

The Impact of Green Financing and SME Credit on Bank Profitability: Panel Evidence from Indonesian Banks

Wufron, Irfan Rizki Gumilar*, Ira Murwenie, Magnaz Lestira Oktaroza,
Dandy Danudra Djayapermana

Universitas Garut

*Corresponding author. Email: wufron@uniga.ac.id

ABSTRACT

Sustainable finance and small business lending have become central pillars in modern banking strategy, yet their simultaneous effect on bank earnings performance remains insufficiently examined, particularly in emerging market contexts. This study investigates the influence of green financing and small-and-medium enterprise (SME) credit on the return on assets (ROA) of Indonesian commercial banks over the 2019–2024 period. Panel data were drawn from five publicly listed banks — BCA, BRI, BNI, Bank Mandiri, and Maybank Indonesia — yielding 30 firm-year observations. Multiple linear regression analysis was employed as the estimation method. The findings reveal that green financing exerts a statistically significant positive effect on bank profitability ($B = 0.008$, $t = 2.356$, sig 0.026), whereas SME credit does not demonstrate a significant influence on ROA ($B = -0.001$, $t = -0.633$, sig 0.532). The F-test confirms that both predictors jointly explain a meaningful portion of profitability variation ($F = 3.581$, sig 0.042), with an adjusted R^2 of 0.151. These results highlight the strategic importance of green financing portfolios as profitability drivers, while suggesting that the credit-risk characteristics of SME lending require additional risk-management considerations before yielding visible return improvements.

Keywords: *Green Financing, SME Credit, Bank Profitability, Return on Assets, Panel Data, Indonesian Banking*

1. INTRODUCTION

The global transition toward sustainable economic development has progressively reshaped the priorities of commercial banks, compelling them to integrate environmental and social considerations into their core credit allocation decisions. Among the most prominent manifestations of this shift is the rapid growth of green financing — a broad category of financial products, loans, and investment instruments whose proceeds are earmarked for projects with demonstrable environmental benefits, including renewable energy, energy efficiency infrastructure, pollution prevention, and sustainable land use. Alongside this trend, the mobilisation of credit toward micro, small, and medium enterprises (MSMEs) — collectively referred to in this study as SME credit — has remained a cornerstone of development banking policy in Indonesia, where such enterprises account for more than 61 percent of gross domestic product and absorb approximately 97 percent of total employment (Bank Indonesia, 2023).

For bank management and policymakers alike, a critical question emerges from these parallel developments: to what extent do green financing and SME credit portfolios actually enhance financial profitability, as captured by return on assets (ROA)? The answer carries significant practical weight. If green financing consistently generates superior risk-adjusted returns, banks have both a business and a regulatory incentive to expand such portfolios. Conversely, if SME credit — often perceived as higher-risk due to informational asymmetries and collateral limitations — fails to deliver commensurate profitability gains, supervisory frameworks and incentive structures may require reassessment.

Indonesia provides an especially compelling research context. The Indonesian Financial Services Authority (OJK) has mandated progressive green finance roadmaps since 2017, requiring licensed financial institutions to report on sustainable finance actions and gradually incorporate environmental risk into credit appraisal processes (OJK, 2021). Moreover, Bank Indonesia's macroprudential policy has incentivised banks to maintain a minimum loan-to-financing ratio directed at MSME segments, further tying profitability trajectories to SME credit outcomes. Despite these policy

imperatives, the empirical evidence on how these two lending categories interact with bank-level profitability across Indonesian commercial banks remains thin and at times contradictory.

Empirically, aggregate data underscore both the scale of opportunity and the heterogeneity of performance. Table 1 presents a summary of ROA, green financing disbursements, and SME credit volumes for five major Indonesian banks over the 2019–2024 observation window.



Figure 1. Panel Data Summary: ROA, Green Financing, and SME Credit (2022–2024)

Source: Audited Annual Reports of respective banks (2019–2024), IDX database.

An examination of the cross-bank trajectory reveals notable divergences. Banks with aggressive green financing expansions — such as BRI, which grew its green portfolio from IDR 127.8 trillion in 2019 to IDR 271.4 trillion by 2024 — also recovered their ROA to pre-pandemic levels of 3.06 percent by 2023. Conversely, Maybank Indonesia, which experienced a contraction in its green financing from IDR 42.6 trillion to IDR 22.1 trillion over the same period, registered a decline in ROA from 1.14 percent to 0.85 percent in 2024. This descriptive pattern tentatively suggests a co-movement between green financing volumes and profitability, although formal regression analysis is necessary to isolate the effect from confounding firm-level and macroeconomic factors.

The relationship between SME credit and profitability, by contrast, is less straightforward in the raw data. BRI, which maintained the largest absolute SME portfolio (over IDR 1 trillion by 2024), maintained a stable ROA; however, this appears attributable to the bank’s diversified revenue base rather than SME lending alone. BNI expanded SME credit from IDR 72.5 trillion in 2019 to IDR 135.1 trillion in 2024 but saw only a partial ROA recovery to 1.90 percent, suggesting that the incremental returns from SME credit may be dampened by elevated provisioning requirements and higher operating costs associated with serving this segment.

From a research gap perspective, while numerous studies have independently examined either sustainable lending (Chodnicka-Jaworska, 2021; Weber & Feltmate, 2016) or SME credit and bank performance (Berger & Udell, 2006; Ayyagari et al., 2017) in isolation, integrated empirical analyses that simultaneously assess both dimensions within a single regression framework applied to Indonesian bank panel data over a post-COVID recovery horizon are notably absent. Furthermore, prior Indonesian banking studies have tended to focus on large state-owned banks or utilised cross-sectional designs that preclude temporal inference (Hapsari & Fuadati, 2022; Wufon, 2018). This study addresses those deficiencies by employing a balanced panel spanning five banks and six years (2019–2024), capturing both the COVID-19 disruption and the subsequent recovery, and situating results within the Indonesian sustainable finance regulatory framework.

Against this backdrop, the research objectives are as follows: first, to determine whether green financing has a statistically significant effect on ROA among Indonesian commercial banks; second, to evaluate whether SME credit exerts a significant influence on bank profitability; and third, to assess the simultaneous explanatory power of both predictors in a unified model. The remainder of this paper is structured as follows: Section 2 presents the theoretical framework and develops the research hypotheses; Section 3 describes the research methodology; Section 4 reports the empirical results and provides a discussion; and Section 5 concludes with implications and recommendations.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1. Stakeholder Theory

The foundational theoretical lens for this study is Freeman's (1984) Stakeholder Theory, which asserts that corporate organisations — including commercial banks — have obligations not only to equity holders but to a broader coalition of parties whose interests are affected by, or who can affect, the activities of the organisation. Stakeholders in the banking context encompass depositors, borrowers, regulatory authorities, employees, local communities, and environmental constituencies. Stakeholder theory predicts that firms which proactively manage stakeholder relations, including environmental commitments, achieve superior long-run financial performance because they reduce regulatory risk, build reputational capital, and attract socially conscious investors and clients (Donaldson & Preston, 1995; Clarkson, 1995). Applied to green financing, banks that voluntarily or mandatorily direct capital toward environmentally beneficial projects signal credibility to stakeholders, which translates into lower cost of capital, enhanced customer loyalty, and ultimately higher profitability.

2.2. Financial Intermediation Theory and Credit Risk Theory

At an intermediate level, this study draws on Financial Intermediation Theory (Diamond, 1984; Freixas & Rochet, 2008), which conceptualises banks as delegated monitors that reduce information asymmetry between capital providers and capital users. This theory provides the conceptual basis for understanding how the composition of a bank's loan portfolio — its mix of green financing, SME credit, and conventional commercial loans — determines both revenue generation and risk exposure. Specifically, banks that allocate credit to well-screened green projects with clear cash flow profiles (e.g., solar energy plants, certified green buildings) may experience lower non-performing loan (NPL) rates relative to conventional corporate lending, thereby supporting net interest margins and ROA.

Credit Risk Theory (Altman, 1968; Merton, 1974) complements this perspective by arguing that the profitability of any lending activity is fundamentally determined by the probability of default and the loss given default on that portfolio. SME credit, owing to higher informational opacity, limited collateral, and greater cyclicity, typically carries a higher credit risk premium than large corporate or government-backed green bonds. This theoretical expectation is consistent with empirical evidence showing that SME non-performing loan ratios in Indonesia have been structurally higher than those for the corporate segment, at approximately 4.5 percent versus 2.8 percent respectively as of 2023 (OJK, 2023).

2.3. Sustainable Finance and Performance Nexus

At the applied level, this study is informed by the emerging literature on Sustainable Finance Theory (Schoenmaker, 2017; Busch et al., 2020), which bridges traditional financial economics with environmental, social, and governance (ESG) principles. This body of theory posits that financial institutions which systematically incorporate sustainability into credit allocation decisions acquire intangible assets — green reputation, preferential regulatory treatment, and access to concessional climate finance — that strengthen competitive positioning and long-term profitability. Supporting evidence from European banking panels indicates that every one percentage-point increase in the share of green loans to total loans is associated with a statistically significant improvement in ROA of between 0.04 and 0.08 percentage points, after controlling for bank size and macroeconomic conditions (Chodnicka-Jaworska, 2021).

2.4. Variable Operationalisation

Three variables are employed in this study. The dependent variable, bank profitability, is operationalised using Return on Assets (ROA), computed as net profit after tax divided by average total assets, expressed as a percentage. ROA is widely regarded as the primary profitability indicator in banking research because it captures the efficiency with which management deploys all asset classes to generate earnings, irrespective of financing structure (Demirguc-Kunt & Huizinga, 1999; Athanasoglou et al., 2008). The proxy formula is: $ROA = (\text{Net Profit After Tax} / \text{Average Total Assets}) \times 100\%$.

The first independent variable, green financing (X1), is measured as the total disbursement of environmentally designated credit and investment instruments, expressed in Indonesian Rupiah (trillions). This includes OJK-classified green loan categories such as renewable energy credit, energy-efficiency financing, sustainable agriculture, and green building mortgages. The measurement aligns with the OJK's Sustainable Finance Roadmap taxonomy (OJK, 2021) and the Green Bond Principles of the International Capital Market Association (ICMA, 2021). Operationally, the

value of green financing in any given year-bank observation is sourced directly from the sustainability report or the dedicated ESG disclosure section of each bank's annual report.

The second independent variable, SME credit (X2), is measured as the total outstanding balance of loans extended to micro, small, and medium enterprises, expressed in Indonesian Rupiah (trillions), consistent with the SME definition under Bank Indonesia Regulation No. 17/12/PBI/2015, which classifies borrowers by total assets or annual sales turnover thresholds. SME credit encompasses working capital loans, investment loans, and KUR (Kredit Usaha Rakyat) subsidised credit directed at MSME borrowers. This operationalisation follows Ayyagari et al. (2017) and is consistent with prior Indonesian banking studies (Hapsari & Fuadati, 2022).

2.5. Inter-Variable Relationships and Hypotheses

Green financing is hypothesised to positively influence bank profitability through multiple channels. First, banks engaged in green lending benefit from access to cheaper wholesale funding via sustainability-linked bonds and multilateral climate facility credit lines, which reduces their funding costs and widens net interest margins (Cheng et al., 2014; Ehlers & Packer, 2017). Second, green projects in sectors such as utility-scale renewable energy and green infrastructure are increasingly characterised by long-term contracted cash flows and strong policy support, making them lower credit-risk relative to conventional sub-investment-grade corporate lending. Third, banks with credible green financing credentials attract ESG-mandate institutional investors and retail depositors who may accept marginally lower deposit rates, further compressing funding costs. Empirical support for this channel is documented by Weber and Feltnate (2016) and, in an Asian banking context, by Ge and Liu (2015). On this basis, the following hypothesis is advanced:

H1: Green financing has a positive and statistically significant effect on the return on assets of Indonesian commercial banks.

The relationship between SME credit and profitability is theoretically ambiguous. On the one hand, SME loans typically carry higher lending rates than corporate facilities, reflecting the risk premium demanded by lenders for accepting higher credit risk and higher monitoring costs (Berger & Udell, 2006). If the higher interest income more than offsets the elevated provisioning charges, ROA would be expected to rise with SME credit expansion. On the other hand, SME borrowers are disproportionately affected by economic downturns — as evidenced by the COVID-19 period during which SME NPL ratios in Indonesia spiked to over 6 percent (OJK, 2021) — and the administrative burden of managing large numbers of small accounts can inflate operating costs. The net effect is therefore an empirical question. Consistent with studies that find a positive but fragile relationship between SME lending intensity and bank ROA (Ayyagari et al., 2017), the following hypothesis is proposed:

H2: SME credit has a positive and statistically significant effect on the return on assets of Indonesian commercial banks.

3. RESEARCH METHODS

3.1. Research Design and Approach

This study employs a quantitative research design with an associative-causal orientation, seeking to test the directional influence of two independent variables — green financing and SME credit — on the dependent variable of bank profitability. A quantitative framework is chosen because profitability and lending data are inherently numeric and measurable, and because hypothesis testing requires a probabilistic assessment of parameter estimates, which is best accomplished through regression-based statistical inference (Creswell, 2014).

3.2. Population, Sample, and Data Collection

The population of this study consists of all commercial banks listed on the Indonesia Stock Exchange (IDX) that publicly disclose green financing data in their annual or sustainability reports. Given the limited number of banks with consistently available green financing disclosure across the observation window, a purposive sampling technique is adopted, selecting five banks — BCA (BBKA), BRI (BBRI), BNI (BBNI), Bank Mandiri (BMRI), and Maybank Indonesia (BNII) — on the basis of continuous data availability for all three variables across the 2019–2024 period. This yields a balanced panel of 30 firm-year observations (5 banks × 6 years). Data were collected through documentary methods from audited annual reports, sustainability reports, and supplementary financial statements published on the IDX electronic reporting system (e-REPORTING) and each bank's official corporate website.

The observation period of 2019–2024 is deliberate: it captures the pre-pandemic baseline (2019), the full COVID-19 disruption (2020–2021), and the economic recovery trajectory (2022–2024), providing temporal variation that allows the model to reflect both stress-period and normal-period performance dynamics. All three variables are recorded on an annual basis; ROA values are drawn from audited income statements and balance sheets, while green financing and SME credit values are sourced from dedicated sustainability and MSME credit disclosures within annual reports.

3.3. Data Type and Nature

The data employed are quantitative, longitudinal, and secondary in nature. As a panel dataset, observations combine both a cross-sectional dimension (five banks) and a time-series dimension (six years), making the dataset suitable for pooled regression analysis. All variables are expressed in their natural units: ROA as a percentage and lending volumes in Indonesian Rupiah trillions, consistent with the SPSS data encoding used in analysis.

3.4. Analytical Method

The primary analytical tool is multiple linear regression, estimated via the ordinary least squares (OLS) method using IBM SPSS Statistics 26. Multiple regression is appropriate here because the study seeks to estimate the partial effect of each independent variable while controlling for the other, thereby isolating the unique contribution of green financing and SME credit to profitability variation (Hair et al., 2019). The regression model is specified as follows:

$$ROA = \alpha_0 + \beta_1 (\text{Green Financing}) + \beta_2 (\text{SME Credit}) + \varepsilon \dots (1)$$

where ROA is return on assets (%), β_1 and β_2 are the partial regression coefficients for green financing and SME credit respectively, α_0 is the intercept, and ε is the random error term. Model adequacy is assessed through the F-test for joint significance, individual t-tests for partial coefficient significance at the 5% level, and the coefficient of determination (R^2 and adjusted R^2). Given the panel nature of the data and the relatively small sample size ($n = 30$), the Enter method of variable inclusion is used to ensure transparency in coefficient estimation.

4. DATA ANALYSIS AND DISCUSSION

4.1. Model Summary and Goodness of Fit

Table 2 presents the model summary from the SPSS output. The multiple correlation coefficient R equals 0.458, indicating a moderate positive association between the combined predictor set and ROA. The R^2 value of 0.210 implies that the two predictors collectively account for approximately 21.0 percent of the total variance in bank profitability across the 30 observations. After adjustment for the number of predictors and sample size, the adjusted R^2 stands at 0.151, reflecting that roughly 15.1 percent of profitability variation is systematically explained by green financing and SME credit, net of model complexity penalisation. The standard error of the estimate is 109.352, expressed in the same unit as the dependent variable. These fit statistics suggest that additional variables — such as bank size (total assets), capital adequacy ratio, net interest margin, or macroeconomic controls like GDP growth and inflation — would likely improve model fit in future studies.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.458a	.210	.151	109.352

a. Predictors: (Constant), Green Financing, SME Credit; Dependent Variable: ROA.

4.2. ANOVA: Joint Significance Test

The analysis of variance (ANOVA) presented in Table 3 evaluates whether the regression model as a whole achieves statistical significance. The regression sum of squares is 85,640.799 with 2 degrees of freedom, yielding a mean square of 42,820.399. The residual sum of squares is 322,859.868 with 27 degrees of freedom (mean square = 11,957.773). The resulting F-statistic is 3.581, which is statistically significant at the 5% level (sig 0.042). This outcome confirms that green financing and SME credit, taken together, constitute a meaningful predictor set for bank profitability. The null hypothesis of joint insignificance is rejected, validating the overall utility of the regression model.

Table 3. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85,640.799	2	42,820.399	3.581	.042b
	Residual	322,859.868	27	11,957.773		
	Total	408,500.667	29			

a. Dependent Variable: ROA. b. Predictors: (Constant), Green Financing, SME Credit.

4.3. Coefficient Estimates and Hypothesis Testing

Table 4 reports the unstandardised and standardised regression coefficients, along with the associated t-statistics and p-values for each predictor.

Table 4. Regression Coefficients

Variable	B (Unstd. Coeff.)	Std. Error	Beta (Std.)	t	Sig.
(Constant)	101.828	24.838		4.100	.000
Green Financing	.008	.003	.542	2.356	.026
SME Credit	-.001	.001	-.146	-.633	.532

a. Dependent Variable: ROA.

The estimated regression equation derived from Table 4 is as follows:

$$ROA = 101.828 + 0.008 (\text{Green Financing}) - 0.001 (\text{SME Credit}) \dots (2)$$

4.4. Effect of Green Financing on Bank Profitability

The regression coefficient for green financing is $B = 0.008$ with a standard error of 0.003, yielding a t-value of 2.356 and a p-value of 0.026. Since $p < 0.05$, the null hypothesis of no effect is rejected, confirming that green financing exerts a positive and statistically significant influence on ROA. The standardised beta coefficient of 0.542 further indicates that green financing is the dominant predictor in the model, contributing more than five times the effect of SME credit in terms of standardised impact magnitude. Economically, the coefficient implies that each additional IDR 1 trillion allocated to green financing is associated with an increase in ROA of approximately 0.008 percentage points, holding SME credit constant.

This finding is consistent with H1 and aligns with multiple theoretical and empirical antecedents. Stakeholder theory predicts that environmental commitment generates reputational and regulatory goodwill that translates into financial performance advantages (Freeman, 1984; Donaldson & Preston, 1995). In practice, Indonesian banks with larger green financing portfolios — such as BRI and BCA — have consistently demonstrated stronger ROA recovery in the post-COVID period compared to banks whose green portfolios contracted (e.g., Maybank Indonesia). This pattern is consistent with Ge and Liu's (2015) finding in Chinese banking that green credit expansion is positively correlated with bank profitability through reduced credit risk and access to concessional green funding facilities.

Furthermore, from a sustainable finance perspective (Schoenmaker, 2017), the OJK's regulatory framework incentivises banks to expand green financing through reputational benefits, preferential capital treatment in proposed green taxonomy regulations, and eligibility for multilateral climate credit lines at below-market rates. As Indonesian banks increasingly access green bonds and sustainability-linked loans from international capital markets, the funding cost advantage associated with green portfolio growth is expected to persist and strengthen. The implication for bank management is clear: strategically expanding green financing capacity is not merely a compliance or reputational exercise but a demonstrably profitable portfolio allocation decision.

4.5. Effect of SME Credit on Bank Profitability

The regression coefficient for SME credit is $B = -0.001$ with a standard error of 0.001, yielding a t-value of -0.633 and a p-value of 0.532. Since $p > 0.05$, the null hypothesis of no partial effect cannot be rejected. The evidence therefore does not support H2; SME credit does not demonstrate a statistically significant influence on ROA in this sample. The negative sign of the coefficient, while statistically negligible, is nonetheless theoretically informative: it suggests that within this panel, marginal expansions in SME credit portfolios may exert mild downward pressure on

ROA, possibly through elevated provisioning charges or higher administrative costs that outweigh incremental interest income.

Several explanations can be advanced for this non-significant finding. First, as Credit Risk Theory (Altman, 1968; Merton, 1974) anticipates, SME borrowers exhibit substantially higher default risk than large corporate clients, and during the 2019–2024 window, the COVID-19 shock of 2020–2021 triggered a sharp increase in SME NPL ratios across Indonesian banks, necessitating higher loan loss provisions that suppressed net profitability. BNI's ROA fell to 0.50 percent in 2020 despite relatively moderate SME credit growth, illustrating how risk materialisation can offset interest income gains from this segment. Second, the government's KUR subsidy programme, while expanding SME credit accessibility, effectively caps interest rates on subsidised facilities at below-market levels, which compresses the net interest margin realised from this portfolio. Third, the administrative intensity of managing large numbers of granular SME accounts — including monitoring, restructuring, and collection — generates operating cost burdens not fully reflected in higher lending yields.

These findings are broadly consistent with Ayyagari et al. (2017), who document that the profitability effect of SME lending is contingent on credit risk management capabilities and macroeconomic conditions, and with Hapsari and Fuadati (2022), who found that Indonesian MSME credit had no significant effect on ROA at the aggregate sector level when credit quality variables were introduced into the model. From a practical standpoint, the results suggest that bank managers should not rely solely on SME credit volume expansion as a profitability lever; rather, improvements in SME credit quality — through better scoring models, digital credit assessment, and collateral alternatives — are likely necessary preconditions for SME lending to generate meaningful ROA improvements.

4.6. Joint Influence: Simultaneous Effect on Profitability

The F-test result ($F = 3.581$, sig 0.042) establishes that green financing and SME credit together have a significant joint effect on bank profitability. Although the adjusted R^2 of 0.151 indicates that the model explains approximately 15 percent of ROA variation after penalisation, this degree of explanatory power is not unusual for parsimonious two-predictor models applied to small panels where unobserved bank-specific heterogeneity — such as management quality, technology investment, and funding mix — accounts for a substantial share of residual variance. The result reinforces the view that sustainable lending portfolio composition constitutes a meaningful, if partial, determinant of profitability across Indonesian commercial banks.

5. CONCLUSION

This study examined the influence of green financing and SME credit on the return on assets of five Indonesian commercial banks over the 2019–2024 period using a panel dataset of 30 observations and multiple linear regression analysis. The principal findings are threefold. First, green financing exerts a positive and statistically significant effect on bank profitability ($B = 0.008$, $t = 2.356$, sig 0.026), affirming H1 and aligning with stakeholder theory and sustainable finance literature. Second, SME credit does not have a statistically significant effect on ROA ($B = -0.001$, $t = -0.633$, sig 0.532), leading to the non-support of H2, with the non-significant negative coefficient attributable to elevated credit risk and margin compression in the SME segment. Third, both variables collectively explain a significant portion of profitability variation ($F = 3.581$, sig 0.042), underscoring the relevance of lending portfolio composition as a determinant of banking performance.

The practical implication for bank management is that deliberate expansion of green financing portfolios represents a value-enhancing strategy under the current Indonesian regulatory and market environment. For policymakers, the findings reinforce the rationale for continuing and deepening OJK's sustainable finance roadmap while simultaneously introducing credit risk improvement frameworks for SME lending — such as enhanced guarantee schemes, digital credit scoring, and NPL resolution facilities — to unlock the latent profitability potential of the MSME segment. Future research should extend this model to a larger panel of banks, incorporate bank-specific controls (capital adequacy ratio, NPL ratio, bank size), and explore dynamic panel estimators to address potential endogeneity between lending decisions and profitability.

REFERENCES

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 23(4), 589–609. <https://doi.org/10.1111/j.1540-6261.1968.tb00843.x>

- Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18(2), 121–136. <https://doi.org/10.1016/j.intfin.2006.07.001>
- Ayyagari, M., Demirguc-Kunt, A., & Maksimovic, V. (2017). SME finance. World Bank Policy Research Working Paper No. 8241. <https://doi.org/10.1596/1813-9450-8241>
- Bank Indonesia. (2023). MSME and financial inclusion statistics 2023. Bank Indonesia.
- Berger, A. N., & Udell, G. F. (2006). A more complete conceptual framework for SME finance. *Journal of Banking & Finance*, 30(11), 2945–2966. <https://doi.org/10.1016/j.jbankfin.2006.05.008>
- Busch, T., Bauer, R., & Orlitzky, M. (2020). Sustainable development and financial markets: Old paths and new avenues. *Business & Society*, 55(3), 303–329. <https://doi.org/10.1177/0007650315570701>
- Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, 35(1), 1–23. <https://doi.org/10.1002/smj.2131>
- Chodnicka-Jaworska, P. (2021). ESG as a measure of credit ratings. *Risks*, 9(12), 226. <https://doi.org/10.3390/risks9120226>
- Clarkson, M. E. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of Management Review*, 20(1), 92–117. <https://doi.org/10.5465/amr.1995.9503271994>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- Demirguc-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: Some international evidence. *The World Bank Economic Review*, 13(2), 379–408. <https://doi.org/10.1093/wber/13.2.379>
- Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The Review of Economic Studies*, 51(3), 393–414. <https://doi.org/10.2307/2297430>
- Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20(1), 65–91. <https://doi.org/10.5465/amr.1995.9503271992>
- Ehlers, T., & Packer, F. (2017). Green bond finance and certification. *BIS Quarterly Review*, September 2017, 89–104.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman Publishing.
- Freixas, X., & Rochet, J. C. (2008). *Microeconomics of banking* (2nd ed.). MIT Press.
- Ge, W., & Liu, M. (2015). Corporate social responsibility and the cost of corporate bonds. *Journal of Accounting and Public Policy*, 34(6), 597–624. <https://doi.org/10.1016/j.jaccpubpol.2015.05.008>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.
- Hapsari, D. I., & Fuadati, S. R. (2022). The influence of MSME credit distribution on profitability of national private commercial banks in Indonesia. *Jurnal Ilmu Manajemen*, 10(1), 38–49. <https://doi.org/10.26740/jim.v10n1.p38-49>
- International Capital Market Association. (2021). *Green bond principles: Voluntary process guidelines for issuing green bonds*. ICMA.
- Merton, R. C. (1974). On the pricing of corporate debt: The risk structure of interest rates. *The Journal of Finance*, 29(2), 449–470. <https://doi.org/10.1111/j.1540-6261.1974.tb03058.x>
- Otoritas Jasa Keuangan [OJK]. (2021). *Sustainable finance roadmap phase II (2021–2025)*. Otoritas Jasa Keuangan.
- Otoritas Jasa Keuangan [OJK]. (2023). *Indonesian banking statistics December 2023*. Otoritas Jasa Keuangan.
- Schoenmaker, D. (2017). *Investing for the common good: A sustainable finance framework*. Bruegel Essay and Lecture Series.

- Weber, O., & Feltnate, B. (2016). *Sustainable banking: Managing the social and environmental impact of financial institutions*. University of Toronto Press.
- Wufron, W. (2018). The effect of store atmosphere, promotion and purchasing decisions of batik consumers in Garut. *Jurnal Wacana Ekonomi*, 17(3), 189–200. <https://doi.org/10.52434/jwe.v17i3.525>
- Wufron, W., Cupiadi, H., Kurniawan, D. A., Dewi, A., & Ayuni, S. (2025). Virtual Account Performance on Student Satisfaction: An Analysis through Perceived Ease of Use and Usefulness. *Ilomata International Journal of Management*, 6(3), 1034–1052. <https://doi.org/10.61194/ijjm.v6i3.1493>