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ESG, Intellectual Capital, and Banking Performance: The Moderating Role of CEO Overconfidence

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ABSTRACT	INFO ARTIKEL
The banking sector faces increasing pressure to adopt Environmental, Social, and Governance (ESG) practices, while evidence regarding their effects on banking performance remains inconsistent. Previous studies have generally examined ESG, intellectual capital, and CEO characteristics separately, leaving limited evidence on their integrated effects, particularly in emerging markets. This study examines the effects of ESG and intellectual capital on banking performance, with CEO overconfidence as a moderating variable. Using panel data regression, this study analyzes 29 banks in Indonesia and Malaysia during 2018–2024. The results show that ESG has a significant negative effect on banking performance, while intellectual capital has a positive effect, primarily through structural and physical capital. Human capital has no significant effect. Furthermore, CEO overconfidence strengthens the negative effect of ESG on banking performance. These findings highlight the trade-off between ESG and short-term profitability and the importance of intellectual capital and CEO characteristics in banking performance.	Article History: <i>Submitted/Received 09 June 2026</i> <i>First Revised 18 June 2026</i> <i>Accepted 03 July 2026</i> <i>First Available online 17 July 2026</i> <i>Publication Date 25 August 2026</i> Keyword: Banking Performance; CEO Overconfidence; Environmental, Social, and Governance; Intellectual Capital
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1. INTRODUCTION

The banking sector has increasingly emphasized the implementation of Environmental, Social, and Governance (ESG) principles in recent years. The integration of ESG principles within the banking sector contributes significantly to long-term economic sustainability (Zahid et al., 2023). In Indonesia and Malaysia, financial institutions and listed companies are required to disclose ESG-related information under Financial Services Authority Regulation (POJK) No. 51/POJK.03/2017 and Bursa Malaysia's Sustainability Reporting Requirements, respectively. However, findings from earlier empirical research on the relationship between ESG and banking performance have been inconsistent (Zairin et al., 2025).

ESG-related activities in Southeast Asia vary across enterprises, reflecting differences in ESG development and implementation. These differences may be influenced by variations in banking market conditions, corporate strategies, and operational effectiveness, which can affect banking performance (Kweh et al., 2024). Such factors may influence banks' ability to integrate ESG principles into their business strategies. Effective ESG integration may determine whether ESG initiatives generate long-term value and improve banking performance (Kwong et al., 2026). Figure 1 presents a comparison of ESG performance across ASEAN countries using Refinitiv ESG scores.

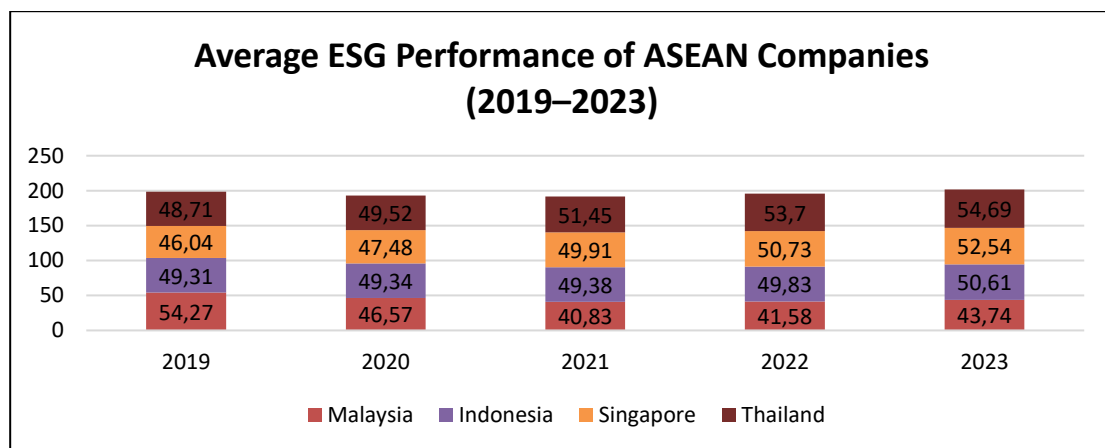


Figure 1. Research Phenomenon

Source: Company level ESG data cleaned from the Refinitiv Eikon Datastream System (2019–2023).

Based on data from Refinitiv Eikon Datastream, ESG performance among ASEAN banks varied during 2019–2023: Thailand and Singapore showed a consistent upward trend, Malaysia fluctuated after an initial decline, and Indonesia remained relatively stable with a modest increase (Ahmad et al., 2025). These findings suggest that the implementation of ESG practices differs across ASEAN countries despite sustainability-related regulations (Siregar & Chalid, 2026). However, banking performance may also be influenced by organizational factors, including CEO overconfidence and Intellectual Capital (IC). Despite growing research, limited evidence explains how ESG, IC, and CEO overconfidence jointly influence banking performance, particularly in emerging economies.

Corporate long-term objectives emphasize business sustainability and long-term benefits for stakeholders (Brogi & Lagasio, 2018). Similarly, Gaol et al. (2021) argue that effective ESG implementation can strengthen corporate growth and improve financial performance. However, ESG implementation increases operating costs and reduces efficiency (Lassoued et

al., 2026). These differences suggest that institutional and market conditions may shape the financial effects of ESG implementation, contributing to conflicting evidence on the relationship between ESG implementation and banking performance (Friede et al., 2015).

ESG implementation is receiving increasing attention in the financial sector (Fakhrunnas et al., 2025). The effectiveness of ESG in improving banking performance may depend not only on its implementation but also on CEO characteristics that shape strategic and managerial decisions (Jarraya & Boujelbene, 2025). As the primary decision-maker, the CEO influences banking performance through strategic resource allocation and financial decision-making (Ejigu & Desalegn, 2023). CEO overconfidence influences a company's risk preferences and financial decisions, which can affect corporate performance and value (Yani & Sitorus, 2025). Moreover, CEO overconfidence may alter the extent to which ESG implementation improves financial performance by shaping managerial decision-making (Wang et al., 2023).

Overconfident CEOs harbor excessive optimism regarding the prospects of the companies they manage, which can lead to bold and risky strategic decisions (Sun & Li, 2026). In the banking context, this behavior is reflected in credit expansion and high risk-taking (Ho et al., 2016). Because CEO psychological biases are difficult to measure directly, previous research has used strategic decisions and financial policies as proxies for CEO overconfidence, particularly those related to credit expansion and interest margin management (Jarraya & Boujelbene, 2025). Therefore, this study uses Growth Rate (GR) as a proxy for credit expansion and Net Interest Margin (NIM) to measure interest margin management.

Although CEO overconfidence affects strategic decision-making, its contribution to banking performance may be strengthened by internal resources, particularly IC (Toksoz et al., 2025). IC is a strategic asset that aids companies in generating value and achieving their objectives, comprising Human Capital (HC), Structural Capital (SC), and Physical Capital (PC) (Setyaningrum et al., 2025). One essential element of IC that promotes the creation of long-term competitive advantage is HC (Rachman et al., 2022). Furthermore, SC supported by technology and operational systems can aid in adapting to technological advancements (Oktafiani et al., 2022). Meanwhile, PC contributes to bank productivity by enabling the efficient utilization of organizational assets (Asutay & Ubaidillah, 2024).

This study examines the effects of ESG and IC on banking performance and the role of CEO overconfidence in the ESG–banking performance relationship. It builds on the study by Jarraya & Boujelbene (2025), who examined CSR, CEO behavior, and banking performance among banks in the United States and Europe during 2013–2021. However, their study provided limited insight into managerial factors affecting ESG effectiveness and the role of internal resources in enhancing banking performance in developing countries. This study analyzes 29 commercial banks in Indonesia and Malaysia during 2018–2024, using ROA as a proxy for banking performance. Furthermore, Stakeholder Theory, Upper Echelons Theory, and the Resource-Based View provide complementary frameworks for explaining the effects of ESG, IC, and CEO overconfidence on banking performance. Thus, this study provides new empirical evidence from the banking sectors of Indonesia and Malaysia.

Stakeholder Theory

Stakeholder Theory emphasizes the importance of creating value and managing relationships with various stakeholders (Donaldson & Preston, 1995; Freeman et al., 2004). According to Stakeholder Theory, a company's capacity to balance the interests of its stakeholders by fostering enduring connections and providing value to enable long-term

organizational development determines how well it performs (Kusbandiyah, 2017). Consistent with this perspective, banks must balance the interests of important stakeholders while implementing ESG, including clients, investors, regulators, governments, workers, and communities impacted by banking operations.

Upper Echelons Theory

The Upper Echelons Theory argues that managerial traits affect how a company perceives its environment, making it possible to forecast its banking performance, organizational outcomes, and strategic choices (Hambrick & Mason, 1984). Accordingly, the CEO's assessment of opportunities and risks shapes strategic choices and long-term performance, which in turn affects a company's sustainability (Hambrick, 2007). Based on this perspective, CEO overconfidence has been shown to support banks' performance potential (Jarraya & Boujelbene, 2025). As a result, CEO overconfidence may directly affect banking performance and influence the extent to which ESG contributes to banking performance.

Resource-Based View (RBV)

According to the Resource-Based View (RBV), banks can enhance financial performance by utilizing valuable, rare, inimitable, and non-substitutable internal resources (Barney, 1991). Intellectual Capital (IC) is a strategic asset that improves operational efficiency, promotes innovation, and supports long-term competitiveness (Rachman et al., 2022). Bank productivity can be enhanced through effective IC utilization, particularly by improving the efficiency of Human Capital (HC), Structural Capital (SC), and Physical Capital (PC) (Setyaningrum et al., 2025). Stakeholder Theory, Upper Echelons Theory, and RBV provide a conceptual framework for explaining how external, managerial, and internal factors, including ESG, CEO overconfidence, and IC, influence banking performance.

The Impact of Environmental, Social, and Governance (ESG) Factors on Banking Performance (BP)

According to Stakeholder Theory, firms should consider the legitimate interests of stakeholders who can affect or be affected by their activities, including customers, employees, suppliers, communities, and shareholders (Freeman et al., 2004). Maintaining stakeholder interests is essential to corporate legitimacy and survival (Pramurindra et al., 2021). From this perspective, Environmental, Social, and Governance (ESG) reflects an organizational approach to meeting stakeholder expectations through sustainable business practices (Brogi & Lagasio, 2018). Although ESG aims to create long-term value, its implementation can pressure banks' financial performance due to substantial costs (Lassoued et al., 2026). Thus, if ESG implementation costs outweigh its benefits, ESG may have a short-term detrimental effect on banking performance.

Empirical studies show that ESG implementation requires a balance between benefits and costs, as sustainable investments can dampen a company's short-term financial performance (B. C. Pratama et al., 2023). Additionally, poor ESG implementation can result in greenwashing, which lessens the effect of ESG on financial performance (Lee & Raschke, 2023). Furthermore, the high costs of ESG implementation and compliance, as well as resource constraints, can reduce operational efficiency and negatively impact a company's financial performance, especially in the short term (Philippas et al., 2025).

H1: Environmental, Social, and Governance (ESG) Factors Have a Negative Impact on Banking Performance (BP)

The Effect of CEO Overconfidence on Banking Performance (BP)

CEO overconfidence is an emotional bias that frequently influences managerial decision-making (Jarraya & Boujelbene, 2025). In this study, it is proxied by GR and NIM, reflecting aggressive expansion and managerial risk-taking. CEO overconfidence is often associated with management's tendency to pursue aggressive credit expansion, which is reflected in higher bank credit growth (Ho et al., 2016). Furthermore, CEO overconfidence tends to lead to the underestimation of credit risk and lower interest margins to accelerate credit disbursement (Lin et al., 2020). Accordingly, GR and NIM serve as proxies for CEO overconfidence because they reflect managerial decisions on credit expansion and interest margin policies.

The Upper Echelons Theory suggests that top managers' traits, values, and perspectives are reflected in strategic decisions (Hambrick & Mason, 1984). Strategic choices regarding credit expansion, reflected in bank credit growth (GR), may indicate CEO overconfidence, while higher credit growth can increase interest income and profitability by expanding lending and exploiting market opportunities (Wijayanti & Mardiana, 2020). In addition to GR, Net Interest Margin (NIM) reflects a bank's ability to generate net interest income from earning assets through lending and investment activities (Putri et al., 2021). Effective interest margin management can enhance revenue and profitability (Hasbi et al., 2024). Such managerial decisions may reflect CEO overconfidence in setting interest margins.

H2a: Growth Rate (GR) Has a Positive Effect on Banking Performance (BP)

H2b: Net Interest Margin (NIM) Has a Positive Effect on Banking Performance (BP)

CEO Overconfidence Moderates the Relationship Between Environmental, Social, and Governance (ESG) Factors and Banking Performance (BP)

CEO overconfidence can be reflected in aggressive credit growth and interest margin management, which may alter ESG's influence on banking performance. Environmental, Social, and Governance (ESG) implementation can enhance legitimacy and stakeholder support amid competition in the financial industry (Valentina et al., 2025). CEO overconfidence, as a cognitive bias, can influence managers' assessments of ESG risks and benefits, affecting ESG's effectiveness in improving banking performance (Ngoc et al., 2026). Furthermore, overconfident CEOs may underestimate ESG's role in risk mitigation and overlook ESG risks in favor of short-term performance, potentially weakening ESG's effect on banking performance (Ogundipe et al., 2026).

The Upper Echelons Theory states that an organization's strategic choices reflect the characteristics, values, and perspectives of its top leadership (Hambrick & Mason, 1984). Credit extension policies, as reflected in GR, represent strategic choices to enhance bank intermediation, although they may increase credit risk without adequate risk management (Mustafa et al., 2025). Similarly, interest margin management, reflected in NIM, is a strategic managerial choice to boost bank profitability, although maintaining higher interest margins while implementing ESG initiatives may result in higher financing costs and reduced operating efficiency (Bruno et al., 2024). Thus, CEO overconfidence, reflected in credit expansion and interest margin management, may weaken the effect of Environmental, Social, and Governance (ESG) on banking performance.

H3a: The Growth Rate (GR) Moderates the Negative Relationship between Environmental, Social, and Governance (ESG) Factors and Banking Performance (BP)

H3b: Net Interest Margin (NIM) Moderates the Negative Relationship between Environmental, Social, and Governance (ESG) and Banking Performance (BP)

The Effect of Intellectual Capital (IC) on Banking Performance (BP)

The Resource-Based View (RBV) posits that unique tangible and intangible resources determine a firm's performance (Barney, 1991). IC comprises knowledge and intangible resources that are critical to financial institutions and can enhance corporate performance (B. C. Pratama et al., 2022). Effective IC can enhance overall banking profitability and operational performance (Ali et al., 2022). From this perspective, Human Capital (HC), comprising employees' skills, knowledge, and competencies, meets these criteria because it can drive innovation and improve decision-making quality (Sayed & Nefzi, 2024). HC efficiency reflects firms' ability to utilize employee capabilities to generate value added, thereby improving bank profitability and banking performance (Octavio & Soesetio, 2019).

Financial performance depends not only on HC but also on Structural Capital (SC). The Resource-Based View (RBV) states that organizational structures, processes, databases, and intellectual property are forms of SC that support value creation and operational effectiveness (Barney, 1991). SC encompasses a company's organizational systems, including hardware, software, and other infrastructure that support banking performance (Rusmawan et al., 2023). SC enhances bank productivity, operational efficiency, and financial performance by supporting information integration and innovation (Rachman et al., 2022).

According to the Resource-Based View (RBV), Physical Capital (PC), comprising both tangible and financial assets, can serve as a strategic resource when it is effectively managed (Barney, 1991). Efficient PC utilization can increase asset productivity, lower operating costs, and enhance production capacity and service quality (Rachman et al., 2022). Such efficient use can increase returns on assets and improve financial performance (Soewarno & Tjahjadi, 2020). Empirical research demonstrates that the effective management of physical capital is associated with better bank financial performance (Kumala et al., 2023).

H4a: The Value Added Intellectual Coefficient (VAIC) has a Positive effect on Banking Performance (BP)

H4b: Human Capital (HC) Has a Positive Effect on Banking Performance (BP)

H4c: Structural Capital (SC) Has a Positive Effect on Banking Performance (BP)

H4d: Physical Capital (PC) Has a Positive Effect on Banking Performance (BP)

Based on this hypothesis, the conceptual framework to be examined is as follows:

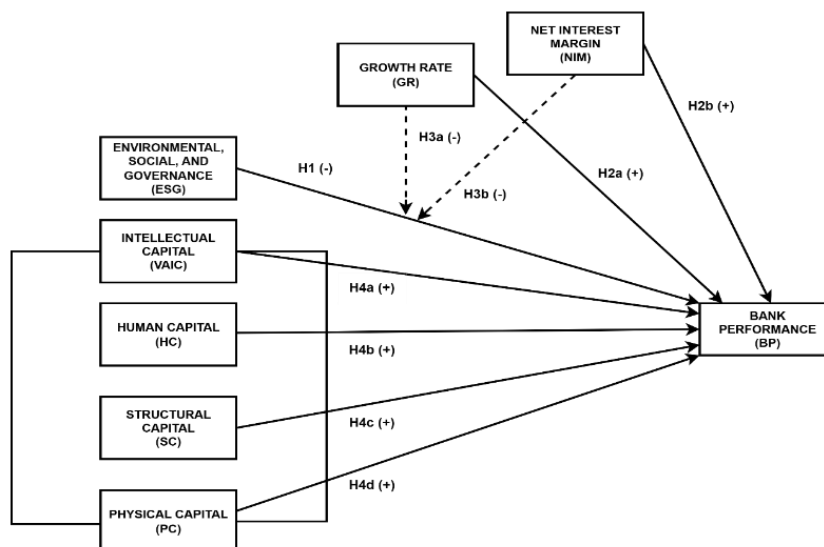


Figure 2. Research Model Framework

2. METHODOLOGY

Table 1. Research Criteria

Research Criteria:
1. Indonesian banking sector companies listed on the Indonesia Stock Exchange (IDX) and Malaysian banking sector companies licensed by Bank Negara Malaysia (BNM) during the 2018–2024 period.
2. Submit financial statements or annual reports for the 2018–2024 period.

Source: Research Data, 2026

This study used secondary data from the annual reports and financial statements of Indonesian and Malaysian banks. The sample comprised commercial banks listed on the Indonesia Stock Exchange and commercial banks in Malaysia with available ESG data during 2018–2024. Purposive sampling was used to choose the sample based on the availability of financial statements and ESG data throughout the observation period (Wahyuningrum et al., 2025). From a total population of 59 banks, 29 banks that met the research criteria were selected as the final sample, comprising 19 Indonesian and 10 Malaysian banks. Of 413 available firm-year observations, 150 firm-year observations met the criteria.

Table 2. Operational Definitions of Variables

Banking Performance (BP)

Banking performance is proxied by Return on Assets (ROA), which is calculated using the formula: pre-tax profit divided by average total assets (H. Pratama et al., 2022). ROA was chosen as a widely used banking profitability indicator measuring a bank’s ability to generate profits from total assets.

$$ROA = \frac{\textit{Profit Before Tax}}{\textit{Total Assets}} \times 100\%$$

(H. Pratama et al., 2022)

Environmental, Social, and Governance (ESG)

Environmental, Social, and Governance (ESG) is measured using Refinitiv ESG scores, which assess a company’s overall performance across environmental, social, and governance dimensions (Benuzzi et al., 2025). The ESG Score consists of three components: an Environmental Score, a Social Score, and a Governance Score, which are further classified into ten categories:

Environmental :	Social :	Governance :
Resource use	Workforce	Management
Emissions	Human rights	Shareholders
Innovation	Community	CSR strategy
	Product responsibility	

(Benuzzi et al., 2025)

Growth Rate (GR)

Growth Rate (GR) is calculated by dividing the total amount of loans in year N by the total amount of loans in year N-1, subtracting one from the result, and then multiplying the result by 100 (Jarraya & Boujelbene, 2025).

$$GR = \frac{(\textit{Credit Amount at time t}) - (\textit{Credit Amount at time t} - 1)}{(\textit{Credit Amount at time t} - 1)} \times 100\%$$

(Jarraya & Boujelbene, 2025)

Net Interest Margin (NIM)

Net Interest Margin (NIM) is calculated by dividing net interest income by average interest earning assets (Jarraya & Boujelbene, 2025).

$$NIM = \frac{\textit{Net Interest Income}}{\textit{Average Total Earning Assets}} \times 100\%$$

(Jarraya & Boujelbene, 2025)

Intellectual Capital (IC)

The Value Added Intellectual Coefficient (VAIC) is an indicator that measures a company's ability to generate added value per monetary unit invested in each resource, where a high coefficient reflects greater efficiency in the utilization of resources, including intellectual capital (Pulic, 2004).

$$VAIC = HCE + SCE + CEE$$

(Pulic, 2004)

Human Capital (HC)

Human Capital (HC), proxied by Human Capital Efficiency (HCE), is a measure of human capital efficiency calculated based on a company's ability to generate value added (VA) relative to its total investment in human capital (HC), which is proxied by total salaries and wages (Pulic, 2004).

$$HCE = \frac{VA}{HC}$$

(Pulic, 2004)

Structural Capital (SC)

Structural Capital (SC) efficiency, proxied by Structural Capital Efficiency (SCE), describes a company's ability to utilize structural capital (SC) to create added value (VA) (Pulic, 2004).

$$SCE = \frac{SC}{VA}$$

(Pulic, 2004)

Physical Capital (PC)

Physical Capital (PC), proxied by Capital Employed Efficiency (CEE), is a capital efficiency coefficient used to measure a company's ability to generate value added (VA) from invested capital (CE), which is proxied by the company's net book value of assets (Pulic, 2004).

$$CEE = \frac{VA}{CE}$$

(Pulic, 2004)

Source: Research Data, 2026

The analysis was conducted using StataMP 17 because this software is capable of processing panel data and supports regression estimates appropriate for the characteristics of this study. Model (1) tested the effects of ESG, HCE, SCE, CEE, GR, and NIM on ROA. Furthermore, Model (2) tested the moderating effects of GR and NIM on the ESG–ROA relationship. Meanwhile, Model (3) tested the effect of VAIC on ROA. Control variables, namely firm size and leverage, were included to improve the accuracy of the estimates by reducing potential bias. The regression models are presented as follows:

Model (1):

$$ROA = \alpha + \beta_1 ESG + \beta_2 HCE + \beta_3 SCE + \beta_4 CEE + \beta_5 GR + \beta_6 NIM + \beta_7 SIZE + \beta_8 LEV + \mu_i + \varepsilon_{it}$$

Model (2):

$$ROA = \alpha + \beta_1 ESG + \beta_2 HCE + \beta_3 SCE + \beta_4 CEE + \beta_5 GR + \beta_6 NIM + \beta_7 ESG * GR + \beta_8 ESG * NIM + \beta_9 LEV + \beta_{10} SIZE + \mu_i + \varepsilon_{it}$$

Model (3):

$$ROA = \alpha + \beta_1 ESG + \beta_2 VAIC + \beta_3 GR + \beta_4 NIM + \beta_5 SIZE + \beta_6 LEV + \mu_i + \varepsilon_{it}$$

Where:

ROA = Return on Asset

a = Constant

β_1 - β_{10} = Regression coefficient in each variable

ESG = Environmental, Social, and Governance

VAIC	= Value Added Intellectual Coefficient
HCE	= Human Capital Efficiency
SCE	= Structural Capital Efficiency
CEE	= Capital Employed Efficiency
GR	= Growth Rate
NIM	= Net Interest Margin
LEV	= Leverage
SIZE	= Company Size
μ_i	= Effects panel
ε_{it}	= Error term

In this study, probability values (p-values) at conventional significance levels 1%, 5%, and 10%, denoted by ***, **, and *, were used for hypothesis testing and consistently applied across all tests (Kim & Inyeob Ji, 2015). The significance of regression coefficients was determined based on these levels. As a result, the research findings show both the statistical significance of a relationship and the strength of the statistical evidence, as reflected by the p-value, with lower p-values indicating stronger evidence against the null hypothesis (Wasserstein & Lazar, 2016).

3. RESULT AND DISCUSSION

Before conducting research, descriptive statistical analysis was used to give a summary of the features of the study data using the mean, maximum, minimum, and standard deviation. This made it easier to see the features of the data distribution and the research sample.

Table 3. Descriptive Statistical Analysis

Variable	Mean	Std. Deviation	Minimum	Maximum
ROA	0.017	0.017	-0.055	0.107
ESG	65.190	16.016	25.620	89.190
HCE	3.554	1.665	-2.819	12.862
SCE	0.533	1.973	-23.211	3.242
CEE	0.256	0.103	-0.167	0.587
VAIC	4.344	2.864	-23.167	14.371
GR	0.060	0.149	-0.945	0.742
NIM	0.442	0.728	-0.149	5.430
SIZE	23.920	1.482	19.387	25.931
Lev	6.107	2.815	0.243	16.078

Source: Research Data, 2026

Return on Assets (ROA) reflects the efficiency with which a firm employs its assets to generate earnings, with higher values indicating stronger asset utilization (Octavia et al., 2024). The results of the descriptive statistical analysis of panel data consisting of 150 observations from commercial banks during the 2018–2024 period show that the average ROA is 0.017, or 1.7%. This value indicates a level of profitability that falls into the “good” or “healthy” category in the banking sector, suggesting that the sampled banks in the study sample are able to manage their assets efficiently to generate profits.

The Environmental, Social, and Governance (ESG) performance assessment follows the Refinitiv methodology described by González-Pozo et al. (2025), which classifies ESG scores

from 0.0 to 1.0 into 12 grades, four linguistic terms (corresponding to the four distribution quartiles), and three subgrades for each linguistic term ranging from (A+) to (D-): scores between 0.00 and 0.25 (D- to D+), indicating low ESG performance with limited transparency, while scores in the range of 0.25 to 0.50 (C- to C+) reflect adequate performance with fairly good transparency. Furthermore, scores from 0.50 to 0.75 (B- to B+) indicate good ESG performance with a higher level of transparency, whereas scores from 0.75 to 1.00 (A- to A+) indicate excellent performance, characterized by strong commitment, effective implementation, and high transparency.

Table 3 presents the results of the descriptive statistical analysis, showing an average ESG score of 65.190, or 0.6519, within the B category (0.583333 to 0.666666), indicating good ESG performance and an above-average degree of transparency in reporting material ESG data publicly (González-Pozo et al., 2025). These results indicate that ESG practices among the sampled banks were implemented at a relatively good level during the study period.

This study adopts the VAIC classification proposed by Kamath (2007), which categorizes VAIC into four levels to measure IC performance: excellent (>5), good performance (4–5), moderate performance (2.5–4), and low performance (<2.5). Based on Table 3, the average VAIC of 4.344 falls into the good performance category (4–5), indicating that banks in Indonesia and Malaysia are fairly effective in managing IC. This finding is consistent with the positive effect of IC on banking performance, as the VAIC value falls into the “good” category. Following the descriptive analysis phase, the next step is to conduct a Hausman test.

Table 4. Hausman Test

Hausman Test	Chi2	Prob > Chi2	Result
Model 1	31.99	0.0001	FE
Model 2	58.52	0.0000	FE
Model 3	23.33	0.0007	FE

Source: Research Data, 2026

The Hausman test determines whether the Fixed Effects Model (FEM) or the Random Effects Model (REM) is more appropriate for panel data analysis (Gallo & Alexandre Sénégas, 2023). As shown in Table 4, the p-value for Model 1 is 0.0001, for Model 2 is 0.0000, and for Model 3 is 0.0007. All p-values are below the 5% significance level (<0.05), so REM is less suitable than FEM. The results suggest a consistent relationship between the independent variables and unobserved firm-specific traits. Therefore, FEM is considered better suited to capture inter-firm heterogeneity during the study period than REM.

Table 5. Heteroscedasticity Test and Autocorrelation Test

Model 1		Model 2		Model 3	
Full Sample	150	Full Sample	150	Full Sample	150
Heteroscedasticity		Heteroscedasticity		Heteroscedasticity	
Chi2	2857.30	Chi2	716.72	Chi2	6254.66
Prob > Chi2	0.0000	Prob > Chi2	0.0000	Prob > Chi2	0.0000
Serial Correlation		Serial Correlation		Serial Correlation	
F	31.794	F	15.869	F	9.536
Prob > F	0.0000	Prob > F	0.0005	Prob > F	0.0047

Source: Research Data, 2026

Based on the results of the heteroscedasticity test on the FEM regression, all models showed a Chi-square probability value (Prob > Chi2) of 0.0000, which is below the 5% significance level (<0.05), indicating that all models exhibit heteroscedasticity. The results of the autocorrelation test also showed Prob > F values of 0.0000, 0.0005, and 0.0047, respectively, all below 0.05, indicating autocorrelation in all three models. These conditions indicate heteroscedasticity and autocorrelation. Therefore, this study uses Driscoll-Kraay robust standard errors to correct the standard errors so that the resulting statistical inferences remain valid despite the presence of heteroscedasticity and autocorrelation.

Table 6. Hypothesis Test Results (Model 1)

Hypothesis	Path	Coefficient	T value	P> t	Result
H1	ESG → BP	-0.000	-4.30	0.005***	Accepted
H2a	GR → BP	0.029	3.33	0.016**	Accepted
H2b	NIM → BP	0.018	2.38	0.055*	Accepted
H4b	HC → BP	0.001	1.38	0.216	Rejected
H4c	SC → BP	0.002	4.26	0.005***	Accepted
H4d	PC → BP	0.086	2.29	0.062*	Accepted
	SIZE → BP	0.000	0.03	0.974	
	LEVERAGE → BP	-0.002	-2.06	0.086	
R-Squared		0.499			
F		646.55			
Prob > F		0.000			

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Source: Research Data, 2026

Table 7. Hypothesis Test Results (Model 2)

Hypothesis	Path	Coefficient	T value	P> t	Result
	ESG → BP	0.000	2.58	0.042	
	HC → BP	0.001	0.76	0.475	
	SC → BP	0.001	4.89	0.003	
	PC → BP	0.091	3.38	0.015	
	GR → BP	0.108	2.49	0.047	
	NIM → BP	0.109	4.65	0.004	
H3a	ESG*GR → BP	-0.001	-2.18	0.072*	Accepted
H3b	ESG*NIM → BP	-0.001	-4.52	0.004***	Accepted
	SIZE → BP	0.005	1.56	0.171	
	LEVERAGE → BP	-0.002	-5.42	0.002	
R-Squared		0.741			
F		397.76			
Prob > F		0.000			

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Source: Research Data, 2026

Table 8. Hypothesis Test Results (Model 3)

Hypothesis	Path	Coefficient	T value	P> t	Result
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	ESG → BP	-0.000	-4.56	0.004	
H4a	VAIC → BP	0.003	4.14	0.006***	Accepted
	GR → BP	0.038	3.56	0.012	
	NIM → BP	0.022	2.64	0.039	
	SIZE → BP	0.005	1.25	0.257	
	LEVERAGE → BP	-0.001	-1.96	0.097	
R-Squared		0.412			
F		6433.56			
Prob > F		0.000			

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Source: Research Data, 2026

The study's findings demonstrate variations in the effects of CEO overconfidence, intellectual capital components, and ESG variables on ASEAN banks' performance, particularly in Indonesia and Malaysia, as measured by ROA. In this study, CEO overconfidence is proxied by GR and NIM, reflecting management's tendency toward aggressive and optimistic decisions. The study also examines CEO overconfidence as a moderator of the ESG–banking performance relationship. The results indicate that the variables have distinct effects on banking performance, reflecting the complexity of bank management.

The results of the hypothesis 1 (H1) test in this study are accepted. The finding that ESG has a negative and significant effect at the 1% significance level on banking performance indicates that increased ESG implementation negatively affects short-term financial performance. According to Stakeholder Theory, firms implement ESG to satisfy stakeholder interests and achieve legitimacy and sustainability (Lusy & Ginting, 2025). However, high ESG implementation costs can undermine efficiency and profitability, so that the economic benefits have not yet been reflected in financial performance, even though the average ESG score falls into the “good” category (Philippas et al., 2025).

The results of the hypothesis 2a (H2a) test in this study are accepted. The findings indicate that GR has a positive and significant effect on banking performance at the 5% significance level. From the perspective of Upper Echelons Theory, credit growth reflects CEO strategic decisions to respond to business opportunities through credit expansion, which can improve banking performance (Hambrick & Mason, 1984). This finding is consistent with Wijayanti & Mardiana (2020), who show that credit expansion positively impacts bank profitability, both directly and indirectly. The relevance of effective managerial practices in increasing profitability is further reinforced by variations in GR, which show that banks with more aggressive loan expansion tend to perform better.

The results of the hypothesis 2b (H2b) test in this study are accepted. The analysis shows that NIM has a positive and significant effect on banking performance at a 10% significance level. According to Upper Echelons Theory, NIM reflects CEO strategic decisions regarding interest rate policies, asset composition, and interest income optimization, which affect banking performance (Hambrick & Mason, 1984). This finding is consistent with Silpiani & Kusumawardani (2025), who show that NIM reflects banks' effectiveness in generating net interest income through efficient management of earning assets. Variations in NIM indicate that banks with more optimal interest margins tend to perform better, reflecting the effectiveness of managerial practices in enhancing profitability.

The results of the hypothesis 3a (H3a) test in this study indicate that GR acts as a moderating variable that strengthens the negative relationship between ESG and banking performance at a 10% significance level. This finding suggests that high credit growth, as a proxy for CEO overconfidence, shifts management focus toward expansion and short-term performance, thereby amplifying the negative effect of ESG on banking performance. CEO overconfidence may lead managers to overlook ESG aspects due to this short-term focus, weakening ESG implementation (Ogundipe et al., 2026). Such overconfidence can influence corporate policies, including ESG and credit expansion, ultimately affecting risk management and corporate value (Sumunar & Djakman, 2020).

The results of the Hypothesis 3b (H3b) test in this study indicate that NIM acts as a moderating variable that strengthens the negative relationship between ESG and banking performance at the 1% significance level. This finding indicates that a high NIM, as a proxy for CEO overconfidence, shifts management focus toward increasing interest income and profitability rather than ESG practices, thereby amplifying the negative effect of ESG on banking performance. Excessive focus on interest margins may reflect aggressive revenue and risk management decisions that prioritize profitability over sustainability (Saputra et al., 2023). NIM-oriented decisions can influence corporate policies, including ESG, potentially reducing its effectiveness in improving banking performance (Prasetyo & Musmini, 2025).

The results of the Hypothesis 4a (H4a) test in this study are accepted. The test results show that the Value Added Intellectual Coefficient (VAIC) has a positive and significant effect on banking performance at the 1% significance level, indicating that the more efficient the management of IC, the better the company's financial performance. From the Resource-Based View (RBV), VAIC reflects a firm's ability to manage intangible resources to generate value and competitive advantage (Pulic, 2004). This finding is consistent with Soewarno & Tjahjadi (2020), who show that VAIC can enhance banking performance, highlighting intellectual capital efficiency as a strategic element in value creation.

The results of the Hypothesis 4b (H4b) show that Human Capital (HC) does not have a significant effect on banking performance. This finding indicates that improving human resource quality has not directly improved financial performance, even though HC represents knowledge efficiency (Dancakov & Glova, 2024). According to the Resource-Based View (RBV), HC has valuable, rare, and difficult-to-imitate qualities that can provide a competitive advantage (Barney, 1991). However, these findings suggest that human resources alone are insufficient to enhance performance without efficient management.

The results of the Hypothesis 4c (H4c) test in this study are accepted. These findings show that Structural Capital (SC) has a positive and significant effect on banking performance at the 1% significance level, indicating that the higher the efficiency of SC, the better the company's financial performance. From a Resource-Based View (RBV) perspective, SC supports value creation and strengthens other resources through systems, procedures, and organizational structures that enhance productivity and competitive advantage (Rusmawan et al., 2023). These findings indicate that resource optimization can generate greater economic value through more efficient IC utilization, particularly SC.

The results of the hypothesis 4d (H4d) test in this study are accepted. The findings show that Physical Capital (PC) has a positive and significant effect on banking performance at a 10% significance level, indicating that the efficient use of physical and financial assets improves financial performance. The Resource-Based View (RBV) states that PC is a tangible

resource that, with effective management, may generate economic value and competitive advantage (Barney, 1991). Efficient use of invested capital, particularly PC, enhances profitability and banking performance (Ozkan et al., 2017).

Overall, these results show that sustainability, operational effectiveness, and managerial traits interact to influence banking performance. ESG implementation has not consistently generated positive performance effects, particularly when management focuses on short-term goals. In this context, CEO overconfidence may drive expansion and margin optimization, reducing ESG effectiveness. Furthermore, the contribution of IC to performance is not uniform, with SC and PC playing more dominant roles than HC, which depends on effective management. Therefore, improving banking performance in Indonesia and Malaysia requires a balance between financial efficiency, IC management, ESG implementation, and adaptive managerial decision-making to create sustainable value.

Analysis of the Differences in ESG and ROA between Malaysian and Indonesian Banks

Table 9. Analysis of Differences in ESG and ROA between Malaysian and Indonesian Banks

Variable	Malaysia	Indonesia	Mean Difference	T-statistic	p-value	Result
ESG	68.363	62.856	5.507	2.1119	0.0364	Significant
ROA	0.0129	0.0213	-0.0084	-2.9666	0.0035	Significant

Source: Research Data, 2026

This study used an independent samples t-test to compare ROA and ESG features of banks in Malaysia and Indonesia. The independent samples t-test is used to determine whether the means of two independent groups differ statistically significantly (Chatzi, 2025). The findings indicate that the two nations' ESG implementation and profitability differ significantly. The t-test results show that banks in Malaysia have significantly higher ESG scores than banks in Indonesia. The average ESG score for Malaysian banks was 68.36, while Indonesian banks had an average score of 62.86. This difference was statistically significant at the 5% level (p-value = 0.0364). These findings suggest that Malaysian banks tended to demonstrate better ESG implementation and disclosure practices during the observation period.

In contrast, a comparison of ROA reveals the opposite pattern. Banks in Indonesia exhibit higher profitability than banks in Malaysia. The average ROA for Indonesian banks is 0.0213, while Malaysian banks recorded an average ROA of 0.0129. This difference is also statistically significant (p-value = 0.0035). This finding suggests that banks with lower levels of ESG implementation exhibit higher profitability in the short-term. ESG implementation in the banking sector of emerging markets can still incur substantial compliance costs, sustainability investment costs, and operational adjustment costs, which have the potential to suppress profitability during the early stages of ESG implementation (Indrasuci & Rokhim, 2023).

These findings are broadly consistent with the primary regression results, which show that ESG has a detrimental effect on banking performance. Malaysia, which has a higher level of ESG implementation, tends to exhibit lower profitability, while Indonesia, with a lower level of ESG implementation, tends to exhibit higher profitability. These findings suggest that the financial benefits of ESG initiatives may not be realized immediately, as the substantial investment required for ESG adoption can temporarily reduce bank profitability, particularly in emerging markets. Accordingly, recent studies on the ASEAN banking industry demonstrate that the degree of institutional preparedness, operational effectiveness, and market conditions in each nation determine how ESG affects profitability (Fakhrunnas et al., 2025).

4. CONCLUSION

The study's findings show that short-term banking performance is negatively impacted by ESG aspects because of implementation costs and resource needs. On the other hand, HC does not significantly affect banking performance, but IC does, especially through SC and PC. Furthermore, CEO overconfidence was found to amplify the negative impact of ESG on banking performance, suggesting that managerial characteristics can influence the effectiveness of sustainability strategies. These findings confirm that banking performance is influenced not only by ESG implementation but also by the effectiveness of internal resource management and the quality of managerial decision-making.

This study makes a theoretical contribution by drawing on Stakeholder Theory, the resource-based view, and Upper Echelons Theory to explain banking performance. This study develops an integrated model that tests the roles of ESG, intellectual capital, and CEO overconfidence within a single research framework. The findings reveal a short-term trade-off between ESG implementation and profitability in the banking sectors of developing ASEAN countries, particularly Indonesia and Malaysia. These results suggest that ESG implementation does not automatically improve corporate performance without being supported by proper resource management and sound managerial decisions.

This study has several limitations, particularly regarding the use of secondary data, which cannot fully capture the dynamics of managerial behavior directly. Additionally, the use of GR and NIM as proxies for CEO overconfidence still has limitations in specifically representing managerial psychological biases. This study also has not fully accounted for external factors such as macroeconomic conditions, regulatory changes, and financial market dynamics that could potentially affect banking performance. Therefore, future research is encouraged to use alternative proxies for CEO overconfidence such as stock options or investment behavior and to consider external factors to ensure more comprehensive research findings.

This study suggest that banks should implement ESG more strategically while maintaining cost efficiency to protect short-term performance. Companies should also optimize IC as a source of competitive advantage and long-term value. CEOs should make more rational decisions by minimizing overconfidence bias so that ESG implementation can proceed more effectively and consistently. Thus, sustainability success depends not only on ESG commitment but also on efficient resource management and sound corporate governance.

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