



Reassessing ESG and Firm Value: Moderating Evidence from Profitability and KBMI-Based Bank Size in Indonesia

Momon* , Lela Nurlaela Wati , Nanda Fatimah Azzahra
Universitas Teknologi Muhammadiyah Jakarta, Indonesia

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Abstract

Given the importance of environmental, social, and governance (ESG) issues in corporate sustainability and reputation, this study provides insights into how internal factors, such as profitability and bank size, strengthen the influence of ESG on firm value in the conventional banking sector listed on the Indonesian Stock Exchange (IDX) during 2020–2023. This study uses a quantitative approach with purposive sampling and panel data that meets the criteria of 72 conventional commercial banks. The moderated regression analysis of panel data uses a fixed-effects model based on the Chow and Hausman tests. The results show that ESG disclosure does not significantly influence firm value in Indonesian conventional commercial banks. However, profitability, as measured by return on assets (ROA), positively and significantly moderates the effect of ESG on firm value, indicating that more profitable banks can maximize the benefits of ESG disclosure. Conversely, bank size negatively and significantly moderates this relationship, indicating that larger banks may face challenges in communicating ESG disclosures effectively. The Financial Services Authority (OJK) can encourage banks with strong financial performance to be more proactive in implementing and disclosing their sustainability policies, which will positively impact the market and banks' reputations. The originality of this research lies in the integration of the influence of profitability and bank size using the Bank Group classification based on core capital (KBMI) as a moderator in the relationship between ESG and firm value, a topic that has not been widely discussed in previous research, particularly in the Indonesian banking sector.

Keywords: *Environmental Social and Governance, Return on Assets, Firm Value, Sustainability Accounting Standards Board, Tobin's Q*

INTRODUCTION

The value of banking companies is increasingly determined not only by short-term financial performance but also by the bank's ability to credibly and sustainably manage environmental, social, and governance (ESG) risks (An et al., 2025; Wong et al., 2021; Xiao et al., 2025; Yoo & Managi, 2022; Zheng et al., 2025). As global attention to sustainability increases, ESG disclosure is considered a crucial instrument for reducing information asymmetry, strengthening legitimacy, and conveying risk governance signals to investors, regulators, and other stakeholders (Rahat & Nguyen, 2024).

The implementation of environmental, social, and governance (ESG) principles has become a major concern among global companies, including those in Indonesia. ESG is seen as a crucial factor in creating long-term value and corporate sustainability (Djasuli et al., 2025; Yuliyanti et al., 2025). In the banking sector, where risk and reputation management are crucial, ESG has been shown to influence investment decisions and long-term performance. As a sector that plays a crucial role in the Indonesian economy, conventional banks face the challenge of not only achieving financial goals but also meeting stakeholder expectations regarding corporate sustainability (Djasuli et al., 2025; Galletta et al., 2025). Bloomberg reports that global ESG-based investments have attained \$35 trillion, with Indonesia experiencing a 45% rise in ESG disclosures among publicly listed businesses by 2023 (Wulaningrat et al., 2025). The implementation of ESG policies

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Corresponding author's email: momon@utmj.ac.id

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in the Indonesian banking sector, although growing, still faces obstacles related to the effective understanding and integration of these principles into daily operational practices. The ESG score for the Indonesian banking industry is a median of approximately 47.64 (on a scale of 0–100), which remains inferior to that of several other industries, including mining and plantations. This indicates that ESG standards in banking remain suboptimal and incomplete (Katadata ESG Index, 2025).

However, empirical evidence regarding the impact of ESG on firm value, particularly in the banking sector, remains mixed and context-specific. Cross-country studies of banks have shown that firm value, as measured by Tobin's Q, tends to increase when banks report environmental investments or spending, suggesting that the disclosure of certain green policies and activities may be positively valued by the market (Galletta et al., 2025). Conversely, recent research in the Asia-Pacific region has found that ESG disclosure has a direct negative effect on bank firm value (Tobin's Q) if not accompanied by credible credit risk governance and only has a positive impact when integrated with risk management mechanisms such as credit-based loan loss provisions (Marpaung et al., 2025). More broadly, analyses of companies in various emerging markets have shown that a favorable ESG profile is generally positively correlated with valuation (Tobin's Q and EV/S), while ESG controversies lower firm value, highlighting that the quality and consistency of ESG implementation are key elements in investor assessments and good governance (Rahat & Nguyen, 2024).

In this context, bank profitability and size have the potential to be important differentiating factors in determining whether and to what extent ESG information translates into a firm value premium. From this perspective, resource-based view and slack resources, banks with higher profitability have greater resource capacity to implement ESG practices in a tangible and consistent manner; therefore, their ESG disclosures are more likely to be viewed as credible and generate a positive valuation response (Sekimoto & Amran, 2025). Suprpto et al.'s (2025) empirical findings show that profitability plays a dual role, both as a performance indicator and as a factor that strengthens or weakens the impact of ESG on firm performance and value. Profitability, as measured by return on equity (ROE), can strengthen the influence of ESG on firm value (Tobin's Q), whereas profitability, as measured by return on assets, weakens the influence of ESG on firm value. Wulaningrat et al. (2025) showed different results, where ESG disclosure did not have a significant effect on the value of high-risk companies in Indonesia. However, when profitability, as measured by return on assets (ROA), is introduced as a moderator, ESG shows a significant negative effect on firm value.

In contrast, bank size can affect access to capital, governance capacity, exposure to regulatory oversight, and reputational sensitivity. Studies of ESG and valuation in emerging markets have found that the influence of ESG on firm value can differ across size groups, implying a moderating effect of size on the ESG-value relationship. In the banking sector, these size differences are institutionally reflected through the Indonesian bank classification based on core capital (KBMI), which divides banks into four core capital groups with relatively wide thresholds (KBMI 1 to KBMI 4: ≤ IDR 6 trillion; > IDR 6–14 trillion; > IDR 14–70 trillion; > IDR 70 trillion). These differences in KBMI can conceptually affect the cost absorption of ESG implementation (the quality of governance and risk management systems, as well as market attention and reputational exposure, all of which have the potential to alter the strength of the relationship between ESG disclosure and firm value, thus indicating significant differences in operational capacity and complexity across banks (Financial Services Authority, 2021; Rahat & Nguyen, 2024; Suprpto et al., 2025).

This study analyzes the influence of ESG disclosure and the role of profitability and bank size in strengthening the influence of ESG disclosure on firm value in conventional banks in Indonesia. This study fills a gap in previous research, as previous studies have shown that ESG

disclosure can either enhance or depress Tobin's Q depending on the quality of governance and institutional context, while cross-sector analysis in emerging markets generally supports a positive relationship between ESG disclosure and firm value. However, evidence specifically examining the role of profitability (ROA) and bank size based on core capital classification (KBMI) as moderating variables in the relationship between ESG and Tobin's Q in conventional banks is still very limited, particularly in Indonesia, which adheres to the banking dualism of conventional and Islamic banks. This gap is increasingly relevant considering that the research period, conducted from 2020 to 2023, was marked by increasing regulatory and market pressures on transparency and sustainability practices in the financial sector, as well as the dynamics of recovery after the global economic shock (Galletta et al., 2025; Marpaung et al., 2025; Rahat & Nguyen, 2024).

This study develops an integrative model with contextual advantages by comprehensively examining conventional banks using disclosure indicators from the Sustainability Accounting Standards Board (SASB) with different risk and governance characteristics. This study integrates stakeholder theory, legitimacy, and signaling theory to explain the mechanism of ESG disclosure as a source of legitimacy and a credible signal of quality when supported by strong bank health (Azmi et al., 2021; Djasuli et al., 2025; Galletta et al., 2025; Liaqat et al., 2026; Marpaung et al., 2025; Sekimoto & Amran, 2025; Tansil & Tangke, 2025; Wulaningrat et al., 2025). The main novelty of this study is its empirical explanation that ESG is not universal, but that its effectiveness on firm value is largely determined by the condition of bank performance and size, thus enriching the literature on risk-based sustainable finance.

This research is expected to make an important contribution to deepening the understanding of ESG disclosure (SASB) within the framework of ROA and KBMI moderation. The results of this study are also expected to serve as a reference for regulators (OJK) and bank management in designing ESG strategies that are not only oriented towards compliance and reporting but also aligned with the profitability capacity and size profile of the bank, thereby generating sustainable increases in firm value.

LITERATURE REVIEW

The grand theory used in this research problem-solving approach is Stakeholder Theory. In stakeholder theory, banks are not viewed solely as pursuing shareholder profits but also as meeting the expectations of investors, customers, regulators, employees, and the public. Therefore, ESG disclosure becomes a means of building stakeholder trust and support, which can ultimately increase company value. In the context of capital markets, market-based measures of firm value, such as Tobin's Q, reflect how investors assess a firm's growth prospects and risk profile relative to its asset value, making it a widely used indicator in corporate and banking valuation research (An et al., 2025; Wong et al., 2021; Xiao et al., 2025; Yoo & Managi, 2022; Zheng et al., 2025).

The Effect of Environmental, Social, and Governance (ESG) on Firm Value

Based on legitimacy theory, ESG disclosure can reduce information asymmetry, strengthen legitimacy, and increase stakeholder trust, which is reflected in market valuations such as Tobin's Q. In the conventional banking sector, ESG disclosure reflects a commitment to managing climate, social, and governance risks, which is crucial considering that banks are vulnerable to reputational and sustainability regulations. Marpaung et al. (2025) examined the relationship between ESG disclosure and firm value in the Asia-Pacific banking sector, ESG disclosure had a significant negative direct effect on firm value, as measured by Tobin's Q, especially in the absence of credible risk governance. This was supported by Azmi et al. (2021), who showed that low levels of ESG activity have a positive impact on bank value. Meanwhile, (Smaoui et al., 2025) showed that ESG has a positive impact on the performance of Islamic banks but does not affect the performance of

conventional banks.

Based on signaling theory, ESG disclosure is viewed as a credible signal sent by management to investors regarding a company's governance quality, risk management capabilities, and commitment to long-term sustainability (Handajani et al., 2026). When banks disclose ESG information more comprehensively and consistently, information asymmetry between management and investors can be reduced, risk perceptions can improve, and the market can more easily assess the company's healthy and responsible prospects, which can ultimately increase firm value (An et al., 2025; Handajani et al., 2026).

Naeem et al. (2022) found that the overall ESG performance of environmentally sensitive companies has a significant positive relationship with equity returns and Tobin's Q of companies in developed and developing countries. Tansil and Tangke (2025) studied non-financial companies in Indonesia and found that environmental, social, and governance (ESG) disclosure has a positive and significant impact on firm value. This research result is supported by Al Azizah and Haron (2024), Aydoğmuş et al. (2022), Galletta et al. (2025), Rahman et al. (2023), Suprpto et al. (2025), and Wong et al. (2021). Wulaningrat et al. (2025) showed different results, where ESG disclosure did not have a significant impact on the value of high-risk companies in Indonesia. However, when profitability, as measured by return on assets (ROA), is used as a moderator, ESG shows a significant negative effect on firm value. Different results are shown by Rahat and Nguyen (2024), where ESG has a significant negative effect on firm value as measured by Tobin's Q. The differences in research results regarding the influence of ESG on firm value are interesting to be re-examined, especially in the banking sector in Indonesia, so that the following hypothesis can be formulated:

H1: ESG disclosure has an impact on the firm value of banks (Tobin's Q)

The Interaction of Profitability on ESG to Firm Value

Profitability indicates a company's ability to generate returns from its assets or capital (Putra et al., 2025). Therefore, more profitable companies are perceived to have greater resources to consistently and effectively implement ESG strategies. Under these circumstances, ESG disclosure is not viewed merely as symbolic disclosure, but as a policy supported by adequate economic capacity, making it more likely for the market to perceive ESG as a factor that truly creates value (Momon et al., 2025). Based on stakeholder theory, ESG activities and disclosures are appreciated when a company can meet the expectations of various stakeholders without sacrificing its economic performance. Profitability becomes relevant because high profits provide a company with the space to finance sustainability programs, strengthen relationships with customers, regulators, investors, and the community, and demonstrate that sustainability orientation can go hand in hand with the creation of economic value.

Based on the perspective of the resource-based view and slack resources theory, where profitability (ROA) reflects the resource leeway that allows companies to effectively implement ESG, thereby increasing the credibility of disclosures and strengthening the relationship between ESG disclosure and firm value. Companies with high ROA have the financial capacity to finance ESG reporting systems, assurance, and sustainability actions, alleviating investor concerns about ESG disclosure on greenwashing and making the disclosure signal more value relevant for market valuation. Sekimoto and Amran (2025) show that slack resources (a proxy for profitability) mediate the relationship between proactive ESG strategies and firm value through the quality of ESG disclosure, indicating that profitability strengthens the value channel of disclosure. Tansil and Tangke (2025) found that profitability strengthens the influence of environmental, social, and governance (ESG) disclosure on firm value by acting as a quasi-moderator.

The interaction between ESG and profitability, as measured by ROE, has a significant positive effect, indicating that higher profitability (as reflected by ROE) enhances the positive

impact of ESG on firm value. In contrast, ROA does not show a significant moderating effect (Suprpto et al., 2025). In Indonesia's conventional banking sector, ROA, as an indicator of efficiency and the ability to absorb ESG risks, is crucial given that banks face regulatory pressure from the Financial Services Authority (OJK) regarding climate and social risk management. Profitable banks are better able to integrate ESG into their business models without sacrificing returns. Furthermore, Rahman et al. (2023) support that top management commitment and sustainability strategy (which are often correlated with profitability) moderate the relationship between ESG and Tobin's Q, strengthening the effect on companies with strong financial conditions. Therefore, the following second hypothesis is formulated:

H2: Profitability (ROA) moderates the effect of ESG disclosure on firm value (Tobin's Q)

The Interaction of Bank Size on ESG to Firm Value

Bank size reflects the extent to which a bank has resources for intermediation, service delivery, governance, and business expansion. In Indonesia, bank size can be explained through the Bank Group Based on Core Capital (KBMI) classification, regulated by the Financial Services Authority (OJK). The KBMI divides banks into four groups based on core capital: KBMI 1 (up to IDR 6 trillion), KBMI 2 (above IDR 6 trillion to IDR 14 trillion), KBMI 3 (above IDR 14 trillion to IDR 70 trillion), and KBMI 4 (above IDR 70 trillion). With this approach, banks in KBMI 3 and KBMI 4 are generally understood to be larger banks because they have higher core capital, service coverage, and business complexity than KBMI 1 and KBMI 2. Therefore, bank classification can be a relevant basis for explaining bank size more contextually within the Indonesian banking sector (Financial Services Authority, 2021).

Based on perspective signaling theory and the resource-based view, firm size influences the credibility and informational value of ESG disclosures. According to signaling theory, ESG disclosures serve as a signal of management's commitment to sustainability; however, the effectiveness of this signal depends on the company's ability to implement it effectively. Larger companies tend to have better resources, governance systems, and market visibility, making their disclosures more credible to investors and potentially strengthening the influence of ESG disclosures on firm value. Empirical evidence (Rahman et al., 2023) supports that firm size significantly moderates the relationship between ESG and firm performance (including value proxies such as Tobin's Q), with a stronger effect on larger firms that are able to integrate sustainability strategies. Similarly, Rahat and Nguyen (2024) found that firm size moderates the relationship between ESG and the valuation of non-financial companies, and this relationship is stronger in large companies.

However, the perspective diminishing signaling value suggests that in large companies, ESG disclosures may provide less additional information because the baseline of sustainability expectations is already high; therefore, the effect may weaken or even turn negative due to perceptions of greenwashing or greater political costs. Using data from Nasdaq-100 companies. Using data from Nasdaq-100 companies, Heubeck and Ahrens (2025) found initial support for a positive effect of excess resources on ESG. However, further analysis revealed that excess resources become detrimental to ESG after an economically relevant threshold, suggesting an inverted U-shaped effect of excess resources. Empirical evidence Lanjaryanto & Riwayati (2025) strengthens the perspective diminishing signaling value, where the three partial ESG test results with firm size interactions do not have a significant effect on firm value in the banking sector in Indonesia.

In the context of conventional banking, the phenomenon of size heterogeneity is reflected in the KBMI classification in Indonesia (KBMI 1–4 based on core capital of $\leq$ IDR 6 trillion to $>$ IDR 70 trillion), where large banks (high KBMI) have better access to funding, broader asset diversification, and stricter regulatory oversight; therefore, their ESG disclosures can be a stronger

signal or even less differentiated than those of small banks. [Heubeck and Ahrens \(2025\)](#) show that firm size moderates the relationship between slack resources, ESG disclosures, and firm value, with larger firms managing ESG resources more effectively. Therefore, Hypothesis 3 is as follows:

H3: Bank Size (KBMI) moderates the influence of ESG disclosure on firm value (Tobin's Q)

The operating expense to operating income (BOPO) ratio and the non-performing loan (NPL) ratio are used as control variables in the model of the influence of ESG disclosure on firm value (Tobin's Q). This is because they capture operational efficiency and credit risk, two fundamental indicators for assessing bank performance and risk. BOPO, which is equivalent to the cost-to-income ratio, reflects a bank's ability to manage operating costs relative to operating income. Therefore, a higher BOPO indicates inefficiency, which is typically negatively responded to by the market ([Albi et al., 2025](#); [Pramudena et al., 2026](#)). Meanwhile, NPLs reflect the asset quality and credit risk levels faced by banks, where an increase in NPLs indicates a decline in credit portfolio quality and the potential for higher losses. Studies on the Indonesian and international banking sectors show that NPLs have a negative and significant impact on firm value because high NPLs are perceived as a signal of weak risk management and the potential for decreased future profitability. High NPLs lower investor confidence and depress market valuations, whereas a decrease in NPLs improves risk perception and increases firm value ([Albi et al., 2025](#)). In the ESG context, findings on banks in emerging markets suggest that strong ESG performance can help reduce NPLs and improve financial stability, indicating that ESG quality and credit risk are interrelated and jointly influence bank value ([Hussain et al., 2024](#)).

Based on the research theory and hypothesis, the following framework was developed.

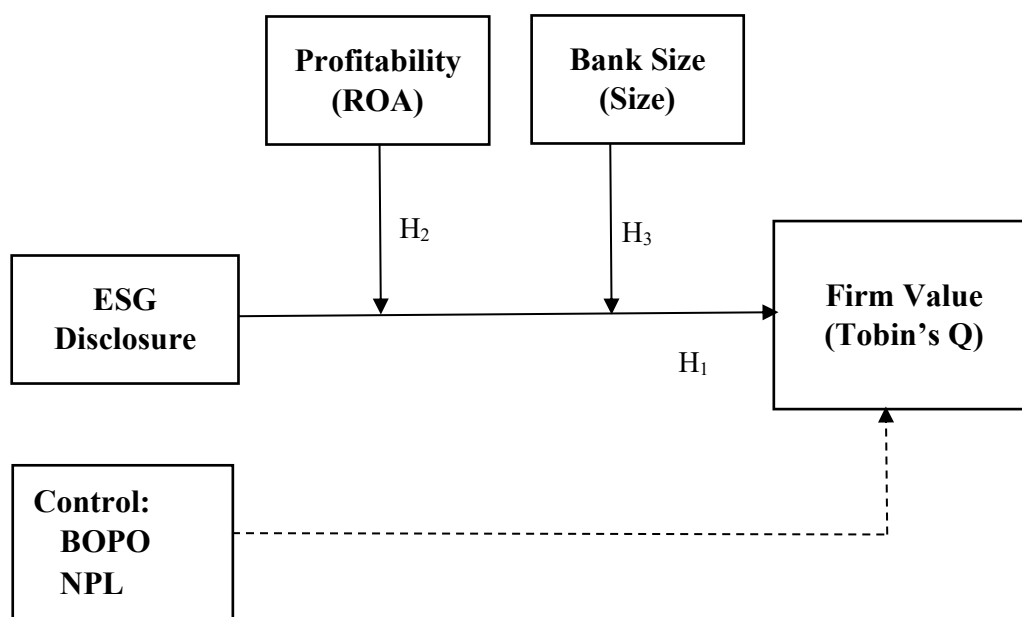


Figure 1. Framework of the Firm Value Model of Conventional Banks

Figure 1 illustrates the relationship between ESG variables and firm value, reinforced by firm profitability and firm size (KBMI) in Indonesia's conventional banking sector. The control variables in this study were the ratio of operating expenses to operating income and non-performing loans.

RESEARCH METHOD

The study population comprised 47 conventional commercial banks (CBs) listed on the Indonesian Stock Exchange between 2020 and 2023. Sampling was conducted using a purposive sampling method, with the criteria being conventional commercial banks and the completeness of research variable data, particularly banks that disclose ESG using indicators from the Sustainability Accounting Standards Board (SASB). The number of banks that met the sampling criteria was 18 (2020–2023); therefore, the total panel data comprised 72 observations (18 banks × 4 years).

ESG disclosures using SASB indicators include data security (FN-CB-230a1 and FN-CB-230a2), financial inclusion and capacity building (FN-CB-240a1 to FN-CB-240a4), incorporation of environmental, social, and governance factors in credit analysis (FN-CB-410a1 and FN-CB-410a2), funded emissions (FN-CB-410b1 to FN-CB-410b4), business ethics (FN-CB-510a1 and FN-CB-510a2), and systemic risk management (FN-CB-550a1 and FN-CB-550a2). The variables and indicators used in this study are presented in Table 1.

Table 1. Research Variables and Indicators

Variables	Indicator	Reference
Firm Value (Dependent)	Tobins Q: (Market Value + Total Debt) / Total Asset	(Alaika & Firmansyah, 2024; Galletta et al., 2025; Lanjaryanto & Riwayati, 2025; Rahat & Nguyen, 2024; Sekimoto & Amran, 2025; Wati et al., 2019)
ESG Disclosure (Independent)	The composite score is calculated based on score value Environmental, Social, And Governance use Sustainability Accounting Standards Board (SASB) $\frac{\sum X_i}{n}$ $\sum x_i$ = Number of items disclosed by the company (score 1 for items present, 0 for those not) n = Total items that should be disclosed based on SASB standards (18 items)	(Azmi et al., 2021; Liaqat et al., 2026; Financial Services Authority, 2017)
Profitability (Moderating)	Return on Assets (<i>ROA</i>): Profit (loss) before tax / Total assets	(Djasuli et al., 2025; Hidayat et al., 2021; Mohapatra et al., 2025; Naeem et al., 2022; Pramudena et al., 2026; Rahman et al., 2023)

Variables	Indicator	Reference
Bank Size (Moderating)	Bank Groups Based on Core Capital (KBMI) 1: Capital < IDR 6 Trillion 2: Capital IDR 6 Trillion < IDR 14 Trillion 3: Capital IDR 14 Trillion < IDR 70 Trillion 4: Capital > IDR 70 Trillion	(Financial Services Authority, 2021)
Variable Control: BOPO	Operating Expenses to Operating Income (BOPO) Operating Expenses / Operating Income	(Albi et al., 2025; Pramudena, 2025)
NPL	Non-Performing Loan: Non-performing loans / Total credit	(Albi et al., 2025; Hussain et al., 2024; Pramudena et al., 2026)

Data analysis

Data analysis was performed using moderating regression analysis (MRA) with panel data. Data analysis was performed using Eviews software with model criteria that meet model feasibility (common effect, fixed effect, or random effect model). The panel data regression model used to test the research hypotheses is as follows:

$$\text{Tobin's } Q = \alpha_{it} + \beta_1 \text{ESG}_{it} + \beta_2 \text{ROA} * \text{ESG}_{it} + \beta_3 \text{Size} * \text{ESG}_{it} + \beta_4 \text{BOPO}_{it} + \beta_5 \text{NPL}_{it} + \varepsilon_{it}$$

The selection of a panel data regression model in this study aimed to determine the most appropriate estimation approach to explain the relationship between ESG variables and the interaction of profitability and bank size with firm value. The model selection procedure was carried out in stages using the Chow test, Hausman test, and α -test Lagrange multiplier (LM), as recommended in the panel data econometric literature (Gujarati and Porter, 2009; Baltagi, 2021). This study considers the potential for endogeneity due to the possible simultaneous relationship between ESG disclosure, profitability (ROA), and firm value (Tobin's Q), as well as omitted variable bias from unobserved factors, such as management quality and business strategy. To minimize this bias, the fixed effects model (FEM) was selected based on the Chow and Hausman tests because it can control for fixed heterogeneity within each bank, thus producing more consistent estimates (Baltagi, 2021). However, the FEM does not fully address the issue of reverse causality and dynamic relationships between variables; therefore, the results are interpreted as associative relationships controlled for fixed company characteristics. To test the robustness of the results, this study compares the FEM estimation results with the common effects model (CEM) and the random effects model (REM), which show a consistent direction and significance of the coefficients, thereby increasing the reliability of the research findings.

FINDINGS AND DISCUSSION

Descriptive Analysis

As shown in Table 2, the average Tobin's Q is 2.76, with a range of 0.77 to 26.12 and a standard deviation of 4.92, indicating high variation across banks. A mean value above 1 indicates that banks are generally positively valued by the market (market value > asset replacement value); however, a large standard deviation (greater than the mean) reflects significant valuation heterogeneity due to differences in size, profitability, and risk exposure. The average ESG score is 0.38, with a range of 0.12 to 0.76 and a standard deviation of 0.18, reflecting a relatively low and

homogeneous level of ESG disclosure in conventional banking. A mean value below one indicates that most banks are still in the early stages of SASB-based ESG disclosure, with moderate variation consistent with differences in reporting capacity across banks.

Table 2. Analysis of Research Variable Description

VARIABLES	MIN	MAX	MEAN	ST. DEVIATION
TOBIN'S Q	0.77	26.12	2.76	4.92
ESG	0.12	0.76	0.38	0.18
ROA	-13.60	6.19	0.60	3.91
KBMI	1	4.00	2.18	1.21
BOPO	34.13	428.40	100.25	67.97
NPL	0	4.95	1.11	1.29

Source: Author's calculation, 2026

The average ROA was 0.60%, with a range of -13.6% to 6.19% and a standard deviation of 3.91%, indicating low overall profitability but with high disparity. Some banks experienced losses (negative ROA), while others achieved a high level of profit. The large standard deviation reflects sensitivity to the 2020–2023 macroeconomic conditions (pandemic and recovery). The average KBMI was 2.18, with a range of 1 to 4 and a standard deviation of 1.21, indicating the dominance of mid-sized banks (KBMI 2) in the sample. The distribution skewed towards the middle reflects the Indonesian banking structure, which is still dominated by banks in KBMI 2 and 3, with a few super-large banks (KBMI 4).

The BOPO control variable has an average of 100.25%, with a range of 34.13% to 428.4%, and a standard deviation of 67.97%, indicating poor overall operational efficiency (average >100%). The extreme variation (max 428%) indicates the presence of banks with severe inefficiencies, potentially depressing profitability and valuation. The average NPL of 1.11%, with a range of 0% to 4.95%, and a standard deviation of 1.29%, reflects relatively good asset quality but with disparities. An average NPL below 2% is consistent with OJK standards; however, the high standard deviation reflects the vulnerability of some banks to credit risk during the economic recovery period.

The ESG disclosure score based on the Sustainability Accounting Standards Board (SASB) for conventional banks for the period 2020–2023 is presented in Table 3.

Table 3. ESG Disclosure Analysis (SASB) 2020-2023

Item	Code	Mean	% ESG Disclosure
1	FN-CB-000.A	0.4861	48.61%
2	FN-CB-000.B	0.7500	75.00%
3	FN-CB-230a.1	0.6528	65.28%
4	FN-CB-230a.2	0.8889	88.89%
5	FN-CB-240a.1	0.7778	77.78%
6	FN-CB-240a.2	0.7222	72.22%
7	FN-CB-240a.3	0.4167	41.67%
8	FN-CB-240a.4	0.7639	76.39%
9	FN-CB-410a.1	0.4861	48.61%
10	FN-CB-410a.2	0.8611	86.11%
11	FN-CB-410b.1	0.0833	8.33%
12	FN-CB-410b.2	0.1806	18.06%

Item	Code	Mean	% ESG Disclosure
13	FN-CB-410b.3	0.0556	5.56%
14	FN-CB-410b.4	0.0556	5.56%
15	FN-CB-510a.1	0.6528	65.28%
16	FN-CB-510a.2	0.8056	80.56%
17	FN-CB-550a.1	0.0972	9.72%
18	FN-CB-550a.2	0.7639	76.39%

Source: Author's calculation, 2026

ESG disclosures based on SASB indicators for conventional banks on the IDX for the 2020–2023 period show varying levels of disclosure across items, with an average disclosure ranging from 5.56% to 88.89%. High disclosure levels for some items reflect banks' commitment to transparency on material issues, such as data security and financial inclusion, whereas low disclosure levels for financed emissions indicate challenges in measuring and reporting climate risk.

Data Security (FN-CB-230a & 240a): Item FN-CB-230a.1 (number of data breaches) had a mean disclosure of 65.28%, indicating that banks are sufficiently transparent in reporting data security incidents, which is crucial for managing reputational and litigation risks resulting from customer privacy breaches. FN-CB-230a.2 (percentage of breaches involving PII and number of affected accounts) reached 88.89%, the highest level, indicating robust reporting practices for the most financially sensitive aspects of personal identity. FN-CB-240a.1 (problem loans for MSME/community inclusion programs) was 77.78%, FN-CB-240a.2 (free checking accounts for the unbanked/underbanked) was 72.22%, and FN-CB-240a.4 (description of inclusion approach) was 76.39 %, reflecting the bank's focus on financial inclusion as a driver of sustainable growth, although FN-CB-240a.3 (free checking accounts) was only 41.67%, indicating a lack of adoption of no-cost services.

Systemic risk and ESG integration (FN-CB-410a/b), FN-CB-410a.1 (loans/investments with ESG integration by industry), and FN-CB-410a.2 (total score) were 48.61% and 86.11%, respectively, with the latter being high because of the ease of aggregate reporting, while the former was low because of the complexity of disaggregating ESG-risk industries. The financed emissions were very low: FN-CB-410b.1 (absolute Scope 1-3) 8.33%, FN-CB-410b.2 (calculation methodology) 18.06%, FN-CB-410b.3 (GHG intensity of credit portfolio) 5.56%, and FN-CB-410b.4 (methodology description) 5.56%, illustrating the limitations of data and methodologies in Indonesian banks to measure financed emissions, a material topic for the climate transition.

Activity Metrics & Risk Management, FN-CB-000.A ((1) number and (2) value of personal/small business checking/deposit savings) at 48.61%, indicates moderate disclosure of basic activity metrics reflecting the bank's core customer base. FN-CB-000.B (number and value of personal/small business/corporate loans) at 75.00%, is quite high as a key credit portfolio indicator that impacts profitability. FN-CB-510a.1 (monetary losses due to business ethics, such as fraud) at 65.28% and FN-CB-510a.2 (description of whistleblower policy) at 80.56% are relatively good, highlighting ethical risk management. However, FN-CB-550a.1 (G-SIB score) and FN-CB-550a.2 (stress testing approach) were 9.72% and 76.39%, respectively, with the former being low due to the small number of Indonesian banks included in G-SIBs, while the latter was more transparent.

Hypothesis Testing

The Chow test is used to determine whether a panel data model is more appropriately estimated using CEM or FEM. This test assesses whether differences in characteristics between

firms in panel data are significant enough to be explicitly modeled as fixed effects. Baltagi (2021) explains that the Chow test is used to test the suitability of a fixed effects model compared to a combined model (pooled/common effect), especially when there is suspicion of individual heterogeneity that cannot be ignored. The decision-making criteria in the Chow test are based on the probability value of the test statistic. If the probability cross-section is > 0.05 , the selected model is CEM; if the probability cross-section is < 0.05 , the selected model is FEM.

The Hausman test is used to determine whether a panel data regression model is more appropriately estimated using the FEM or REM. This test assesses the presence or absence of a correlation between unobserved individual effects and the independent variables in the model. Gujarati and Porter (2009) and Baltagi (2021) explain that the Hausman test is the primary procedure for selecting a panel model when both the FEM and REM are statistically sound. The decision-making criteria in the Hausman test are based on statistical probability values. Chi-square. If the probability Chi-square > 0.05 , the selected model is the REM; if the probability Chi-square < 0.05 , the selected model is the FEM.

Based on a series of model selection tests, the Chow and Hausman tests indicate that the FEM is the most appropriate estimation model; therefore, the LM test is not necessary because the selected model is the FEM model. The Chow and Hausman tests reject the use of the CEM and REM. Therefore, FEM was chosen as the final model because it can accommodate fixed unobserved heterogeneity and produce an econometrically consistent estimator.

Table 4. Test Results Model Data Panel

Test	Test Type	Statistics	d.f.	Prob.	Results
Chow	Cross-section F	2.9341	(17.49)	0.0017	FEM
	Cross-section Chi-square	50.5501	17	0.0000	FEM
Hausman	Cross-section random	16,0011	5	0.0068	FEM

Source: EViews data processing results, 2026

Based on a series of model selection tests, the Chow and Hausman tests indicate that the FEM is the most appropriate estimation model; therefore, the LM test is not necessary because the selected model is the FEM model. The Chow and Hausman tests reject the use of the CEM and REM. Therefore, FEM was chosen as the final model because it can accommodate fixed unobserved heterogeneity and produce an econometrically consistent estimator.

Table 5. Moderating Regression Analysis (Research Model)

Variables	Prediction	Coefficient	t-Statistic	P-Value	Results
C		6.822034	2.216385	0.0313	
ESG	+	12.78507	1.197172	0.2370	Rejected
ROA*ESG	+	3.470306	3.698841	0.0005	Accepted***
SIZE*ESG	-	-13.06752	-2.790836	0.0075	Accepted***
BOPO	+	0.037290	2.487096	0.0163	
NPL	-	-1.143482	-1.381905	0.1733	
R-squared		0.644702			
Adj. R-squared		0.485180			
F-statistic		4.041472			
Prob(F-statistic)		0.000024			

Notes: ***Significant @1%, ** Significant @5%, * Significant @10%

Source: EViews data processing results, 2026

Based on the results of the hypothesis testing in Table 5, ESG disclosure has a positive value but does not have a direct significant effect on firm value, with a regression coefficient (β) of 12.7851, a t-statistic of 1.1972, and a probability of 0.237. However, profitability can moderate the effect of ESG disclosure on firm value, with a positive regression coefficient (β) of 3.4703, a t-statistic of 3.6988, and a probability of 0.0005 significant at the 1% significance level. This indicates that company profitability can strengthen the influence of ESG disclosure on the value of banking firms. The results of the hypothesis testing of bank size through the classification value of commercial banks based on core capital (KBMI) show that bank size negatively moderates the influence of ESG on firm value, with a regression coefficient (β) of -13.0675, a t-statistic of -2.79084, and a probability of 0.0075 significant at a significance level of 1%.

This research model can be considered robust because the results of the hypothesis testing in the CEM, FEM, and REM models are consistent, as shown in Table 3.

Table 6. Robust Research Model

Variables	Fixed Effect Model			Common Effect Model			Random Effect Model		
	Coeff.	t-Statistic	P-Value	Coeff.	t-Statistic	P-Value	Coeff.	t-Statistic	P-Value
C	6.8220	2.2164	0.0313	0.8479	-0.3759	0.7082	0.4342	0.2015	0.8409
ESG	12.7851	1.1972	0.2370	5.2379	0.7634	0.4479	3.4564	0.5104	0.6115
ROA*ESG	3.4703	3.6988	0.0005	2.2995	2.5926	0.0117	2.5464	3.1300	0.0026
SIZE*ESG	-13.068	-2.7908	0.0075	3.1282	-2.330	0.0229	-3.3009	-2.3452	0.0220
BOPO	0.0373	2.4871	0.0163	0.0498	3.3611	0.0013	0.0432	3.2172	0.0020
NPL	-1.1434	-1.3819	0.1733	1.1475	-2.7961	0.0068	-1.0527	-2.3269	0.0231
R-squared	0.644702		0.28302				0.222086		
Adj. R ²	0.485180		0.22871				0.163153		
F-statistic	4.041472		5.21066				3.768448		
Prob(Fstat)	0.000024***		0.000432***				0.004614***		

Description: ***Significant @1%, ** Significant @5%, * Significant @10%

Source: EViews data processing results, 2026

The t-statistics and p-values of the ESG influence in the FEM, CEM, and REM models are similar, with ESG having no significant effect on firm value (see Table 6). Similarly, the interaction between profitability and bank size with ESG significantly impacts firm value in all three models, concluding that this research model is robust.

Discussion

The Impact of ESG Disclosure on Firm Value

The finding that SASB-based ESG disclosure has no significant effect on Tobin's Q indicates that the market does not view ESG disclosure as sufficiently strong (value-relevant) information to alter bank valuations; thus, ESG disclosure plays a greater role in fulfilling expectations or legitimizing rather than driving a firm value premium. In signaling theory, this condition makes sense when investors consider "disclosure" to be insufficiently convincing without evidence of material action or implementation, especially since Tobin's Q is a market-based valuation measure that is highly sensitive to growth and risk expectations. This finding is consistent with [Djasuli et al. \(2025\)](#), who examined the effect of ESG on firm value in the Indonesian banking sector and found

that ESG disclosure does not significantly affect market valuation as measured by Tobin's Q. Their findings indicate that sustainability practices improve internal financial results but have a limited impact on investor perceptions. A similar finding is supported by [Wulaningrat et al. \(2025\)](#), who show that ESG disclosure has no significant effect on the value of high-risk companies in Indonesia. In addition, [Marpaung et al. \(2025\)](#) found that ESG disclosure was not directly significant to bank firm value, except through the mediation of risk governance, supporting legitimacy theory's argument that disclosure serves more as a means of fulfilling regulatory expectations under POJK 51/2017 ([Financial Services Authority, 2017](#)) than as a driver of economic value in the early stages of adoption. Evidence across emerging markets also suggests that ESG disclosure is often insignificant in relation to Tobin's Q due to immature reporting quality and a lack of standardization, even though disclosure should theoretically increase transparency and reduce the cost of capital.

The insignificant results of ESG on Tobin's Q can also be explained by the characteristics of Indonesian banks' ESG disclosures, which are still dominated by social aspects compared to environmental and systemic risk aspects. Based on the SASB indicator analysis, the components with the highest levels of disclosure are data security (FN-CB-230a.1) and financial inclusion (FN-CB-240a.1), while the financial emissions (FN-CB-410b) and systemic risk management (FN-CB-550a) indicators have relatively low levels of disclosure. This finding indicates that the majority of banks still focus on social aspects that are relatively close to operational activities and regulatory compliance, while disclosures related to climate risk, financial emissions, and systemic risk are still limited. From an investor perspective, information on financial inclusion and data security tends to be viewed as operational practices that have become baseline expectations, and therefore are not strong enough to generate a significant market valuation premium. In contrast, financial emissions, ESG integration in credit analysis, and systemic risk management are more strategic indicators because they are directly related to the bank's long-term risk exposure. The low level of disclosure on these aspects may explain why ESG as a whole has not been able to significantly improve Tobin's Q in the sample of conventional Indonesian banks.

The Role of Bank Profitability in Moderating the Effect of ESG Disclosure on Firm Value

Although ESG disclosure does not significantly impact firm value, profitability (ROA) can strengthen the influence of ESG disclosure on firm value (Tobin's Q) in conventional banks. This result is relevant to slack-resources theory, which states that profitability creates resource leeway to implement ESG substantively, thereby increasing the credibility of disclosure and making it value-relevant for investors. Signaling theory complements this by stating that a high ROA reduces market skepticism towards disclosure as cheap talk, turning it into a real commitment signal reflected in a valuation premium. This finding is consistent with [Tansil and Tangke \(2025\)](#), who state that profitability strengthens the influence of environmental, social, and governance (ESG) disclosures on firm value by acting as a quasi-moderator. In the context of conventional banking, the 2020–2023 period was marked by regulatory pressure from the Financial Services Authority (OJK) (POJK 51/2017), which encouraged disclosure, but without strong profitability support, disclosure was considered cheap talk because the cost of implementing ESG is high and the benefits are long-term. ([Sekimoto & Amran, 2025](#)) support that slack resources mediate the relationship between proactive ESG and firm value through disclosure quality, strengthening the argument that profitability is a prerequisite for ESG effectiveness. Therefore, the results of this study confirm that ESG disclosure in Indonesian banks is not yet an independent driver of Tobin's Q but rather relies on profitability conditions to become a signal that is valued by the market. In conventional banking, a low ROA (0.63%) explains why disclosure has not been value-relevant, in line with OJK regulatory pressure that encourages reporting without strong sanctions on quality.

Although the results of this study indicate that the interaction between ESG and ROA has a significant positive effect on firm value, there is a possibility of endogeneity stemming from profitability in the previous period. Theoretically, banks with high ROA in the previous year tend to have greater resource capacity to make ESG investments, improve the quality of sustainability disclosure, and simultaneously achieve better market valuations in the subsequent period. This condition can cause the relationship between ESG, ROA, and firm value to be dynamic. The FEM model used in this study has controlled for the fixed characteristics of each bank, but has not explicitly included lagged ROA variables or a dynamic panel approach. Therefore, if lagged ROA or a dynamic panel estimator such as the Generalized Method of Moments (GMM) is used, it is likely that the ROA moderation coefficient will be more conservative because some of the influence currently captured by the ESG and ROA interaction variable may originate from the persistence of profitability between periods. Thus, the results of this study indicate that profitability strengthens the relationship between ESG and firm value, but the magnitude of this influence still needs to be further tested using a dynamic panel approach in future research.

The Role of Bank Size in Moderating the Effect of ESG Disclosure on Firm Value

The results of the hypothesis testing indicate that bank size (KBMI) significantly and negatively moderates the effect of ESG disclosure on firm value in conventional commercial banks in Indonesia. The negative moderation of bank size (KBMI 1–4) on the effect of ESG on Tobin's Q indicates that the higher the KBMI classification (the larger the bank based on core capital), the smaller (weaker) the effect of ESG on firm value, and even potentially reversing direction at high KBMI if the conditional effect becomes negative. Conceptually, this is consistent with perspective-diminishing signaling value. In large banks, stakeholder expectations regarding governance and sustainability practices are already high; therefore, additional ESG improvements are no longer a novel or unique signal to the market. This contrasts with small-to-medium banks, where ESG can be a differentiator in reputation and credibility. This empirical evidence is relevant to the study. (Heubeck & Ahrens, 2025) which found initial support for a positive effect of excess resources on ESG.

However, further analysis revealed that excess resources become detrimental to ESG after an economically relevant threshold, suggesting an inverted U-shaped effect of excess resources (Lanjaryanto & Riwayati, 2025) that strengthens the perspective-diminishing signaling value, where the three partial ESG test results with firm size interactions do not have a significant effect on firm value in the banking sector in Indonesia. This shows that the added value of ESG is highly dependent on context and incremental information. As the market accepts ESG in large entities, the valuation premium may shrink. Furthermore, recent evidence also emphasizes the heterogeneity/context dependence in the relationship between ESG and firm value, making it plausible that bank size (KBMI) acts as a contextual factor that alters the strength of this relationship. In the Indonesian context, KBMI divides banks into four core capital groups (KBMI 1 to KBMI 4) with a threshold that increases sharply to >IDR 70 trillion in KBMI 4. Therefore, the increase in KBMI represents a leap in scale, complexity, and public exposure that can make the market more sensitive to the trade-offs of ESG implementation costs, reputational risk, and potential skepticism over disclosure quality, ultimately suppressing ESG's contribution to Tobin's Q in very large banks (Financial Services Authority, 2021; Wong et al., 2021; Xiao et al., 2025)

This empirical evidence provides practical implications, where bank managers should prioritize ROA recovery (>1%) as the foundation of ESG by allocating 5–10% of profits to green tech/SASB data assurance, integrating ESG scoring into the credit risk model for financed emissions (Scope 3), and targeting banks with strong ROA for leadership in green financing (green KUR, green bonds) for competitive differentiation and attracting foreign direct investment (FDI). This strategy

transforms disclosure into a Tobin's Q driver, in line with the OJK's recommendations for the Phase II sustainable finance roadmap, which can strengthen POJK 51/2017 with mandatory SASB assurance and relaxation incentives for banks with ROA >1% of integrating ESG into underwriting. Target Scope 3 emissions disclosure for KBMI 3–4, starting in 2026, with collaborative capacity building. The OJK should encourage banks with good financial performance to be more proactive in implementing and disclosing their sustainability policies, which will have a positive impact on the market and the bank's reputation.

The novelty of this research lies in the use of SASB FN-CB granular for conventional Indonesian banks and reveals the weaknesses of Scope 3 versus the strengths of social metrics, moderation LONG, which strengthens ESG against Tobin's Q, even though the main effect is not significant (according to slack resources theory). The results of this study can be generalized to developing countries with early stages of sustainable finance regulation, such as emerging markets in ASEAN. ESG disclosure based on global standards, such as SASB, is not yet independent as a driver of market value (Tobin's Q) in conventional banking but rather relies on profitability (ROA) as a prerequisite for credibility through a slack resources mechanism, while institutional size (KBMI) is not significant because of the homogeneous regulatory baseline. This generalization is relevant for banks in countries with dualistic structures (dominant medium-sized banks) and low disclosure challenges (score <0.70), where the policy focus should be on assurance and ROA recovery to activate the ESG premium.

CONCLUSIONS

This study concludes that SASB-based ESG disclosure has not had a significant direct impact on firm value (Tobin's Q) in conventional commercial banks. However, profitability (ROA) significantly strengthens the relationship between ESG disclosure and firm value. This is consistent with slack-resources theory, in which a high ROA increases the credibility of disclosure, while KBMI significantly negatively moderates the effect of ESG disclosure. This is consistent with the perspective of diminishing signaling value in large banks, as stakeholder expectations for governance and sustainability practices are already high; therefore, additional ESG improvements are no longer a novel or unique signal to the market. This contrasts with small and medium-sized banks, where ESG can be a differentiator in reputation and credibility. The analysis of SASB metrics confirms compliance-driven disclosures, with strengths in social inclusion but weaknesses in environmental/systemic risk, reflecting the early stages of sustainable banking adoption.

This study recommends that bank managers prioritize ROA >1% as an ESG prerequisite, with a 5% profit allocation for SASB assurance and green underwriting, and focus on Scope 3 emissions for differentiation, regardless of bank classification (KBMI). The Financial Services Authority (OJK) must strengthen POJK 51/2017 with mandatory verification and incentives for the Macroprudential Inclusive Financing Ratio (RPIM). For profitable banks, the KBMI target is 3–4 for full SASB disclosure by 2026.

LIMITATION & FURTHER RESEARCH

This study has methodological limitations related to potential endogeneity. Although the fixed effect model (FEM) can control for unobserved heterogeneity inherent in each bank, this approach does not fully address the possibility of reverse causality and the dynamic relationship between ESG disclosure, profitability, and firm value. Therefore, future research should use lagged ESG variables or lagged ROA to more accurately evaluate the dynamic relationship between variables. Future research can also apply the Dynamic Panel Generalized Method of Moments approach to reduce potential endogeneity bias and obtain stronger causal estimates. A limitation of this study is that it does not separate ESG aspects because testing was conducted comprehensively

for all SASB indicators in examining the effect of ESG on firm value. Therefore, future research is expected to examine ESG aspects separately to determine which ESG aspect is dominant. This study is also limited to conventional banks listed on the IDX; therefore, generalization to Islamic or non-listed banks is limited. Further research can include a wider sample of banks to compare conventional and Islamic banks.

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