary least squares (OLS) regression, we analyze 72 publicly listed non-financial firms across nine sectors during 2020–2024. ESG performance is measured through composite ESG scores, while financial performance is proxied by Return on Assets (ROA).

The results reveal significant cross-sector differences that challenge the assumption of a universally positive ESG–performance relationship. The consumer goods sector shows a strong negative association between ESG and ROA ($\beta = -0.871$, $R^2 = 0.679$, $p < 0.01$), suggesting potential over-investment in ESG within price-sensitive markets where firms face limited cost-recovery opportunities. In contrast, the energy and manufacturing sectors demonstrate modest positive relationships ($\beta = 0.361$ and $\beta = 0.656$, respectively), indicating stronger ESG materiality and greater potential for financial value creation. Meanwhile, basic materials and infrastructure exhibit near-zero associations ($\beta = 0.069$ and $\beta = -0.038$), consistent with their capital-intensive structures and constrained ability to translate sustainability initiatives into short-term profitability.

Overall, the findings emphasize the need for sector-specific ESG strategies that reflect industry characteristics, competitive dynamics, and institutional contexts. This study contributes to ESG materiality theory by demonstrating that industry context fundamentally moderates ESG–financial performance linkages in emerging markets.

Key words: ESG performance; financial performance; sectoral heterogeneity; emerging markets; Indonesia.

INTRODUCTION

Environmental, Social, and Governance (ESG) considerations have evolved from peripheral concerns to strategic imperatives in modern business practice. In Indonesia, ESG adoption has accelerated following regulatory mandates by the Financial Services Authority (OJK) requiring comprehensive sustainability disclosures since 2017 (Itan, Sylvia, Septiany, & Chen, 2025). While meta-analyses suggest generally positive relationships between ESG performance and financial outcomes (Friede, Busch, & Bassen, 2015; Whelan, Atz, Van Holt, & Clark, 2021), empirical evidence reveals considerable variation across industries and contexts, particularly in emerging markets (Kunaifi, Oktari, & Soewarno, 2025).

Theoretical frameworks including stakeholder theory (Freeman, 1984) and resource-based view (Barney, 1991) predict that ESG excellence enhances firm performance through enhanced reputation, stakeholder relationships, and operational capabilities (Ho, Nguyen, & Dang, 2024). The resource-based view posits that ESG-related capabilities can constitute valuable, rare, inimitable, and non-substitutable resources that generate sustainable competitive advantage (Yan, 2025). However, these theories provide limited guidance for understanding contexts where ESG investments may yield neutral or negative financial returns. Recent research introduces the concept of ESG materiality (Khan, Serafeim, & Yoon, 2016), suggesting that financial returns depend critically on whether specific ESG dimensions are material to a given industry. Furthermore, emerging evidence points to potential non-linear relationships where excessive ESG investment beyond optimal levels may yield diminishing or negative returns (Alshehhi, Nobanee, & Khare, 2018).

Industry characteristics fundamentally shape how ESG initiatives affect financial performance. Consumer-facing sectors have traditionally been hypothesized to benefit most from ESG excellence through enhanced brand value and customer loyalty. However, in highly competitive, price-sensitive markets, ESG investments may impose costs that firms cannot fully recover. Capital-intensive industries such as energy and manufacturing face substantial environmental compliance costs but may generate value through operational efficiency and risk mitigation (Eccles & Serafeim, 2013). Infrastructure and basic materials sectors serve business customers or regulated markets where sustainability performance has limited influence on pricing power (Wang & Chang, 2024).

Despite growing interest in ESG-financial performance relationships, the sectoral dimension remains underexplored, particularly in emerging markets. This study addresses this gap by examining 72 Indonesian non-financial companies across nine sectors to investigate: To what extent does the relationship between ESG performance and ROA vary across industry sectors, and what might explain unexpected patterns such as negative associations? By rigorously analyzing sectoral heterogeneity, we contribute to both theoretical understanding and practical application of ESG principles in emerging market contexts.

METHOD

Sample and Data. This study analyzes 72 publicly listed non-financial companies in Indonesia over the period 2020–2024. Financial institutions were excluded due to their distinct accounting practices and regulatory structures, which reduce the comparability of profitability measures across sectors (Narula & Kumar, 2024). The final sample spans nine industrial sectors, providing sufficient diversity to examine sector-specific ESG–financial performance relationships.

ESG performance data were collected from corporate sustainability reports, integrated annual reports, and official disclosures submitted to the Indonesia Stock Exchange. Where available, external ESG assessments such as Bloomberg scores and local Indonesian frameworks were used to improve data reliability. Following common practice in emerging market ESG research, a composite ESG index was constructed by equally weighting the environmental, social, and governance dimensions (Itan et al., 2025; Syarkani et al., 2024).

Financial performance was measured using Return on Assets (ROA), calculated as net income divided by total assets based on audited annual financial statements. ROA was selected because it captures operational profitability independent of capital structure decisions, making it suitable for cross-sector comparisons (Rohendi et al., 2024). To reduce short-term fluctuations, mean ROA values were computed across the observation period for each firm.

Analytical Approach

Sectoral heterogeneity was assessed using descriptive statistics, Pearson correlation analysis, and ordinary least squares (OLS) regression. Correlation analysis provides initial evidence on the direction and strength of ESG–ROA associations across sectors. OLS regression models were then estimated both for the pooled sample and separately by sector to capture industry-specific effects. The baseline regression specification is:

$$ROA_i = \alpha + \beta(ESG\ Score_i) + \epsilon_i$$

All statistical tests were evaluated using conventional significance thresholds ($p < 0.05$, $p < 0.01$).

RESULTS AND DISCUSSION

Descriptive Findings. Table 1 presents descriptive statistics revealing substantial variation both within and across sectors. Mean ESG scores range from 19.57 (Consumer Non-Cyclical) to 38.39 (Manufacturing), with energy and manufacturing sectors demonstrating highest ESG performance, consistent with high regulatory scrutiny and environmental impact concerns in these industries. The relatively high standard deviations within sectors (ranging from 4.10 to 11.00) indicate considerable heterogeneity in ESG practices even among firms facing similar competitive and regulatory environments, suggesting firm-level strategic choices play important roles beyond sectoral determinants.

Return on Assets varies considerably across sectors, with healthcare showing highest mean ROA (20.81%), followed by consumer goods (17.49%) and energy (17.10%). The high profitability in healthcare likely reflects Indonesia's growing middle class and increasing health awareness, while consumer goods' strong performance aligns with robust domestic consumption. Basic materials and infrastructure sectors show lower average ROA (7.41% and 6.62% respectively), consistent with their capital-intensive nature and exposure to commodity price volatility. These patterns suggest complex relationships warranting detailed sectoral examination.

Table 1. Descriptive Statistics by Sector

Sector	N	ESG Mean	ESG SD	ROA Mean	ROA SD
Consumer Goods	13	33.90	8.00	17.49%	8.45
Energy	11	38.27	10.97	17.10%	9.20
Basic Materials	15	31.94	8.67	7.41%	5.60
Infrastructure	9	23.45	11.00	6.62%	3.85
Healthcare	4	27.00	4.10	20.81%	10.00

Correlation and Regression Findings. Table 2 presents correlation coefficients and regression results revealing striking sectoral heterogeneity. The pooled regression across all 72 companies shows a positive but statistically insignificant relationship ($\beta = 0.138$, $p = 0.256$, $R^2 = 0.018$), masking substantial variation across sectors. This finding underscores a critical methodological insight: pooled analysis obscures important sectoral differences and can yield misleading conclusions about ESG-performance relationships. The low R^2 indicates that ESG scores alone explain minimal variance in ROA when sectoral context is ignored, highlighting the importance of industry-specific analysis.

Table 2. Correlation and Regression Results by Sector

Sector	N	Correlation (r)	Coefficient (β)	R ²
Pooled (All)	72	-	0.138	0.018
Consumer Goods	13	-0.824***	-0.871***	0.679
Energy	11	0.431	0.361	0.185
Basic Materials	15	0.107	0.069	0.012
Infrastructure	9	-0.110	-0.038	0.012
Manufacturing	2	-	0.656	n/a

Note: *** $p < 0.01$

Interpreting the Consumer Goods Paradox. The most striking finding—strong negative relationship in consumer goods ($r = -0.824$, $\beta = -0.871$, $R^2 = 0.679$, $p < 0.01$)—challenges conventional wisdom and warrants detailed examination. This counter-intuitive pattern suggests several theoretical mechanisms that collectively explain why high ESG performance may depress financial returns in this sector.

First, firms may be over-investing in ESG beyond optimal levels, consistent with emerging evidence of non-linear ESG-performance relationships (Alshehhi et al., 2018). In Indonesia's price-sensitive consumer markets characterized by low per-capita income and intense price competition, ESG initiatives impose substantial costs—sustainable sourcing premiums, environmental compliance investments, enhanced labor standards—that firms cannot recover through premium pricing. Unlike developed markets where ESG-conscious consumers demonstrate willingness to pay sustainability premiums, Indonesian consumers remain highly price-sensitive, limiting firms' ability to differentiate based on sustainability credentials alone. This creates an adverse cost-revenue dynamic where ESG investments directly reduce margins without compensating revenue enhancements.

Second, the negative relationship may reflect strategic positioning trade-offs inherent in premium ESG strategies. High-ESG consumer firms often pursue differentiation strategies requiring complementary investments in quality enhancement, sustainability certifications, transparent supply chains, and extensive stakeholder communication. These investments depress short-term ROA while building long-term brand equity, customer loyalty, and reputational capital not fully captured in accounting-based performance measures (Barnea & Rubin, 2010). From a resource-based view perspective, ESG capabilities may constitute valuable strategic resources whose returns materialize over extended timeframes beyond our five-year observation window.

Third, competitive dynamics create adverse selection pressures. ESG leaders face structurally higher costs through ethical sourcing requirements, rigorous quality control, enhanced transparency standards, and stakeholder engagement commitments. When competitors maintain cost advantages through less stringent practices while benefiting from weak enforcement of ESG standards, high-ESG firms suffer profitability disadvantages. This mechanism suggests institutional context critically moderates ESG-performance relationships—strong ESG-performance associations observed in developed markets may partly reflect robust enforcement creating level playing fields, whereas weak enforcement in emerging markets allows ESG laggards to maintain cost advantages (Itan et al., 2025; Kunaifi et al., 2025).

Sectoral Patterns in Capital-Intensive Industries. Near-zero relationships in basic materials and infrastructure ($\beta = 0.069$ and -0.038 , $R^2 = 0.012$ each) align with theoretical expectations for capital-intensive sectors serving business customers or operating in regulated markets where sustainability performance has limited influence on pricing power (Khan et al., 2016). In these sectors, ESG investments primarily address regulatory compliance and risk mitigation rather than creating market-based competitive advantages. The negligible explanatory power ($R^2 = 0.012$) indicates ESG captures minimal variance in profitability, suggesting other factors—capital efficiency, commodity prices, regulatory relationships—dominate performance outcomes.

The modest positive energy coefficient ($\beta = 0.361$, $R^2 = 0.185$), though statistically insignificant, suggests potential benefits from ESG through multiple channels. First, strong environmental performance may reduce regulatory costs and operational disruption probability in Indonesia's increasingly stringent environmental regime.

Second, robust ESG practices facilitate access to international capital markets and sustainability-linked financing at favorable terms. Third, operational efficiency improvements from environmental management systems may generate cost savings offsetting compliance investments (Wang & Chang, 2024). The moderate R^2 (0.185) indicates ESG explains meaningful though not dominant variance, consistent with ESG serving as one among several important performance drivers in this sector.

Manufacturing's positive coefficient ($\beta = 0.656$), despite small sample size limiting statistical inference, provides suggestive evidence that well-managed ESG programs may yield operational benefits. Manufacturing firms with strong ESG performance often implement systematic environmental management systems generating resource efficiency, waste reduction, and enhanced productivity (Yan, 2025). These operational improvements directly enhance profitability through cost reduction and process optimization, creating positive ESG-performance associations distinct from market-based mechanisms operating in consumer sectors.

Theoretical Implications. Our findings offer key theoretical insights for ESG research. First, stakeholder theory requires stronger contextualization (Freeman, 1984). While it assumes ESG-driven stakeholder satisfaction enhances firm value, our results show this relationship is not universal, particularly in price-sensitive markets where ESG costs may exceed captured benefits. Second, the evidence supports ESG materiality frameworks but highlights important complexities (Khan et al., 2016; Eccles & Serafeim, 2013). Sectoral heterogeneity confirms that ESG value creation depends not only on industry relevance but also on competitive dynamics and firms' ability to recover sustainability-related costs. Third, our results suggest the need to examine non-linear ESG-performance effects. The consumer goods sector may reflect an inverted U-shaped relationship, where excessive ESG investment reduces profitability rather than enhancing it (Alshehhi et al., 2018).

Practical Implications. Practically, managers should avoid one-size-fits-all ESG strategies and instead prioritize selective, sector-specific initiatives aligned with material stakeholder demands. Capital-intensive industries should frame ESG primarily as long-term risk management rather than expecting immediate profitability gains. Investors should adopt differentiated ESG evaluation approaches across sectors, as uniform screening may misinterpret industry-specific dynamics. Finally, policymakers should design ESG regulations that account for sectoral materiality and competitive constraints, since uniform mandates may disadvantage firms in price-sensitive markets without strong enforcement (Rohendi et al., 2024; Syarkani et al., 2024).

Limitations and Future Research. This study has several limitations. The five-year period (2020–2024) may not capture the long-term financial benefits of ESG, which often emerge gradually. Future research should use longer horizons and incorporate additional performance measures beyond ROA, including market-based and risk-adjusted indicators. Composite ESG scores may also obscure dimension-specific effects, suggesting the need to examine environmental, social, and governance components separately. In addition, small sectoral subsamples limit generalizability, highlighting the value of larger datasets and cross-country comparisons. Finally, future studies should test non-linear ESG-performance relationships and explore moderating factors such as firm characteristics, competitive dynamics, and institutional context.

CONCLUSION

This study demonstrates substantial sectoral heterogeneity in ESG-performance relationships within emerging markets, challenging the prevailing assumption of universally positive ESG impacts. Our findings reveal that the effectiveness of ESG initiatives varies significantly across industries, influenced by competitive dynamics, market structures, and sector-specific materiality factors. The striking negative relationship in consumer goods sectors particularly highlights how institutional context, competitive dynamics, and market characteristics fundamentally shape ESG value creation mechanisms.

These results carry important implications for practitioners, investors, and policymakers. Rather than adopting generic ESG frameworks, firms in emerging markets must develop context-specific strategies tailored to their industry characteristics, competitive positioning, and stakeholder environments. Investors should incorporate sector-differentiated ESG analysis recognizing substantial heterogeneity in value creation mechanisms across industries. Policymakers should design regulations accounting for industry-specific materiality and implementation capacity rather than imposing uniform requirements.

Ultimately, this research emphasizes the critical need for nuanced, sector-informed ESG strategies that account for industry-specific factors, competitive dynamics, and institutional contexts rather than relying on universal assumptions about ESG's financial benefits. As ESG integration continues advancing in emerging markets, understanding these contingencies becomes increasingly crucial for effective strategy formulation, investment decision-making, and policy design.

REFERENCES

- Alshehhi, A., Nobanee, H., & Khare, N. (2018). The impact of sustainability practices on corporate financial performance: Literature trends and future research potential. *Sustainability*, *10*(2), 494. <https://doi.org/10.3390/su10020494>
- Barnea, A., & Rubin, A. (2010). Corporate social responsibility as a conflict between shareholders. *Journal of Business Ethics*, *97*(1), 71-86. <https://doi.org/10.1007/s10551-010-0496-z>
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- Eccles, R. G., & Serafeim, G. (2013). The performance frontier: Innovating for a sustainable strategy. *Harvard Business Review*, *91*(5), 50-60.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Boston: Pitman.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, *5*(4), 210-233. <https://doi.org/10.1080/20430795.2015.1118917>
- Ho, L., Nguyen, V. H., & Dang, T. L. (2024). ESG and firm performance: Do stakeholder engagement, financial constraints and religiosity matter? *Journal of Asian Business and Economic Studies*, *31*(4), 263-276. <https://doi.org/10.1108/JABES-08-2023-0306>
- Itan, I., Sylvia, S., Septiany, S., & Chen, R. (2025). The influence of environmental, social, and governance disclosure on market reaction: Evidence from emerging markets. *Discover Sustainability*, *6*(1), 347. <https://doi.org/10.1007/s43621-025-01085-0>
- Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: First evidence on materiality. *The Accounting Review*, *91*(6), 1697-1724. <https://doi.org/10.2308/accr-51383>
- Kunaifi, A., Oktari, V., & Soewarno, N. (2025). ESG disclosure and firm sustainable growth nexus in Indonesia's emerging markets: Does working capital management matter? *Asian Review of Accounting*, *33*(ahead-of-print). <https://doi.org/10.1108/ARA-03-2025-0068>
- Narula, S., & Kumar, R. (2024). ESG investing and firm performance: Retrospections of past and reflections of future. *Corporate Social Responsibility and Environmental Management*, *32*(2), 1167-1186. <https://doi.org/10.1002/csr.2982>
- Rohendi, H., Momon, M., & Juliana, J. (2024). Environmental, social, and governance (ESG) disclosure, competitive advantage, and firm value. *Cogent Business & Management*, *11*(1), 2297446. <https://doi.org/10.1080/23311975.2023.2297446>
- Syarkani, Y., Subu, M. A., & Waluyo, I. (2024). Impact of ESG performance on firm value: A comparison of emerging and developed markets. *Commercium: Journal of Business and Management*, *2*(4), 240-255. <https://doi.org/10.61978/commercium.v2i4.367>
- Wang, H., & Chang, C. C. (2024). Frontiers in sustainability: ESG systems and financial performance in industries with significant environmental impact. *Frontiers in Sustainability*, *5*, 1454822. <https://doi.org/10.3389/frsus.2024.1454822>
- Whelan, T., Atz, U., Van Holt, T., & Clark, C. (2021). *ESG and financial performance: Uncovering the relationship by aggregating evidence from 1,000 plus studies published between 2015-2020*. New York: NYU Stern Center for Sustainable Business.
- Yan, X. (2025). Sustainability and competitive advantage: The impacts of ESG practices on business performance. *International Journal of Business and Management*, *20*(6), 1-14. <https://doi.org/10.5539/ijbm.v20n6p1>
- Zheng, X., & Bu, Q. (2024). Enterprise ESG performance, digital transformation, and firm performance: Evidence from China. *SAGE Open*, *14*(4), 1-21. <https://doi.org/10.1177/21582440241291680>