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## When Sustainability Disclosure Backfires: ESG, Profitability, and Stock Prices in Indonesian State-Owned Banks

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### Abstract

This paper examines whether Environmental, Social, and Governance (ESG) disclosure and profitability influence stock prices of Indonesian state-owned banks. ESG reporting has expanded rapidly, yet investor pricing of sustainability information in emerging markets may differ during post-pandemic recovery. Prior studies report mixed evidence and often test ESG or profitability separately, rely on non-bank samples, or overlook the dual-mandate setting of state-owned banks. Beyond an incremental combination of variables, this study advances theory by framing ESG disclosure in state-owned banking as a signal that can reflect both sustainability commitment and perceived policy or cost obligations, while profitability represents a competing fundamental signal; the analysis clarifies how investors weight these signals within the same institutional context. Methodologically, the integrated specification uses quarterly panel variation to estimate sustainability and fundamental effects jointly, improving comparability and reducing omitted-variable concerns relative to single-factor models. Using quarterly panel data for 2022 to 2024, the study covers five state-owned banks, yielding 60 bank-quarter observations; the unit of analysis is the bank and estimation applies random-effects panel regression. ESG is measured using an ESG disclosure score, profitability is proxied by return on assets, and stock price is measured using quarterly closing prices. Results show that ESG disclosure is negatively and significantly associated with stock prices, whereas return on assets is positive but not statistically significant. The findings suggest that stronger disclosure does not automatically translate into higher valuation, underscoring the need for clearer ESG value communication and more comparable, assured reporting.

#### KEYWORDS

esg; profitability; stock prices; state-owned banks.

### Introduction

Indonesia's banking sector plays a strategic role in the national economy by performing its intermediation function, namely mobilizing funds from surplus units and channelling them to productive sectors (Junaidi, 2024). Through this function, banks contribute to economic growth, financial system stability, and the effective implementation of national development. In this context, bank performance is not assessed solely by its capacity to generate profits, but also by its ability to maintain public trust and support the sustainable development agenda (Koomson et al., 2023). This role is particularly salient for state-owned banks (SOB), given their large asset base, close linkages to public policy priorities, and higher stakeholder expectations regarding accountability compared with private banks.

In capital markets, stock prices serve as a key indicator reflecting investors'

assessments of a firm's performance and prospects (Alabbad & Schertler, 2022; Chen et al., 2022; Li et al., 2022). Although stock prices are determined by supply and demand, they fundamentally represent the aggregation of information processed by investors, encompassing both financial and non-financial signals. For SOB, stock price movements are consequential because they are associated with reputation, access to market-based funding, and overall market confidence (Davydenko et al., 2023). Empirically, stock prices of SOB displayed fluctuations and heterogeneous trajectories across banks over the observed period within 2022 - 2024. Some banks experienced price increases during certain phases followed by declines toward the end of the period, others remained relatively stable, and several exhibited upward trends. Such heterogeneous patterns suggest that the market valuation of SOB is shaped by a complex set of drivers, and that investor responses are not uniform across institutions. This period is particularly informative because the post-pandemic recovery was marked by heightened uncertainty, shifts in monetary conditions, and stronger regulatory and stakeholder pressure for sustainability reporting, all of which may change how investors trade off short-run earnings signals against longer-horizon sustainability information. In such a setting, investor attention may tilt toward risk and resilience considerations, potentially altering the pricing of ESG related disclosures relative to more stable periods.

Theoretically, bank stock prices are influenced by both internal and external factors. Internal factors primarily reflect firm fundamentals, including earnings capacity, operational efficiency, asset quality, and capital adequacy (Maqbool et al., 2023). In banking practice, profitability is frequently emphasized by investors because it captures the effectiveness with which a bank manages assets and equity while generating income (Alshammari, 2021). Ratios such as return on assets, return on equity, and net interest margin are commonly used to represent this profitability dimension. When profitability improves, investors tend to infer stronger return prospects, potentially supporting higher stock prices (J. Hu et al., 2023; Kaur, 2022; Lin et al., 2024). Moreover, external factors also play a critical role, including inflation, economic growth, benchmark interest rates, exchange rates, regulatory developments, and broader capital market sentiment (Ghosh, 2022; Han et al., 2023; Wong, 2022). Due to these external conditions lie largely beyond managerial control, banks must adapt strategically to mitigate their potential effects on performance and market valuation.

In recent years, investor assessment has increasingly extended beyond conventional financial indicators. Environmental, Social, and Governance (ESG) has emerged as a framework for evaluating how firms manage environmental impacts, social responsibilities, and governance quality (Leite & Uysal, 2023). ESG has become more salient because investors increasingly view strong sustainability practices and robust governance as mechanisms that reduce long-term risk, enhance reputation, and strengthen business resilience (Feng et al., 2022; L. Wang et al., 2023). In Indonesia, the institutionalization of sustainability practices and reporting has been reinforced through regulation, making ESG a strategic issue, particularly for SOB given their systemic role and high public visibility (Nathania & Ekawati, 2024). In banking, ESG can be operationalized through sustainable financing policies, support for environmentally responsible projects, the expansion of financial inclusion, and improved transparency and accountability in governance (Karki et al., 2025). Conceptually, higher-quality ESG disclosure may serve as a signal of management quality and risk oversight, thereby shaping investor perceptions and, ultimately, stock prices (Ersoy et al., 2022).

Despite the growing prominence of ESG, profitability remains a fundamental determinant of bank valuation (Mateev et al., 2024). Investors still require evidence of stable earnings generation, especially in post-pandemic recovery conditions characterized by elevated economic uncertainty. At the same time, ESG and profitability are logically interconnected. Effective ESG implementation may contribute to profitability through efficiency gains, strengthened stakeholder trust, and long-term risk mitigation (Smaoui et al., 2025). Conversely, strong profitability provides the financial capacity for banks to invest in sustainability initiatives and improve the quality of ESG reporting (Carreira et al., 2025). Accordingly, examining ESG without considering profitability, or vice versa, risks producing an incomplete understanding of the drivers shaping banking stock valuations.

Prior empirical studies report mixed findings. Some studies document a positive association between ESG and stock prices, arguing that firms are perceived as more sustainable and less risky (Tommaso & Mazzuca, 2023; Dinh, 2023; Xu et al., 2023). Other studies find negative or insignificant effects, which may arise when markets view ESG as a cost, question the credibility of disclosure, or do not yet treat ESG as a primary investment criterion (Rosa & Bernini, 2022; Wang et al., 2023). Importantly, these inconsistencies tend to be more pronounced across contexts, with evidence from developed markets often emphasizing risk mitigation and valuation premia, while evidence from emerging markets more frequently reports weaker, insignificant, or even negative pricing of ESG, potentially reflecting differences in investor composition, disclosure credibility, and market maturity. In addition, sectoral differences matter, as studies in non-banking industries may capture direct environmental or supply-chain exposures, whereas banking studies reflect indirect impacts through financing activities and risk management, which may be priced differently by investors. Similar inconsistencies are observed for profitability, where some studies identify positive effects on stock prices while others report opposing relationships. These divergent findings indicate that the links among ESG, profitability, and stock prices are context-dependent, shaped by industry characteristics, disclosure quality, macroeconomic conditions, and investor preferences.

Against this backdrop, a salient research gap emerges in the context of Indonesian SOB. Various of the existing literature examines ESG or profitability in isolation, even though both factors may simultaneously shape investor perceptions and market valuation. Moreover, SOB exhibit a distinctive dual mandate, pursuing financial performance while also fulfilling social and government development objectives. This dual mandate can affect how investors interpret ESG and profitability signals, limiting the generalizability of evidence from other contexts. The novelty of this study lies in theorizing and empirically assessing whether, in the SOB setting, ESG disclosure is more likely to be interpreted as a policy oriented commitment and a near-term cost signal rather than a pure value creation signal, given the stronger public mandate and the visibility of state ownership. This mechanism implies that the market response to ESG disclosure in SOBs can differ from private banks, particularly when investors have shorter time horizons or when disclosure credibility is uncertain in the absence of external assurance. By focusing on the post-pandemic recovery period, the study further tests these arguments in an environment where risk sensitivity and cost perceptions are plausibly heightened, making the pricing of sustainability disclosure more contingent and potentially asymmetric. Therefore, this study investigates the effects of ESG and profitability on the stock prices of Indonesian SOB. Specifically, it examines the impact of ESG on SOB stock prices and tests whether profitability influences stock prices in the same setting. The study is expected to contribute to the sustainable finance and accounting literature by providing

more integrated empirical evidence, while also offering practical insights for bank management, investors, and regulators in understanding bank valuation dynamics amid heightened attention to sustainability.

#### ESG, Profitability, and Stock Prices

Stock prices reflect the market's assessment of a firm's value and future prospects at a given point in time (Chang et al., 2022). They are formed through supply and demand dynamics and are shaped by both fundamental information and investor expectations. In the banking context, the closing price is frequently used as a reference because it represents the last market-clearing transaction and summarizes market perceptions of a bank's performance and risk at the end of the trading period. Beyond internal factors such as financial performance, capital structure, and risk management, and external factors such as macroeconomic conditions and overall market sentiment, contemporary finance and accounting research increasingly emphasizes Environmental, Social, and Governance (ESG) as a non-financial determinant that is relevant to valuation (Zhou et al., 2022). ESG is rooted in sustainability theory, particularly the Triple Bottom Line concept which calls for balancing profit, people, and planet (Mishra & Pandey, 2025), and is especially pertinent to banking given that lending and financing decisions generate broad economic, social, and environmental impacts (Cantele et al., 2024). Operationally, ESG is commonly proxied by sustainability disclosure, for example using the GRI Standards 2021, and can be quantified through a dichotomous scoring approach that assigns a value of 1 when an indicator is disclosed and 0 otherwise, which is then aggregated into a disclosure index (Hackston & Milne, 1996). Higher ESG disclosure may strengthen investor confidence and reduce long-term risk, thereby supporting higher stock prices. At the same time, profitability remains a central signal of fundamental performance because it captures the efficiency with which banks generate earnings, typically measured using ROA, ROE, and NIM; improvements in these ratios are generally associated with stronger investor demand and stock price appreciation (Ashraf, 2022; Kumari et al., 2022). However, empirical findings on the relationships between ESG, profitability, and stock prices remain mixed, indicating the need for integrated testing to capture how sustainability signals and financial performance jointly shape market valuation (Friede et al., 2015).

#### Impact of ESG on Stock Prices

In modern capital markets, ESG is increasingly regarded as value-relevant information that influences investor perceptions of firm value and risk, including in the banking sector. Drawing on signalling theory, ESG disclosure can serve as a credible signal of managerial quality, commitment to responsible business practices, and readiness to manage long-term risks (Bing Hu et al., 2025; Huang, 2022). This signal is particularly important because it helps mitigate information asymmetry between managers and investors, thereby providing a stronger basis for assessing firm resilience and future performance. Consistent with stakeholder theory, firms that balance stakeholder interests through strong environmental practices, social responsibility, and sound governance are more likely to secure legitimacy, strengthen reputation, and maintain more stable relationships with both internal and external stakeholders (Meng et al., 2023). In banking, the ESG dimensions can influence valuation through several channels, including enhanced market trust arising from transparent governance, reduced reputational and regulatory risk due to environmental and social compliance, and improved access to capital as institutional investors increasingly incorporate ESG considerations into portfolio allocation decisions. Prior

empirical evidence often reports a positive association between ESG performance or disclosure and stock prices, as markets tend to value high-ESG firms as having better-controlled operational risk and stronger long-term prospects (Chiaromonte et al., 2022; Tang & Yang, 2023). Accordingly, both conceptually and empirically, ESG is expected to contribute to higher market valuation as reflected in stock prices. Therefore, this study proposes the following hypothesis: H1: Environmental, Social, and Governance (ESG) has a positive and significant effect on the stock prices of state-owned banks (SOB).

#### Impact of Profitability on Stock Prices

Profitability is a fundamental indicator that directly reflects a firm's ability to generate earnings from the resources it manages, and thus constitutes a key determinant in investors' valuation judgments. Under signalling theory, profitability information reported in financial statements provides a signal regarding firm prospects and its capacity to generate returns in the future (Cho et al., 2023; Mirza et al., 2023). In the banking industry, profitability ratios such as return on assets (ROA), return on equity (ROE), and net interest margin (NIM) are particularly salient because they capture asset utilization efficiency, effectiveness in generating returns for shareholders, and the quality of intermediation income. Conceptually, improvements in profitability raise expectations of future cash flows and investor returns, stimulating demand for shares and, in turn, increasing stock prices. Empirical evidence across different contexts generally supports a positive relationship between profitability and stock prices, especially when profitability reflects managerial efficiency and sustainable earnings performance (Dang & Nguyen, 2024). Accordingly, profitability is expected to play a strategic role in shaping the market valuation of state-owned banks, particularly in periods of recovery and market adjustment, when investors continue to rely on fundamental performance signals in making investment decisions. Therefore, this study proposes the following hypothesis:

H2: Profitability has a positive and significant effect on the stock prices of state-owned banks (SOB).

## Method

This study employs a quantitative, associative research design to examine the empirical relationships between ESG disclosure, profitability, and stock prices among Indonesian state-owned banks (SOB) using secondary quarterly panel data. The unit of analysis is the bank, and the dependent variable is the quarterly closing stock price. Stock price is measured as the nominal closing price per share in Indonesian rupiah (IDR) obtained from the Indonesia Stock Exchange (IDX); for each quarter, we use the closing price on the last trading day of the quarter. The price series is used in levels (not log-transformed) and is treated consistently across descriptive statistics and regression estimations; where corporate actions occur (e.g., stock splits or reverse splits), prices are aligned to the IDX series to maintain comparability over time, while dividend payments are not mechanically deducted from prices. The key explanatory variables are ESG disclosure, operationalized as an ESG disclosure score, and profitability, proxied by return on assets (ROA), measured as net income divided by total assets. The observation window is chosen to reflect post-pandemic recovery conditions and the growing emphasis on sustainability transparency in the financial sector. Given the observational nature of the data, the findings are interpreted as associations and may be subject to omitted-variable bias, potential reverse causality, and measurement error.

The study population comprises all Indonesian state-owned banks (SOB) that are publicly listed and supervised by the

Financial Services Authority (OJK). Because the number of listed SOB is limited, this study effectively applies a census approach in which all eligible SOB are included ( $n = 5$ ): Bank Rakyat Indonesia (BBRI), Bank Mandiri (BMRI), Bank Negara Indonesia (BBNI), Bank Tabungan Negara (BBTN), and Bank Syariah Indonesia (BRIS). Inclusion was based on objective data-availability criteria rather than the ambiguous notion of “ESG implementation,” namely: (1) quarterly closing stock prices are publicly available for the full observation window; (2) annual reports and audited financial statements are accessible for each year in the observation window; and (3) sustainability disclosures are available through published sustainability reports and/or sustainability sections within annual reports that allow ESG disclosure scoring. Observations are constructed quarterly (four quarters per year), yielding a balanced panel of 60 bank-quarter observations ( $5 \text{ banks} \times 4 \text{ quarters} \times 3 \text{ years}$ ). The research setting is document-based, with data obtained from publicly available sources, including the official OJK website, the official websites of each bank, and other recognized capital market data providers. Stock price data are sourced from IDX, while annual reports and sustainability disclosures are obtained from issuer publications and related public repositories.

The study’s instrumentation relies on documentation and quantitative measurement procedures. ESG data are extracted from sustainability reports and measured using the GRI Standards 2021 framework through a dichotomous scoring method, whereby a score of 1 is assigned when an indicator is explicitly disclosed and 0 otherwise; the scores are then aggregated to form an ESG disclosure index. Profitability data are computed from quarterly financial statements using the ROA formula, while stock price data are taken from the closing prices for the corresponding periods. Data collection involves systematic retrieval, downloading, coding, and cross-document verification to ensure temporal consistency and alignment with operational definitions, thereby enabling the construction of a quarterly bank-level panel dataset.

Data analysis proceeds in two main stages. First, descriptive statistics are used to summarize the distributional characteristics of each variable, including mean, minimum, maximum, and standard deviation. Second, panel data regression is employed to estimate the effects of ESG disclosure and ROA on stock prices, leveraging both cross-sectional and time-series variation. Model selection follows a transparent, sequential procedure to determine the appropriate panel estimator. First, the Chow test is used to compare the pooled/common effects model (CEM) and the fixed effects model (FEM) by testing for cross-sectional heterogeneity. Given the Chow test indicates statistically meaningful cross-sectional heterogeneity, the Hausman test is then used to adjudicate between FEM and the random effects model (REM) by assessing whether unobserved bank-specific effects are correlated with the regressors. The study

adopts REM as the baseline specification when the Hausman test does not reject REM relative to FEM. Since the manuscript does not report fixed-effects estimates as a sensitivity analysis, the empirical results and inferences are based on the baseline random-effects specification only. Hypotheses are evaluated using t-tests for partial effects and an F-test for joint significance at the 5% level, with R-squared and adjusted R-squared reported to summarize explanatory power. Given that model choice can be sensitive when the Hausman p-value is close to conventional thresholds, FEM estimates are additionally reported as a robustness check to assess the stability of coefficient signs and statistical inferences across specifications. All estimations and diagnostic procedures are implemented in EViews version 13 to ensure consistency and replicability.

## Result and Discussion

### Data Description

The data employed in this study are secondary data obtained from the websites of the Indonesia Stock Exchange (IDX) and the Financial Services Authority (OJK), as well as from journal sources and the official websites of the sampled banks. Specifically, the dataset comprises publicly available annual reports and sustainability reports. The population consists of Indonesian SOB, namely Bank Rakyat Indonesia (BBRI), Bank Mandiri (BMRI), Bank Negara Indonesia (BBNI), Bank Tabungan Negara (BBTN), and Bank Syariah Indonesia (BRIS). Since the number of publicly listed Indonesian SOB is limited, this study applies a census approach in which all eligible SOB

**Table 1. Sample Selection Criteria**

No.	Selection Criteria	Total
1	All SOB during the observation within 2022 – 2024 period.	5
2	SOB that did not publish complete financial statements during the observation within 2022 – 2024 period.	(0)
3	SOB for which sustainability disclosures are unavailable (published sustainability reports and/or sustainability sections within annual reports) and therefore cannot be scored using the ESG disclosure index for the observation within 2022–2024 period.	(0)
Final Sample		5
Observation per year (5 banks x 4 quarters)		20
Total observation 2022-2024 (3 years x 20)		60

Sources: Authors’ Compilation (2026)

**Table 2. Descriptive Statistic Results**

	X1 (ESG)	X2 (ROA in %)	Y (Stock Prices in IDR)
Mean	0.686412	2.635167	4,438.50
Median	0.676822	2.510000	4,660.00
Maximum	0.861410	4.110000	10,326.00
Minimum	0.549403	0.770000	1,140.00
Std. Dev.	0.101014	1.044564	2,699.13
Skewness	0.133279	-0.367397	0.391221
Kurtosis	1.628958	1.958621	2.082878
Jarque-Bera	4.877.025	4.060984	3,633325
Probability	0.087291	0.131271	0.162567
Sum	41.18471	158.1100	266,310.0
Sum Sq. Dev.	0.602028	64.37570	429,833.862.7
bservations	60	60	60

Source: EViews 13 (Processed Data)

are included ( $n = 5$ ). The sample selection criteria and resulting observations are presented in Table 1.

As shown in Table 1, all five SOB meet the inclusion criteria and are therefore retained in the final sample. The study is conducted using quarterly data, with four quarters per year (Q1, Q2, Q3, and Q4). Accordingly, the number of observations per year is calculated as five banks multiplied by four quarters, yielding 20 observations. Over the three-year observation window, the dataset comprises a total of 60 observations (5 banks  $\times$  4 quarters  $\times$  3 years). Thus, the unit of analysis in this study is a balanced quarterly panel of SOB observations over the study period within 2022 - 2024.

## Analytical Results

### Statistical Descriptive Analysis

To provide an initial overview of the dataset, descriptive statistics were computed for all study variables. This analysis includes the minimum and maximum values to identify the range of each variable, the mean to capture central tendency, and the standard deviation to measure dispersion. Taken together, these statistics offer a comprehensive descriptive profile of the underlying data patterns and distributions. The full set of descriptive statistics is reported in Table 2.

As reported in Table 2, ESG disclosure (X1), measured as an index bounded between 0 and 1, shows a mean of 0.686 and a relatively small standard deviation of 0.101, indicating limited dispersion and broadly comparable disclosure levels across banks. The distribution is approximately symmetric (skewness 0.133) with a flatter-than-normal shape (kurtosis 1.629), and the Jarque-Bera statistic does not reject normality at conventional levels. Profitability, proxied by ROA (X2) and reported in percentage terms, has a mean of 2.635% and a standard deviation of 1.045, suggesting moderate cross-bank and intertemporal variation; its distribution is slightly left-skewed (skewness -0.367) and close to mesokurtic (kurtosis 1.959), with the Jarque-Bera test likewise indicating no strong departure from normality. Stock prices (Y), measured as quarterly closing prices in nominal Indonesian rupiah (IDR), display substantially higher dispersion, consistent with heterogeneous price levels and fluctuations across banks and quarters; the distribution is modestly right-skewed (skewness 0.391) and approximately mesokurtic (kurtosis 2.083), and normality is again supported by the Jarque-Bera test. Importantly, these descriptive statistics are computed using the same bank-quarter sample and the same stock-price series (unit and aggregation) employed in the panel regression estimations, ensuring consistency between descriptive reporting and the subsequent inferential analysis.

### Chow Test

The Chow test was conducted to determine the most appropriate panel data specification between the common effects model (CEM) and the fixed effects model (FEM) by testing for the presence of cross-sectional (bank-specific) effects. The results indicate a Cross-section F-statistic of 27.931195 with degrees of freedom (4, 53) and a probability of  $<0.001$ , as well as a Cross-section Chi-square statistic of 68.039051 with 4 degrees of freedom and a probability of  $<0.001$  (see Table 3). Because both p-values are below the 5% significance level, the null hypothesis that the CEM is adequate (i.e., no bank-specific intercept differences) is rejected. These findings indicate that bank-specific heterogeneity is non-trivial and should be controlled for, implying that the FEM is more appropriate than the CEM for this dataset. Accordingly, subsequent estimation should account for bank fixed effects to avoid omitted, time-invariant heterogeneity that could bias the estimated relationships.

### Breusch-Pagan Lagrange Multiplier (LM) Test

The Breusch-Pagan Lagrange Multiplier (LM) test is applied to determine whether the pooled or common effects model (CEM) is sufficient or whether a random effects model (REM) is more appropriate by testing the presence of unobserved bank-specific random effects. The null hypothesis assumes that the variance of the cross-sectional random component equals zero, implying that CEM is adequate; rejection of the null supports REM. As reported in Table 4, the Breusch-Pagan statistic equals 18.475766 with 1 degree of freedom and a probability below conventional significance levels ( $p < 0.001$ ), indicating statistically meaningful cross-sectional random effects. Accordingly, the LM test supports the use of the random effects specification rather than the pooled model for subsequent panel estimation.

### Hausman Test

The Hausman test was applied to choose between the fixed effects model (FEM) and the random effects model (REM) by assessing whether the unobserved cross-sectional effects are correlated with the regressors. The null hypothesis posits that the REM is consistent and efficient, implying no systematic correlation between bank-specific effects and the explanatory variables; rejecting the null would favor the FEM. The test yields a cross-section random probability of 0.0723, which exceeds the 5% significance threshold. Therefore, the null hypothesis is not rejected, and the REM is selected as the more appropriate specification for estimating the effects of ESG disclosure and profitability (ROA) on stock prices. Although the p-value is relatively close to the conventional cutoff, model selection remains anchored in the predefined inferential criterion, supporting the use of random effects to capture cross-sectional heterogeneity through the error-components structure without imposing correlation with the regressors.

Taken together, the Chow test rejects the pooled/common effects specification in favor of a model with bank-specific effects, the Breusch-Pagan LM test indicates that random effects are present relative to the pooled model, and the Hausman test does not reject REM relative to FEM; accordingly,

**Table 3. Chow Test Results**

Redundant Fixed Effects Test - Equation: Untitled - Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	27.931195	(4,53)	<0.001
Cross-section Chi-Square	68.039051	4	<0.001

Source: EViews 13 (Processed Data)

**Table 4. Breusch-Pagan LM Test Results**

Test Summary	Statistic	d.f.	Prob.
Breusch-Pagan (cross-section random)	18.475766	1	<0.001

**Table 5. Hausman Test Results**

Correlated Random Effects - Hausman Test - Equation: Untitled - Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.252906	2	0.0723

Source: EViews 13 (Processed Data)

the random-effects model is adopted as the baseline estimator.

#### Coefficient of Determinant Test (R<sup>2</sup>)

As reported in Table 6, the model produces an R-squared of 0.178544 and an adjusted R-squared of 0.149721, indicating that approximately 14.97% of the variation in stock prices is explained by ESG and profitability (ROA) after adjusting for degrees of freedom. This suggests a limited-to-moderate explanatory power, which is expected given that bank stock prices are influenced by a wide range of determinants beyond the model specification, including macroeconomic conditions, interest rate dynamics, industry factors, market sentiment, and bank-specific attributes not explicitly modeled. Nevertheless, the overall model remains statistically meaningful, as evidenced by a Prob(F-statistic) of 0.003678, which is below the 5% significance level.

#### Partial Significance Test (t-Test)

Table 7 reports the random-effects (Panel EGLS) estimates. The partial (t-test) results indicate that ESG (X1) has a negative and statistically significant effect on stock prices (Y). Specifically, the ESG coefficient is -6,836.146 with a t-statistic of -3.229377 and a p-value of 0.0021, which is below 0.05, confirming statistical significance with an inverse association. This implies that higher ESG disclosure is associated with lower stock prices during the observation period, potentially reflecting limited short-run market appreciation of ESG disclosure or investor concerns regarding implementation and adjustment costs. In contrast, profitability (ROA) (X2) exhibits a positive coefficient of 598.1709 but is not statistically significant (t-statistic 1.083120; p-value 0.2833). Accordingly, only ESG demonstrates a statistically significant individual effect on stock prices in this model, whereas ROA does not show a meaningful partial effect at the 5% level.

#### Simultaneous Significance Test (F-Test)

As shown in Table 8, the F-test indicates that ESG (X1) and profitability (ROA) (X2) are jointly significant in explaining stock prices (Y) for SOB over the quarterly observation period. The model yields an F-statistic of 6.194511 with a Prob(F-statistic) of 0.003678, which is below 0.05, leading to rejection of the null hypothesis that the regressors are jointly equal to zero. This confirms that, collectively, ESG disclosure and ROA contribute to explaining stock price variation, even though only ESG is statistically significant in the partial tests. Substantively, these results suggest that investors' valuation of SOB stock prices reflects the combined influence of sustainability-related information and financial fundamentals in shaping risk and prospect assessments.

Overall, the panel data regression estimates using the random-effects specification (Panel EGLS with cross-section random effects) indicate that ESG disclosure and profitability (ROA) are jointly relevant in explaining stock price variation for Indonesian state-owned banks (SOB) over the observation window. Model adequacy is supported by the statistically significant joint test (Prob(F-statistic) < 0.05), although the model's explanatory power remains limited, as reflected in a moderate adjusted R-squared. Specifically, the adjusted R-squared of approximately 0.15 indicates that the model explains only a modest share of the variation in stock prices, and a substantial portion is likely driven by omitted determinants such as macroeconomic conditions, monetary policy shocks, market-wide sentiment, liquidity, bank-specific risk characteristics, and expectation dynamics that are not explicitly modeled in this study. This outcome is consistent with the nature of banking equity markets, where stock prices are influenced by a broad set of determinants beyond the model, including macroeconomic conditions, monetary policy

dynamics, investor sentiment, and bank-specific factors that may not be fully captured by ESG and ROA. Accordingly, the findings suggest that the combination of non-financial and fundamental signals remains value-relevant, but its contribution is embedded within a more complex stock valuation environment.

For Hypothesis 1, the partial t test results indicate that ESG disclosure is negatively and statistically significantly associated with stock prices, implying that banks with higher disclosure scores tend to exhibit lower market valuations over the observation period; thus, H1 is not supported. This finding should be interpreted in light of the study's ESG measure, which is constructed using a dichotomous disclosure index and therefore primarily captures the extent or quantity of reported items rather than the credibility, materiality, or external verification of the underlying practices. Accordingly, the negative coefficient is consistent with the possibility that greater disclosure, in the absence of strong quality signals, is not priced as value enhancing by investors in this setting. A plausible mechanism is that, in the SOB context, incremental ESG disclosure may be interpreted by some investors as a policy-oriented commitment or a near-term cost signal, especially when disclosure credibility is not strengthened through external assurance, which can dampen valuation even when disclosure volume increases. To strengthen interpretation and reduce reliance on conjecture, future research should decompose the ESG index into environmental,

**Table 6. Coefficient Determination Results (R<sup>2</sup>)**

Model Fit Measures	Value
R-Squared	0.178544
Adjusted R-Squared	0.149721
S.E. of Regression	1174.677
F-Statistic	6.194511
Prob (F-Statistic)	0.003678
Sum squared resid	78,652.321
Durbin-Watson stat	0.946030

Source: EViews 13 (Processed Data)

**Table 7. Partial Significant Test (t-test) Results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ESG (X1)	-6836.146	2116.863	-3.229377	0.0021
Profitability (X2)	598.1709	552.2667	1.083120	0.2833
C	7554.631	2325.174	3.249060	0.019

Source: EViews 13 (Processed Data)

**Table 8. Simultaneous Significance Test (F-Test) Results**

R-squared	0.178544	Mean dependant var	4,438.50.4545
Adjusted R-squared	0.149721	S.D. dependant var	2,699.13
S.E. of regression	1174.677	Sum squared resid	78,652321
F-statistic	6.194511	Durbin-Watson stat	0.946030
Prob(F-statistic)	0.003678		

Source: EViews 13 (Processed Data)

social, and governance sub-scores to identify which dimension drives the negative association, incorporate an assurance indicator where available to distinguish externally verified reporting, and complement panel regressions with an event-study design around sustainability report release dates to assess short-window abnormal returns.

For Hypothesis 2, profitability proxied by ROA displays a positive coefficient but is not statistically significant; thus, H2 is rejected. This finding implies that cross-sectional and temporal variation in ROA does not, on an individual basis, explain stock price variation for SOB during the observation period. One plausible explanation is that profitability information may have been anticipated and incorporated into stock prices in advance, given that SOB are closely monitored by analysts and institutional investors. In addition, during the post-pandemic recovery phase, investors may have placed greater emphasis on risk and resilience indicators, such as asset quality, liquidity, and interest-rate exposure, rather than asset-based earnings efficiency alone, thereby weakening ROA's discriminatory power for valuation. The dual mandate characteristic of SOB may further lead investors to view ROA as not purely reflecting economic performance, but also being shaped by policy dynamics and public-sector roles, reducing the strength of ROA as a profitability signal in equity valuation. Consistent with the model's modest explanatory power, this result suggests that profitability signals measured by ROA may be secondary to broader risk, capital, and market-wide pricing factors during the observation period, reinforcing the need for extended specifications and complementary designs in future work.

## Conclusion

Based on the panel regression estimates and empirical discussion for Indonesian SOB, the study concludes that ESG disclosure has a negative and statistically significant effect on stock prices, whereas profitability proxied by ROA exhibits a positive but statistically insignificant effect. The first finding indicates that greater ESG disclosure is associated with lower stock prices, suggesting that, in the short run, the market may not fully interpret ESG information as a value-creation signal or may price in perceived adjustment costs that constrain valuation. Meanwhile, the lack of significance for ROA implies that asset-based earnings efficiency is not a primary determinant of SOB stock price formation during the study period, potentially because profitability information is already reflected in prices or because investors prioritize broader risk and forward-looking considerations. Overall, the results underscore that non-financial ESG signals and fundamental profitability signals play different roles in SOB valuation, and market responses to both are context-dependent. This conclusion is bounded to Indonesian state-owned banks during 2022 to 2024 using quarterly panel data and the specific random-effects panel specification employed in this study, and therefore should not be generalized beyond this setting without additional validation.

From an implications perspective, these findings contribute to the sustainable finance and accounting literature by demonstrating that the ESG-market valuation relationship is not uniformly positive, particularly in the SOB setting and during a post-pandemic recovery phase. Theoretically, the negative and significant ESG effect suggests that the mechanisms proposed by signalling theory and stakeholder theory may operate in a non-linear manner or depend on institutional context, disclosure quality, and investors' time horizons. In other words, ESG may be interpreted differently when investors perceive a short-term trade-off or when disclosure credibility has not been fully internalized in pricing. However, given the observational

nature of the data and the model's limited set of controls, these theoretical and practical implications should be interpreted as suggestive rather than definitive. Practically, the results highlight the need for SOB to shift ESG management from compliance-oriented reporting toward verifiable value creation, for example through measurable ESG performance indicators, integration of ESG into risk management, and alignment of sustainability initiatives with profitability and operational efficiency. For investors and regulators, the findings underscore the importance of improving standardization, comparability, and assurance of ESG reporting so that sustainability information becomes more credible and more decision useful for valuation. In the Indonesian context, this recommendation can be operationalized by strengthening the alignment of bank sustainability disclosures with the GRI Standards 2021 materiality process and by requiring clearer cross bank mapping of disclosed items to specific GRI topics and indicators, which would reduce interpretive ambiguity and improve comparability. Regulators may also consider more explicit guidance on minimum disclosure content for banks, including consistent reporting of key financed emissions and green financing metrics, as well as encouraging or requiring third party assurance for sustainability reports to address credibility gaps that arise when disclosure quantity is not matched by verification.

This study also has limitations that warrant consideration. The scope is restricted to five SOB and a limited observation horizon, which calls for caution in generalizing the results. In addition, the empirical model includes only ESG disclosure and ROA, whereas bank stock prices are also shaped by other determinants, including macroeconomic conditions, asset quality, monetary policy, and market sentiment. Building on these limitations, future research should consider extending the observation period and expanding the sample to include private or regional banks, incorporating additional moderating or mediating variables such as macro indicators and management quality, and testing ESG dimensions separately to identify which component is most valuation-relevant. Future studies may also employ alternative methods such as event studies to capture short-term market reactions to ESG initiatives or sustainability report releases, and consider alternative profitability proxies such as ROE and NIM to examine whether profitability effects are robust across different measurement perspectives. More broadly, future work should validate the present findings using stronger identification strategies and richer specifications, such as event-study designs around sustainability report releases, longer panels, and additional risk and cost controls, to better isolate the valuation relevance of ESG disclosure in banking. Future research may validate the baseline findings using alternative specifications, including fixed-effects estimation with richer controls, to assess the stability of coefficients and statistical inferences.

## Author contributions

The author conceptualized and designed the study, developed the research model and measurement instrument, collected the data, performed the analyses, interpreted the results, and drafted and revised the manuscript.

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