



Bank Business Sustainability: The Interplay of Green Leadership Capability, Green Intellectual Capital, and Green Finance

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Abstract: This study investigates the drivers of bank business sustainability (BBS) in Indonesia by examining the roles of green strategic leadership capability (GSLC) and green intellectual capital (GIC), with green finance (GF) as a mediating mechanism. Using data from 339 strategic-level bank leaders, this study applies Partial Least Squares Structural Equation Modeling (PLS-SEM) to test a resource-based framework in an emerging economy context. The results show that GSLC, GIC, and GF significantly enhance BBS, with GSLC emerging as the strongest predictor. Furthermore, GF partially mediates the relationships between GSLC–BBS and GIC–BBS, confirming its role as a strategic channel through which intangible resources are transformed into observable sustainability outcomes. This study contributes to the literature by extending the resource-based view (RBV) through a resource–practice–performance pathway, demonstrating how leadership capability and intellectual capital are operationalized via green finance practices. The findings also clarify the distinction between sustainability outcomes (BBS), enabling mechanisms (GF), and internal capabilities (GSLC and GIC), addressing conceptual ambiguity in prior studies. Practically, the results suggest that banks in emerging markets should prioritize leadership-driven sustainability strategies and strengthen knowledge-based resources to effectively implement green finance. While the sample is dominated by large and state-owned banks, the findings offer relevant insights for similar institutional environments. Future research is encouraged to explore cross-group variations and incorporate regulatory dynamics to further validate the model.

Keywords: Bank Sustainability, Green Leadership Capability, Green Intellectual Capital, Green Finance, Sustainable Strategic Management.

1. Introduction

As climate challenges have introduced new risks that could jeopardize bank credit quality, asset pricing, and long-term profitability (Campiglio, 2016; Campiglio *et al.*, 2023), sustainability has become an increasingly sensitive issue in the banking sector. In addition to financial performance, banks are evaluated based on their sustainability, which includes governance accountability for environmental and social performance (Lestari *et al.*, 2024). This condition presents increasing sustainability pressures and higher stakeholder expectations that encourage banks to strategically create sustainable business models (Yanti *et al.*, 2025).

In Indonesia, banking sustainability has also been recognized nationally as a strategic priority, as reflected by the issuance of the Sustainable Finance Roadmap and POJK No. 51/POJK on the Implementation of Sustainable Finance for Financial Services (OJK, 2017, 2021). Still, the Indonesian economy largely relies on carbon-intensive sectors, with fossil fuels contributing more than 50% of electricity generation (International Energy Agency, 2023). This reliance increases banks' exposure to climate-policy risk. According to Urgewald (2024), coal financing by commercial banks in Indonesia has risen by almost 42% from 2016 to USD 3.7 billion by 2023. At an operational level, sustainability practices exacerbate these challenges, as sustainability-related regulations in Indonesia are still in the early stages of implementation and sustainability disclosures are still practiced voluntarily (Yanti *et al.*, 2025). Thus, Indonesian banks may have different interpretations of their sustainability strategies, tailored to their respective internal strengths. When banks fully align their sustainability strategies with their internal capabilities and resources, they may be on a better trajectory towards business sustainability.



However, existing banking research mainly focuses on symbolic and reporting-based sustainability outcomes, such as ESG disclosure or sustainability reports (Aracil, 2021; Fernández, 2025), while little attention has been paid to the internal capability that drives bank business sustainability. To bridge this gap, this study focuses on internal resources and capabilities in the form of Green Strategic Leadership Capability (GSLC) and Green Intellectual Capital (GIC). While the GSLC depicts the role of leadership in shaping sustainability-driven strategies (Khan *et al.*, 2024), GIC represents organization-wide knowledge, learning, and intellectual resources that promote sustainability practices (Ali *et al.*, 2021; Alkaf *et al.*, 2023). These intangible resources are relevant for bank sustainability as they are embedded in complex organizational processes and distributed across multiple stakeholders and institutional networks (Gueler & Schneider, 2021).

In particular, GSLC and GIC should be converted into explicit green practices to support bank business sustainability more effectively. Within the bank landscape, green finance (GF) has received attention as a tool for inducing sustainable practices (Akomea-Frimpong *et al.*, 2021; Tekin, 2025). Banks can improve their reputation, increase stakeholder trust, and alleviate agency conflicts through GF activities (Akomea-Frimpong *et al.*, 2021; Fu *et al.*, 2023). Thus, bank leaders may also make sustainability commitments more actionable through GF, while GF also enables banks to leverage their intellectual systems in a more visible and value-creating way. Therefore, green finance is treated as a mediator in this study.

Referring to this background, this study investigates whether GSLC and GIC serve as valuable internal resources that reinforce bank business sustainability in Indonesia while also considering the mediating role of GF. This study contributes to the literature in several ways. First, it broadens the understanding of sustainability within the financial ecosystem, which has largely focused on institutional legitimacy through “sustainable banking” labels and sustainability reporting (Aracil, 2021; Fernández, 2025) rather than actual business sustainability. In this study, bank business sustainability represents a stronger form of sustainability-based competitive advantage, since the indicator developed incorporates not only economic, social, and environmental indicators, but also banks’ technological sustainability. Second, this study develops an integrated sustainability-oriented strategic management model by relating leadership-based capability and knowledge-based capital as complementary internal resources. Since earlier work has investigated these facets in isolation (e.g., Khan, 2023; Khan *et al.*, 2024; Zahra *et al.*, 2022), this study offers a perspective on how they work in combination to drive business sustainability. Third, this study reconceptualizes green finance from being merely a financial tool (Fu *et al.*, 2023; Ren & Du, 2024) to a strategic channel through which banks engage in sustainability practices and innovations (Dhayal *et al.*, 2025; Khanra *et al.*, 2022). Fourth, it provides context-specific insights from Indonesia, a setting characterized by high climate risk exposure and early-stage sustainability implementation, offering insights relevant to other developing economies with similar sustainability conditions.

This study advances the resource-based view (RBV) by introducing green finance as a conversion mechanism that links intangible sustainability-oriented resources to observable performance outcomes. This resource–practice–performance pathway provides a more dynamic understanding of how sustainability capabilities are operationalized in regulated and emerging market contexts.

Previous studies have highlighted the growing importance of sustainability-oriented innovation and digital transformation in supporting environmentally responsible economic systems, particularly in emerging economies (Setiyowati *et al.*, 2022; Setiyowati *et al.*, 2025).

2. Literature Review

2.1 Theoretical Foundation

This study is underpinned by the RBV perspective that sustainable competitive advantage arises from an organization's capacity to access, develop, and apply valuable, rare, inimitable, and non-substitutable resources and capabilities (Barney, 1991; Mahsud *et al.*, 2018). From this perspective, bank business sustainability depends on a bank's ability to sustain a competitive advantage by fulfilling its broader sustainability obligations with the support of its internal resources and capabilities. These include strategic and resource commitments from management to sustainability, organizational learning, and the ability to make strategic decisions to improve value creation and sustainability practices (D'Oria *et al.*, 2021). Since it may be difficult to replicate capabilities, they can serve as



valuable sources of differentiation for a firm's continued existence (Gueler & Schneider, 2021; Lubis, 2022). In this sense, sustainability-focused resources and capabilities help banks be more viable in the face of environmental change and regulatory pressures while maintaining their competitiveness.

2.2 Green Strategic Leadership Capability and Bank Business Sustainability

GSLC is defined as the capacity of leaders to formulate and implement sustainable-oriented strategies (Khan *et al.*, 2024). The GSLC is essential because sustainability commitments need to be transformed into concrete day-to-day banking practices and clearly communicated to stakeholders to ensure effective implementation. Several studies have highlighted that green-based leadership styles are positively associated with sustainable business performance (Khan *et al.*, 2023; Nwachukwu & Vu, 2020; Zhao & Huang, 2022). Such leaders are inclined to establish a culture that promotes sustainability and reacts positively to environmental laws (Suriyankietkaew & Kungwanpongpan, 2021; Takawira *et al.*, 2023; Torre & Perez, 2021). They also encourage employees to endorse pro-environmental behavior (Lathabhavan & Kaur, 2023; Priatna *et al.*, 2025; Widyanty *et al.*, 2025), thus promoting company-wide sustainability programs. GSLC is therefore assumed to strengthen bank business sustainability, as leaders with a strong strategic environmental orientation are supposed to direct sustainable decision-making, which is essential for long-term competitiveness. Hence, we propose the following hypothesis: Related evidence shows that transformational environmental leadership and leadership foresight support environmental performance, sustainable performance, and competitive advantage (Laan & Erwee, 2012; Hidayati *et al.*, 2024; Ramírez-Altamirano *et al.*, 2024).

H1: GSLC positively affects bank business sustainability.

2.3 Green Intellectual Capital and Bank Business Sustainability

GIC is viewed as a strategic resource that supports sustainability objectives through effective orchestration of organizational knowledge (Asiaei *et al.*, 2023; Jiao *et al.*, 2023). This perspective aligns with the Natural Resource-Based View (NRBV), which argues that environmentally oriented intangible resources can translate into a critical basis for sustainable competitive advantage (Hart, 1995; Jirakraisiri *et al.*, 2021; Martínez-Falcó *et al.*, 2025). GIC may allow banks to internalize environmental problems in business processes while improving operational efficiency and long-term competitiveness (Lusmeida *et al.*, 2023; Zahra *et al.*, 2022). Previous studies also reported a positive relationship between GIC and sustainability performance (Ali *et al.*, 2021; Alkaf *et al.*, 2023; Chen, 2008; Yusliza *et al.*, 2020; Zahra *et al.*, 2022). GIC also contributes to the enhancement of a bank's green reputation, which creates stakeholders' trust and greening of the market, as well as the maintenance of a sustainable competitive advantage (Shiaa *et al.*, 2024; Zahra *et al.*, 2022). Thus, this study proposes the following hypotheses: This argument is also consistent with evidence that green intellectual capital supports green innovation, sustainable competitive advantage, and performance sustainability (Pan *et al.*, 2021; Wang & Juo, 2021).

H2: GIC positively affects bank business sustainability.

2.4 Green Finance and Bank Business Sustainability

GF is the mobilization of financial resources and institutional arrangements designed to assist activities that are consistent with sustainable environmental policy (Akomea-Frimpong *et al.*, 2021; Bhatnagar & Sharma, 2022; Habib & Khan, 2025). GF can also be considered a strategic asset for banks, as it enables them to develop and offer green financial products (Akomea-Frimpong *et al.*, 2021; Nohong *et al.*, 2024), which can enhance their competitiveness in the industry. In addition, the adoption of GF can also support bank sustainability by improving their reputation as an ethical and transparent institution, developing a green market, and attracting green investors (Pambekti & Lestari, 2024; Ren & Du, 2024; Woode, 2024; Yanti *et al.*, 2025). Hussain *et al.* (2023) further argue that GF incites firms to practice sustainability, and as a result, firms can improve their sustainability performance. Prior empirical evidence further indicates that GF and green banking practices play a crucial role in enhancing environmental and sustainability outcomes in the banking sector (Abuatwan, 2023; Adeyemi *et al.*, 2024; Chen *et al.*, 2022; Daniel, 2023; Hidayat-ur-Rehman & Hossain, 2025; Oyedele *et al.*, 2022; Zheng *et al.*, 2021). Thus, GF implementation allows banks to remain competitive and facilitates higher bank business sustainability. Based on



these insights, we propose the following hypothesis: Recent banking evidence further indicates that green lending can contribute to sustainable profitability (Riyanti *et al.*, 2025).

H3: GF positively affects bank business sustainability.

2.5 Green Strategic Leadership Capability and Green Finance

Leaders with strong environmental orientation may be better at guiding their firms towards implementing proactive green innovation practices (Su *et al.*, 2020). In this context, leaders' green perceptions change banking sector practices, including the development and expansion of green finance practices. This idea is supported by Aristei and Gallo (2024), who show that green management could reach a higher level of green finance by increasing access to green credit, thus paving the way for wider green financial uptake. Prior studies further highlight the importance of green-oriented leadership styles in promoting green practices and innovation within organizations (Hu *et al.*, 2024; Tian *et al.*, 2023). Yan *et al.* (2025) also emphasized that green CEOs are better able to make strategic decisions from an environmental perspective to promote corporate green financing activities. Thus, the GSLC allows bank leaders to deliberately steer their strategic directions and organizational policies at a level that promotes GF practices. Therefore, the following hypothesis is formulated:

H4: GSLC positively affects GF practices.

2.6 Green Intellectual Capital and Green Finance

As a body of knowledge and database related to green and sustainability management, GIC may serve as a building block on which banks can build to make more green financial decisions (Zahra *et al.*, 2022). By obtaining GIC, organizations can identify and manage their environmental risks and regulatory compliance challenges (Begum *et al.*, 2023; Mulatsih, 2025), thus allowing banks to implement and design GF more efficiently and strategically according to the current market trend. GIC helps improve green finance performance by enhancing organizational learning, facilitating green innovation, and stimulating green decision-making (Lusmeida *et al.*, 2023; Mulatsih, 2025). Consequently, banks with greater GIC will also be in a better position to develop, promote, and manage green financial products and services. Based on this, we propose the following hypothesis:

H5: GIC positively affects GF practices.

2.7 Green Finance Mediation

Through GF, green-oriented leaders may operationalize their sustainability strategic decisions via actionable items, such as the offering of green credit or sustainability investment projects (Aristei & Gallo, 2024; Kumar *et al.*, 2024; Mocharref *et al.*, 2025). This also means that bank leaders with GSLC may prioritize the expansion of green financial portfolios over conventional financing options and make banks better equipped to mobilize effectively towards achieving sustainability goals. Mocharref *et al.* (2025) and Kumar *et al.* (2024) supported this view by highlighting that GF can mediate top management support and sustainable performance. On the other hand, GF can also serve as a strategic domain through which GIC is implemented. The GIC provides green knowledge and skills to drive the dissemination of green practices (Ali *et al.*, 2021), which are then used in the implementation of tangible bank sustainability practices, such as green lending, clean energy investment, and improved ESG-based fund allocation (Azhari & Hasibuan, 2023), thereby supporting bank sustainability. Raghvendra *et al.* (2024) highlight that GF mediates the relationship between knowledge resources and environmental sustainability. GF may also serve as a learning site for banks to gain experience in response to environmental risks and improve their operational efficiency and cost-effectiveness, which would benefit banks' long-term sustainability (Bombiak, 2023; Jiao *et al.*, 2023).

Overall, it is argued that the GSLC and GIC can contribute to banking sustainability more effectively through the enactment of GF practices, as these practices make banks' sustainability commitments more visible to stakeholders and ultimately enhance business sustainability. Accordingly, the following two hypotheses are proposed:

H6: GF mediates the relationship between GSLC and bank business sustainability.

H7: GF mediates the relationship between GIC and bank business sustainability.

The proposed relationships among the study constructs are summarized in Figure 1.



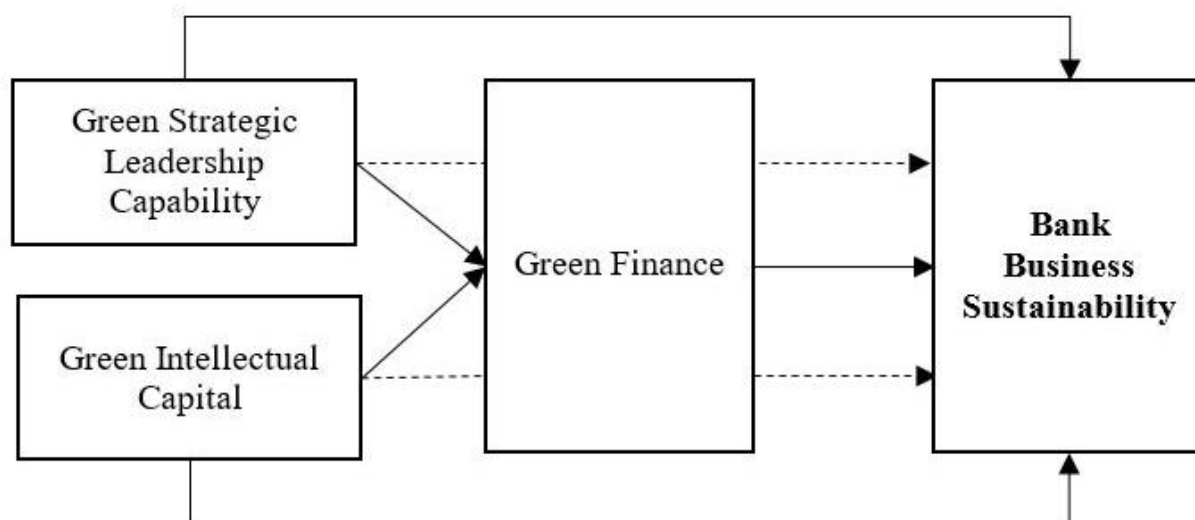


Figure 1. Conceptual Framework.

In this study, bank business sustainability is conceptualized as an outcome construct reflecting long-term resilience and performance, while green finance represents an enabling mechanism, and GSLC and GIC represent internal capabilities. This distinction helps avoid conceptual overlap and strengthens construct clarity.

3. Methodology

3.1 Sample and Data Collection

The study population consisted of strategic leaders in Indonesian banks (e.g., board directors, top management team members, general managers, and strategic business unit leaders). In total, 105 commercial banks operated in Indonesia as of December 2024 (OJK, 2024). However, due to variations in organizational structures and leadership composition across banks, the exact number of strategic leaders could not be determined. Therefore, purposive sampling using a judgmental approach was employed, as this technique is appropriate when respondents are selected based on predefined criteria and their relevance to the research objectives (Ahmed, 2024). Participants were required to (1) hold a strategic leadership position for at least one year, and (2) work in banks that had published sustainability reports and/or maintained green finance portfolios.

Data were collected through an online questionnaire distributed over a two-month period (July–August 2025). Prior to data collection, a statistical power analysis was conducted using G*Power 3.1 to determine the minimum sample size required for hypothesis testing in the PLS-SEM model. The analysis employed a multiple regression fixed-effects model with a medium effect size ($f^2 = 0.15$), significance level ($\alpha = 0.05$), statistical power ($1 - \beta = 0.90$), and three predictors corresponding to the maximum number of structural paths directed at the endogenous construct in the model. The analysis indicated a minimum required sample size of 99 respondents (Faul *et al.*, 2009; Kang, 2021; Giner-Sorolla *et al.*, 2024). A total of 352 responses were initially collected. After data screening and eligibility verification, 13 responses were excluded, leaving 339 valid questionnaires, which substantially exceeded the minimum sample size requirement and confirmed adequate statistical power for the subsequent PLS-SEM analysis.

3.2 Research Instrument

The instruments in this study were developed based on prior studies with some adjustments to reflect the Indonesian banking context (see Appendix 1 for details). All the items were measured on a five-point Likert scale. The BBS was measured using 12 items, covering indicators of economic, social, environmental, and technological sustainability, consistent with multidimensional sustainability-scale development principles (Khan & Quaddus, 2015). GSLC was measured using nine items with indicators, such as leaders' vision and mission, sustainability-oriented strategy development, and adaptation to regulatory changes. The GIC was measured using nine items covering employee sustainability awareness and culture, internal sustainability policies, and database management. GF was



measured using 10 items with indicators, such as green loans, green investments, green finance technology, and green finance support. To ensure content validity and clarity, the questionnaire was validated through a pilot study involving 30 respondents, including junior banking staff, banking academics, and practitioners.

3.3 Data Analysis

Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed because this study aimed to explain and predict the variance of endogenous constructs within a relatively complex model involving multiple latent variables and indicators. PLS-SEM is particularly suitable for prediction-oriented research and is robust when data distribution assumptions are not strictly met, making it appropriate for strategic management and behavioral research contexts (Hair *et al.*, 2019). The PLS analysis included a measurement model evaluation to assess validity and reliability, and a structural model evaluation to assess model strength, predictive relevance, and significance of the hypothesized relationships through a path coefficient analysis.

To address potential common method bias (CMB), several procedural remedies were implemented, including assuring respondent anonymity, minimizing evaluation apprehension, and carefully designing the questionnaire to reduce ambiguity. In addition, a statistical assessment using full collinearity variance inflation factor (VIF) was conducted. All VIF values were below the conservative threshold of 3.3, indicating that common method bias is unlikely to threaten the validity of the findings (Kock, 2015). Following Hair *et al.* (2022), the sample size also exceeded the minimum recommendation for PLS-SEM analysis based on statistical power and model complexity considerations, ensuring sufficient robustness for bootstrapping estimation and predictive assessment.

4. Results

4.1 Measurement Model Evaluation

PLS-SEM analysis was conducted using SmartPLS 4.1 and began with the measurement model evaluation. At this stage, indicator validity and reliability were assessed by examining the factor loadings of all items. Based on the recommended threshold of 0.70 (Hair *et al.*, 2019), four indicators were removed: BBS7 (0.379), BBS9 (0.662), GF10 (0.599), and GIC3 (0.677). Subsequently, the model was re-estimated, resulting in a valid measurement model (Figure 2).

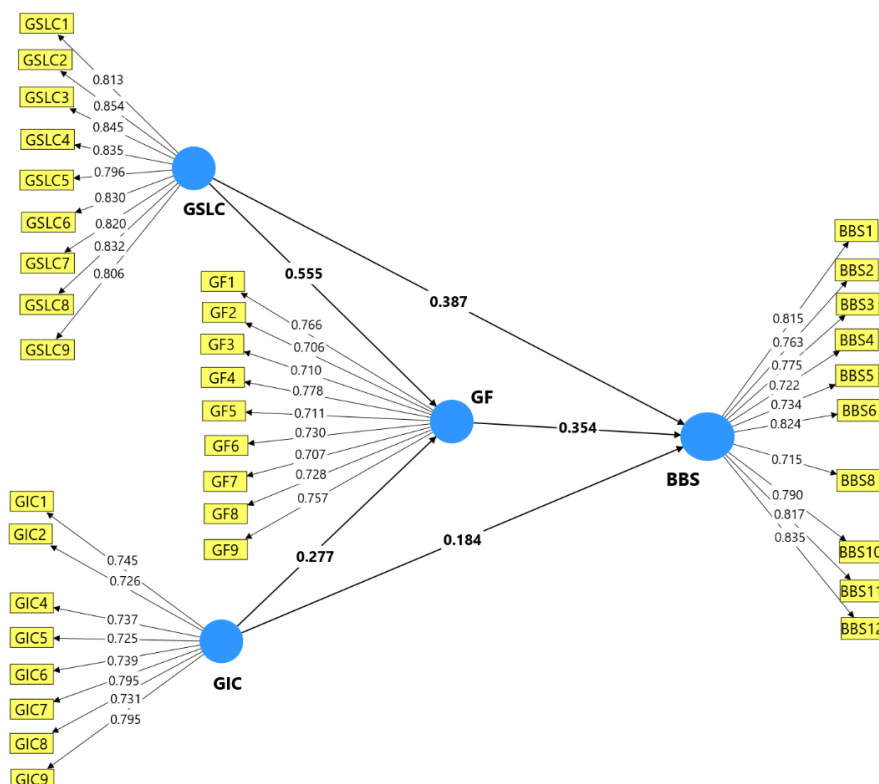


Figure 2. Measurement Model.

Furthermore, the heterotrait-monotrait (HTMT) ratio was employed to evaluate discriminant validity. The HTMT ratio between Bank Business Sustainability (BBS) and Green Finance (GF) was 0.852. While this value is close to the conservative threshold of 0.85, it remains below the 0.90 limit recommended for conceptually similar constructs (Hair *et al.*, 2022). More importantly, there is a clear conceptual distinction between the two: BBS represents the final performance outcome and long-term viability of the bank across ESG dimensions, whereas GF refers to the operational practices and financial mechanisms (such as green lending and green bonds) used to achieve those outcomes. Furthermore, the Fornell-Larcker criterion confirmed that each construct's square root of AVE exceeded its highest correlation with any other construct, providing additional empirical evidence that BBS and GF are distinct entities in this model.

Table 1. Cross-Loading of Indicators

Indicators	BBS	GF	GIC	GSLC
BBS1	0.815	0.621	0.598	0.643
BBS2	0.763	0.574	0.552	0.601
BBS3	0.775	0.589	0.561	0.614
BBS4	0.722	0.551	0.538	0.577
BBS5	0.734	0.563	0.547	0.592
BBS6	0.824	0.644	0.612	0.663
BBS8	0.715	0.602	0.534	0.581
BBS10	0.790	0.621	0.598	0.635
BBS11	0.817	0.633	0.607	0.649
BBS12	0.835	0.645	0.618	0.661

As shown in Table 1, all indicators load higher on their respective constructs than on other constructs, confirming discriminant validity.

Item purification was conducted with careful consideration of both statistical and theoretical criteria. Four indicators (BBS7, BBS9, GF10, and GIC3) were removed due to low factor loadings below the recommended threshold. However, their removal was evaluated against construct domain coverage to ensure that the conceptual meaning of each construct remained intact.

For instance, although BBS7 and BBS9 represent environmental dimensions, the remaining indicators sufficiently capture environmental sustainability through reputational, technological, and strategic aspects.

Furthermore, indicators with loadings close to 0.70 were retained to preserve content validity, following the recommendations of Hair *et al.* (2019). Cross-loading analysis confirmed that all indicators loaded higher on their respective constructs than on others, supporting discriminant validity.

Table 2. Full Collinearity VIF

Construct	VIF
BBS	2.41
GF	2.87
GIC	2.65
GSLC	2.92

As reported in Table 2, all full-collinearity VIF values are below the conservative threshold of 3.3, indicating that common method bias is unlikely to be a serious concern.



Table 3. Inner VIF Values

Relationship	VIF
GSLC → BBS	2.78
GIC → BBS	2.31
GF → BBS	2.65
GSLC → GF	2.84
GIC → GF	2.42

As shown in Table 3, all inner VIF values are below 5, indicating no multicollinearity issues.

Table 4. Mediation Analysis (Total Effect and VAF)

Path	Direct Effect	Indirect Effect	Total Effect	VAF (%)	Mediation Type
GSLC → BBS	0.387	0.197	0.584	33.7%	Partial
GIC → BBS	0.184	0.098	0.282	34.7%	Partial

As summarized in Table 4, the VAF values indicate partial mediation, as the mediated effect accounts for approximately one-third of the total effect.

Table 5. Bootstrap Confidence Intervals

Path	β	Lower (2.5%)	Upper (97.5%)	Result
GSLC → BBS	0.387	0.221	0.512	Supported
GIC → BBS	0.184	0.072	0.291	Supported
GF → BBS	0.354	0.211	0.478	Supported
GSLC → GF	0.555	0.421	0.662	Supported
GIC → GF	0.277	0.153	0.398	Supported

As reported in Table 5, the confidence intervals do not include zero, confirming the robustness of the results.

Table 6. Model Fit

Index	Value	Threshold	Interpretation
SRMR	0.061	< 0.08	Good fit

The model-fit assessment is presented in Table 6. The SRMR value of 0.061 is below the recommended threshold of 0.08, indicating good model fit.

3.2 Structural Model Evaluation

After confirming the validity and reliability of the measurement model, the next step was to evaluate the structural model. R^2 and Q^2 were evaluated at this stage. In Table 8, it can be seen that BBS has an R^2 of 0.720, meaning that GSLC, GIC, and GF predict 72.0% of the variation in BBS. In addition, GF had an R^2 of 0.621, indicating that GSLC and GIC explained 62.1% of the variance in GF. The coefficients also indicate that the model has a high predictive power for endogenous constructs. In addition, the Q^2 values from the PLS prediction procedure were reported to be 0.608 for GF and 0.659 for BBS. Both values were above zero, indicating that the model demonstrated predictive relevance (Hair *et al.*, 2019).

Prior to hypothesis testing, collinearity diagnostics were assessed using inner VIF values. All values were below the threshold of 5, indicating no multicollinearity issues. Bootstrapping was conducted using 5,000 subsamples



with bias-corrected confidence intervals to ensure robust estimation of path coefficients. A one-tailed test was employed as all hypotheses were directional and grounded in prior theoretical arguments.

Table 7. Hypothesis Testing Result

Direct Effect							
Path		β	T stat.	P value	Remarks	f^2	Effect size
H1	GSLC $\rightarrow$ BBS	0.387	4.507	0.000	Supported	0,164	Medium
H2	GIC $\rightarrow$ BBS	0.184	2.648	0.004	Supported	0,046	Small
H3	GF $\rightarrow$ BBS	0.354	4.863	0.000	Supported	0.170	Medium
H4	GSLC $\rightarrow$ GF	0.555	8.785	0.000	Supported	0,333	Medium
H5	GIC $\rightarrow$ GF	0.277	4.260	0.000	Supported	0,083	Small
Indirect Effect							
Path		β	T stat.	P value	Remarks	Mediaton Type	
H6	GSLC $\rightarrow$ GF $\rightarrow$ BBS	0.197	4.027	0.000	Supported	Partial Mediation	
H7	GIC $\rightarrow$ GF $\rightarrow$ BBS	0.098	3.235	0.001	Supported	Partial Mediation	

Source: Authors' own (2025).

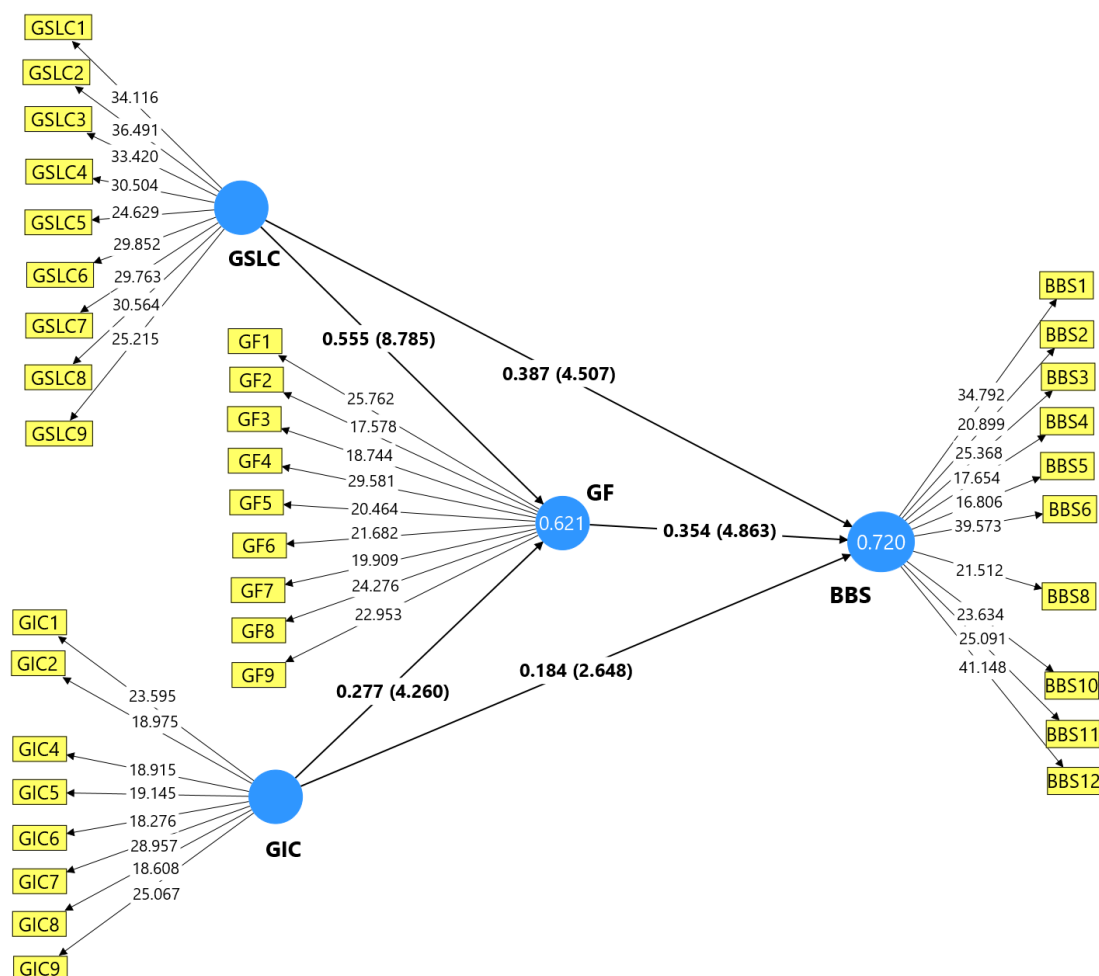


Figure 3. Path Coefficients and Bootstrapping Results.

Hypothesis testing was then performed using path coefficients based on the bootstrapping method with 5,000 subsamples in a one-tailed test (see Figure 3). The results in Table 7 show that GSLC ($\beta = 0.387$, $p < 0.05$,

$f^2 = 0.164$), GIC ($\beta = 0.184$, $p < 0.05$, $f^2 = 0.046$), and GF ($\beta = 0.354$, $p < 0.05$, $f^2 = 0.170$) had positive and significant effects on BBS, thereby supporting H1, H2, and H3. The results also report that GSLC is the most influential driver of BBS. Furthermore, effect size (f^2) indicates how strongly each predictor contributes to explaining the variance in the endogenous construct, with f^2 values of 0.02, 0.15, and 0.35 representing small, medium, and large effects, respectively (Cohen, 1988). The effect sizes for BBS showed that GIC had a small effect, while GSLC and GF had medium effects.

Moreover, GSLC ($\beta = 0.555$, $p < 0.05$, $f^2 = 0.333$) and GIC ($\beta = 0.277$, $p < 0.05$, $f^2 = 0.083$) had positive influences on GF, supporting H4 and H5. In terms of effect size, GSLC had a medium effect, and GIC had a small effect. Table 7 also shows that GF significantly mediates the effects of GSLC on BBS ($\beta = 0.197$, $p < 0.05$) and GIC on BBS ($\beta = 0.098$, $p < 0.05$), both being partial mediations, supporting H6 and H7.

To further assess mediation strength, total effects and variance accounted for (VAF) were calculated. The total effect of GSLC on BBS is 0.584, with approximately 33.7% mediated by GF, indicating partial mediation. Similarly, GIC shows a total effect of 0.282, with 34.7% mediated through GF. These results suggest that while green finance plays a meaningful mediating role, direct effects remain substantial, reinforcing the partial mediation interpretation.

The results of the structural model assessment, including the path coefficients and their respective significance levels, are visually summarized in Figure 3. This figure illustrates the findings obtained through the bootstrapping procedure with 5,000 subsamples. The model visually confirms that both Green Strategic Leadership Capability (GSLC) and Green Intellectual Capital (GIC) exert a significant positive influence on Bank Business Sustainability (BBS), both directly and indirectly through the mediating role of Green Finance (GF). As indicated, all path coefficients are statistically significant at $p < 0.05$, providing robust support for the proposed conceptual framework.

Table 8. R-Square and Q-Square

Variables	R ²	Q ²
Green Finance	0.621	0.608
Bank's Business Sustainability	0.720	0.659

Source: Authors' own (2025)

Table 8 presents the results of the structural model's predictive power and relevance. The R-square (R²) value for Bank Business Sustainability (BBS) is 0.720, indicating that 72% of the variance in bank sustainability is explained by Green Strategic Leadership Capability (GSLC), Green Intellectual Capital (GIC), and Green Finance (GF). According to Hair et al. (2022), an R² value above 0.67 is considered substantial for endogenous constructs in social science research, suggesting that the proposed model has high explanatory power. Furthermore, the Q-square (Q²) values for both Green Finance (0.608) and BBS (0.659) are considerably higher than zero. These results confirm the model's robust predictive relevance, demonstrating that the structural model effectively predicts the sustainability outcomes of the banks in this study.

4. Conclusion

This study confirms that Green Strategic Leadership Capability (GSLC) and Green Intellectual Capital (GIC) are pivotal internal drivers for Bank Business Sustainability (BBS) in the Indonesian banking sector. The findings demonstrate that Green Finance (GF) acts as a strategic channel that operationalizes intangible resources into measurable sustainability outcomes. Theoretically, this research extends the Resource-Based View (RBV) by highlighting how leadership and intellectual capital create long-term resilience and competitive value through structured green financial practices.

Practically, bank management should prioritize structured green leadership development and invest in robust internal sustainability databases. Furthermore, the development of digital-based green finance platforms is recommended to enhance operational efficiency and market outreach.

For regulators, policy support should focus on accelerating green finance adoption through minimum sustainable financing portfolio standards tailored to the classification of banks based on their core capital categories



in Indonesia's banking system. Establishing a precise sustainability-related risk framework and enhancing green financial literacy among banking professionals are also essential to integrating environmental factors into core business models.

Limitations and future research

This study acknowledges several limitations: Measurement: Data relied on self-reported perceptions; future studies should integrate formal sustainability metrics such as the environmental, social, and governance (ESG) indicators. Regulatory Variables: As Indonesian regulations are still evolving, future research should incorporate institutional pressure or specific green policies into the model. Generalizability: The sample primarily represents large-scale banks with the highest core capital classification in the Indonesian banking system. Future research should compare conventional and Islamic banking systems to capture broader contextual nuances in emerging economies.

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Author Contribution Statement

Mal Isnaini Sri Mey Yanti: Conceptualization, Methodology, Software, Writing – Original Draft, Visualization, Investigation. Setyo Riyanto: Data Curation, Supervision, Software, Validation, Writing – Review & Editing. Indra Siswanti: Data Curation, Supervision, Software, Validation, Writing – Review & Editing. Sugiyono: Data Curation, Supervision, Software, Validation, Writing – Review & Editing. All the authors have read and agreed to the published version of the manuscript.

Does this article screen for similarity?

Yes

Conflict of Interest

The authors have no conflicts of interest to declare. There is also no financial interest to report. The author certifies that the submission is original work and is not under review at any other publication.

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