



The Effect of ESG Disclosure on Company Performance and Value: The Mediating Role of Intellectual Capital Efficiency in Indonesian Banking

R. Heru Kristanto HC*, Nilmawati, R. Hendry Gusaptono, Indra Kusumawardhani
Fakultas Ekonomi dan Bisnis, UPN "VETERAN" Yogyakarta, Indonesia

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Abstract

This study examines the effect of Environmental, Social, and Governance (ESG) disclosure on corporate performance and firm value. It investigates whether intellectual capital efficiency mediates these relationships in Indonesian banking companies. The study uses 20 listed banks observed over five years (2020–2025), resulting in 100 firm-year observations. The study employs a panel regression with a Fixed-Effects Model and mediation analysis using the Value Added Intellectual Coefficient (VAIC). ESG disclosure is measured using 30 indicators based on the 2016 Global Reporting Initiative Standards, while corporate performance and firm value are measured by Return on Assets (ROA) and Tobin's Q, respectively. The results show that ESG disclosure has no significant effect on ROA but has a significant negative effect on Tobin's Q and VAIC. VAIC has no significant effect on ROA or Tobin's Q and does not mediate the relationship between ESG disclosure and these outcomes. These findings suggest that ESG disclosure does not automatically create economic value, particularly in the short term, when implementation and reporting costs may exceed operational benefits.

Keywords: *ESG Disclosure, Corporate Performance, Firm Value, Intellectual Capital, Banking Sector, VAIC*

INTRODUCTION

ESG disclosure has become an important element of corporate governance and sustainability reporting. Nevertheless, disclosure may function as a symbolic mechanism for corporate image rather than as evidence of substantive sustainability practices (Frankel et al., 2025). Regulatory and stakeholder pressure has increased transparency requirements, potentially raising reporting, monitoring, compliance, and risk-management costs.

For banks, this issue is particularly relevant because their business depends on financial intermediation, trust, risk management, and information quality. Greater ESG transparency may reduce information asymmetry and strengthen legitimacy, but may also increase operational complexity and compliance burdens (Sebastião et al., 2024).

Prior empirical evidence remains inconsistent. Desai (2024) reports a positive relationship between ESG disclosure and firm value, whereas Zhang (2024) finds a negative association. Burinskiene et al. (2025) also show that ESG effects differ across countries and ESG dimensions. In addition, ESG engagement may influence performance through internal capabilities. Dong and Doukas (2025), for example, report that intellectual capital partially mediates the ESG–performance relationship. These findings suggest that ESG outcomes depend not only on disclosure intensity but also on how firms manage knowledge-based resources.

This study therefore investigates ESG disclosure in Indonesian banking and examines whether intellectual capital efficiency serves as a transmission mechanism between ESG disclosure, corporate performance, and firm value. The study contributes by linking sustainability disclosure with internal resource efficiency and by explaining why ESG disclosure may fail to generate immediate economic value.

Research Questions formulated for the study: 1) Does ESG disclosure negatively affect

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Corresponding author's email: heru.kristanto@upnyk.ac.id

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corporate performance (ROA)? 2) Does ESG disclosure negatively affect firm value (Tobin's Q)? 3) Does ESG disclosure positively affect intellectual capital efficiency (VAIC)? 4) Does intellectual capital efficiency (VAIC) positively affect corporate performance (ROA)? 5) Does intellectual capital efficiency (VAIC) positively affect firm value (Tobin's Q)? 6) Does intellectual capital efficiency (VAIC) mediate the relationship between ESG disclosure and corporate performance (ROA)? 7) Does intellectual capital efficiency (VAIC) mediate the relationship between ESG disclosure and firm value (Tobin's Q)?

LITERATURE REVIEW

Stakeholder Theory argues that responding to diverse stakeholder demands can increase organizational responsibilities, decision complexity, and resource requirements, creating a possible trade-off between stakeholder expectations and operational efficiency (Awa et al., 2024; Yoo, 2025). ESG disclosure may therefore impose costs before its benefits become visible.

Legitimacy Theory views ESG reporting as a response to social expectations and legitimacy pressure. When a gap exists between societal expectations and actual corporate performance, firms may intensify disclosure to protect legitimacy, sometimes through symbolic actions (Khamisu & Paluri, 2024; Kiran et al., 2025). Signaling Theory further suggests that only credible and costly-to-imitate signals effectively distinguish high-quality firms. Narrative ESG disclosure can therefore be ambiguous when disclosure is not supported by substantive performance (Spence, 1973; Agapova et al., 2025).

The Resource-Based View (RBV) emphasizes that competitive advantage depends not simply on possessing resources but on integrating and deploying them efficiently. Intellectual capital—human, structural, and relational capital—can transform knowledge into value when managed effectively. ESG practices may strengthen these resources through improved governance, organizational learning, knowledge management, and stakeholder relationships (Pham et al., 2024; Ji et al., 2025).

Based on these perspectives, the study proposes: H1, ESG disclosure negatively affects firm performance; H2, ESG disclosure negatively affects firm value; H3, ESG disclosure positively affects intellectual capital efficiency; H4, intellectual capital efficiency positively affects firm performance; H5, intellectual capital efficiency positively affects firm value; H6, intellectual capital efficiency mediates the effect of ESG disclosure on firm performance; and H7, intellectual capital efficiency mediates the effect of ESG disclosure on firm value. The negative directions for H1 and H2 reflect the cost and short-term inefficiency arguments developed in the original study.

RESEARCH METHOD

The population comprises 48 banks listed on the Indonesia Stock Exchange. Purposive sampling selected banks that were continuously listed during the study period 2020-2025, published annual reports, disclosed sustainability information, and belonged to KBMI 2, KBMI 3, or KBMI 4. Twenty banks satisfied these criteria, producing 100 firm-year observations over five years.

ESG disclosure is measured with an index based on the 2016 GRI Standards comprising 30 indicators: 10 environmental, 10 social, and 10 governance indicators. VAIC measures intellectual capital efficiency. Value added is calculated as $VA = OUT - IN$; $HCE = VA/HC$; $SCE = (VA - HC)/VA$; $CEE = VA/CE$; and $VAIC = HCE + SCE + CEE$ (Firer & Williams, 2003). Firm performance is measured by $ROA = \text{Net Income} / \text{Total Assets}$, while firm value is represented by $\text{Tobin's } Q = (MVE + D) / TA$ (Chung & Pruitt, 1994). Control variables are firm size, measured as the natural logarithm of total assets, and leverage, measured as total debt divided by total assets.

Five progressively specified panel models estimate: (1) $ESG \rightarrow ROA$; (2) $ESG \rightarrow \text{Tobin's } Q$; (3)

ESG → VAIC; (4) ESG and VAIC → ROA; and (5) ESG and VAIC → Tobin's Q. The study uses a Fixed Effects Model with clustered standard errors. Mediation is assessed through the causal-steps approach and bootstrapping with 1,000 replications.

The model specifications were developed progressively to accommodate the role of intellectual capital efficiency as a mediating variable in the relationship between ESG disclosure and company performance and firm value, as follows:

- a. Model 1: The Effect of ESG Disclosure on Company Performance

$$ROA_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$$

- b. Model 2: The Effect of ESG Disclosure on Firm Value

$$TQ_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$$

- c. Model 3: The Effect of ESG Disclosure on Intellectual Capital Efficiency

$$VAIC_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$$

- d. Model 4: The Effect of ESG Disclosure on Performance and Companies with Intellectual Capital Efficiency as a Mediating Variable

$$ROA_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 VAIC_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \varepsilon_{it}$$

- e. Model 5: The Effect of ESG Disclosure on Firm Value with Intellectual Capital Efficiency as a Mediating Variable

$$TQ_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 VAIC_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \varepsilon_{it}$$

FINDINGS AND DISCUSSION

Results

Descriptive Statistics

Table 1 shows a mean VAIC of 3.6303, ESG disclosure of 0.76767, ROA of 0.011561, Tobin's Q of 0.039573, firm size of 19.057, and leverage of 0.77279. The ESG mean indicates relatively high disclosure, while the low ROA and its relatively large dispersion indicate differences in profitability across banks.

Table 1. Descriptive Statistics

	Mean	Median	S.D.	Min	Max
VAIC	3.6303	3.6432	1.4865	-1.3357	6.4478
ESG	0.76767	0.81667	0.11971	0.43333	0.96667
ROA	0.011561	0.012559	0.023449	-0.086962	0.084093
TobinsQ	0.039573	-0.011108	0.21084	-0.33926	1.3394
Size	19.057	19.073	1.3569	14.595	21.610
Leverage	0.77279	0.82999	0.17134	0.12771	0.90416

Source: Processed (2026)

Panel Data Regression

1. The Effect of ESG Disclosure on Firm Performance

Table 2. Panel Data Model 1

	coefficient	std. error	t-ratio	p-value
const	-0.841802	0.0876721	-9.602	1.01e-08
ESG	-0.0317621	0.0273683	-1.161	0.2602
Size	0.0482460	0.00573147	8.418	7.81e-08

<i>Leverage</i>	-0.0503792	0.0234011	-2.153	0.0444
dt_2	2.55086e-05	0.00187885	0.01358	0.9893
dt_3	-0.000426958	0.00314240	-0.1359	0.8934
dt_4	-0.00483371	0.00290187	-1.666	0.1122
dt_5	-0.00859438	0.00368313	-2.333	0.0308

Source: Processed (2026)

The first panel model in Table 2 shows that ESG disclosure does not significantly affect ROA ($\beta = -0.0317621$; $p = 0.2602$). Firm size has a positive significant effect ($\beta = 0.0482460$; $p < 0.001$), whereas leverage has a negative significant effect ($\beta = -0.0503792$; $p = 0.0444$).

2. The Effect of ESG Disclosure on Firm Value

The second model in Table 3 shows a significant negative effect of ESG disclosure on Tobin's Q ($\beta = -0.645773$; $p = 0.0314$). Firm size ($\beta = -0.216186$; $p = 0.0014$) and leverage ($\beta = -1.21216$; $p = 0.0302$) are also negative and significant.

Table 3. Data Panel Data Model 2

	coefficient	std. error	t-ratio	p-value
const	5.55592	0.653939	8.496	6.78e-08
ESG	-0.645773	0.277979	-2.323	0.0314
<i>Size</i>	-0.216186	0.0576789	-3.748	0.0014
<i>Leverage</i>	-1.21216	0.517332	-2.343	0.0302
dt_2	0.0221102	0.0202973	1.089	0.2896
dt_3	0.0493116	0.0269849	1.827	0.0834
dt_4	0.0456030	0.0300757	1.516	0.1459
dt_5	0.0633611	0.0305117	2.077	0.0516

Source: Processed using Gretl (2026)

3. The effect of ESG Disclosure on Intellectual Capital Efficiency

Table 4. Panel Data Model 3

	coefficient	std. error	t-ratio	p-value
const	36.8403	11.1849	3.294	0.0038
ESG	-3.56045	0.838118	-4.248	0.0004
<i>Size</i>	-1.79146	0.764757	-2.343	0.0302
<i>Leverage</i>	4.04807	4.22015	0.9592	0.3495
dt_2	0.328435	0.232994	1.410	0.1748
dt_3	0.813200	0.249760	3.256	0.0042
dt_4	0.894043	0.237402	3.766	0.0013
dt_5	0.641431	0.491435	1.305	0.2074

Source: Processed (2026)

The third model indicates that ESG disclosure significantly reduces VAIC ($\beta = -3.56045$; $p = 0.0004$). Firm size also has a negative and significant effect ($\beta = -1.79146$; $p = 0.0302$), while leverage is insignificant.

4. The Effect of ESG Disclosure on Performance and Firm Companies with Intellectual Capital Efficiency as a Mediating Variable

Table 5. Panel Data Model 4

	coefficient	std. error	t-ratio	p-value
const	-0.842044	0.0723951	-11.63	4.38e-010
ESG	-0.0317386	0.0293126	-1.083	0.2925
VAIC	6.58366e-06	0.000968366	0.006799	0.9946
<i>Size</i>	0.0482578	0.00496759	9.715	8.37e-09
<i>Leverage</i>	-0.0504059	0.0239578	-2.104	0.0489
dt_2	2.33463e-05	0.00189490	0.01232	0.9903
dt_3	-0.000432312	0.00304199	-0.1421	0.8885
dt_4	-0.00483960	0.00285335	-1.696	0.1062
dt_5	-0.00859860	0.0324111	-2.367	0.0287

Source: Processed (2026)

Table 5 shows that ESG disclosure has a negative but statistically insignificant effect on ROA (coefficient = -0.0317386; $p = 0.2925$). Similarly, VAIC has no significant effect on ROA (coefficient = 6.58366e-06; $p = 0.9946$). In contrast, firm size has a positive and significant effect on ROA (coefficient = 0.0482578; $p < 0.01$). Leverage negatively affects ROA (coefficient = -0.0504059; $p < 0.05$).

5. The Effect of ESG Disclosure on Firm Value with Intellectual Capital Efficiency as a Mediating Variable

Table 6. Panel Data Model 5

	coefficient	std. error	t-ratio	p-value
const	5.81409	0.632761	9.188	2.02e-08
ESG	-0.670724	0.289862	-2.314	0.0320
VAIC	-0.00700781	0.00563889	-1.243	0.2291
<i>Size</i>	-0.228740	0.0533145	-4.290	0.0004
<i>Leverage</i>	-1.18379	0.495707	-2.388	0.0275
dt_2	0.0244118	0.0214481	1.138	0.2692
dt_3	0.0550104	0.0287490	1.913	0.0709
dt_4	0.0518683	0.0329138	1.576	0.1316
dt_5	0.0678561	0.0324111	2.094	0.0499

Source: Processed (2026)

The estimation results in Table 6 indicate that ESG disclosure has a negative and significant effect on firm value (Tobin's Q), with a coefficient of -0.670724 and a p-value of 0.0320. VAIC has a negative but statistically insignificant effect (coefficient = -0.007008; $p = 0.2291$). Firm size also negatively affects firm value (coefficient = -0.228740; $p = 0.0004$). Similarly, leverage has a negative and significant effect (coefficient = -1.18379; $p = 0.0275$).

Mediation Variable Testing

Mediation testing confirms that ESG significantly affects VAIC (Path a), but VAIC does not significantly affect ROA or Tobin's Q (Path b). Bootstrapping produces a 95% confidence interval of -0.0267 to 0.0069 for the indirect ESG-ROA effect and -0.1131 to 0.1248 for the indirect ESG-Tobin's Q effect. Because both intervals include zero, VAIC does not mediate either relationship.

Discussion

The finding that ESG disclosure does not significantly affect ROA indicates that greater disclosure has not translated into short-term profitability. This aligns with a time-lag explanation: ESG implementation requires investment in compliance, systems, data, reporting, and process adjustments, while financial benefits may emerge only over a longer horizon (Tahtamoni et al., 2025; Meneses Cerón et al., 2026). Symbolic rather than substantive disclosure may further weaken the relationship.

The negative ESG–Tobin’s Q relationship differs from the conventional expectation that sustainability enhances valuation. The result suggests that investors may interpret ESG disclosure as an additional cost when its economic benefits are uncertain or distant. This response aligns with evidence that ESG implementation can create short-term financial pressure and that markets may discount uncertain future benefits (Biju et al., 2025; Fang & Guo, 2025).

ESG disclosure also has a significant negative effect on VAIC, contrary to H3. This may reflect the resource requirements of sustainability reporting and implementation. When organizational capabilities are insufficiently mature, resources devoted to ESG measurement, verification, reporting, and internal adjustment can reduce the efficiency with which intellectual capital is converted into value (Narula et al., 2025; Philippas et al., 2025).

VAIC does not significantly influence ROA or Tobin’s Q. Intellectual capital is strategic and intangible; its contribution may require time to accumulate and may not be immediately observable in accounting profitability or market valuation. Limited standardization and transparency in intellectual capital reporting may also prevent investors from fully incorporating it into valuation (Ketera et al., 2024; Pitre-Cedeño & Herrera-Rodríguez, 2024).

Finally, VAIC does not mediate the ESG relationships with ROA or Tobin’s Q. Although ESG affects VAIC, the absence of a significant VAIC effect on either outcome breaks the expected transmission mechanism. The evidence therefore indicates failed mediation: ESG disclosure does not automatically become economic value through intellectual capital. Implementation quality and strategic integration matter more than disclosure intensity alone.

CONCLUSIONS

The study concludes that ESG disclosure has no significant effect on firm performance but has a significant negative effect on firm value and intellectual capital efficiency in Indonesian banking. Intellectual capital efficiency has no significant effect on either performance or firm value and does not mediate the ESG relationships. These results reinforce the view that ESG benefits are contextual rather than automatic. Where sustainability practices are insufficiently integrated with internal resources, ESG may generate short-term costs without corresponding improvements in efficiency or value.

LIMITATIONS & FURTHER RESEARCH

The study has several limitations. First, the sample is restricted to banks listed on the Indonesia Stock Exchange, limiting the generalizability of the findings to other sectors and countries with different economic, regulatory, and ESG environments. Second, the sample comprises only 100 firm-year observations from 20 banks over five years. Third, the analysis mainly captures short-term ESG effects. Finally, intellectual capital efficiency is measured using Pulic’s VAIC, which relies on accounting data and may not fully capture qualitative and unstandardized intangible assets.

Future Research Recommendations: 1) Future studies could include non-financial companies or compare banking firms across different countries in Southeast Asia to improve the generalizability of the findings. 2) A longer observation period is recommended to capture the delayed and long-term effects of ESG disclosure on company performance and value. 3) Future

research could compare ESG ratings from different providers or examine the separate effects of Environmental, Social, and Governance dimensions rather than relying on an aggregate ESG measure.

Managers should integrate ESG with business processes, knowledge management, innovation, and organizational learning. Intellectual capital should transform sustainability initiatives into measurable economic value. Investors should assess ESG disclosure alongside implementation and financial outcomes. Future research should examine longer periods, ESG dimensions, alternative intellectual capital measures, and time-lag effects.

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