Enrichment: Journal of Management, 15 (4) (2025)

Published by: Instiute of Computer Science (IOCS)

Enrichment: Journal of Management

Journal homepage: www.enrichment.iocspublisher.org

Financial literacy and green finance: catalysts for green economic recovery in smes

Muhammad Ramadhani Kesuma[1], Ellen D. Oktanti Irianto[2], Chandika Mahendra Widaryo[3], Margareth Henrika[4], Lusiana Desy Ariswati[5], Rohana Nur Aini[6]

[1,2,3,4,5,6]Department of Management, Universitas Mulawarman, Samarinda, Indonesia

ARTICLE INFO

Article history:

Received Sep 12, 2025
Revised Sep 17, 2025
Accepted Oct 13, 2025

Keywords:

Business practices adoption;
Financial literacy;
Green economic recovery;
Green finance;
SME sustainability.

ABSTRACT

This study examined the interplay of financial literacy and access to green finance in driving green economic recovery among small and medium enterprises in East Kalimantan, Indonesia, where resource dependence exacerbates environmental vulnerabilities. The core problem addressed was the sluggish adoption of sustainable business practices by these enterprises, hampered by insufficient financial acumen and constrained funding for eco-friendly initiatives. A quantitative survey approach was employed, gathering data from 150 enterprises across agriculture, trade, and services sectors through structured questionnaires. Partial least squares structural equation modeling analyzed the relationships, revealing that financial literacy exerted a strong positive effect on green practice adoption, while green finance access provided both direct and mediated support. Adoption of green practices fully mediated financial literacy's impact on recovery and partially mediated green finance's influence, collectively accounting for over half of the variance in economic and environmental outcomes. These findings underscored the synergistic potential of education and funding in bolstering resilience. Policymakers should prioritize integrated training and streamlined financing to accelerate sustainable transitions, fostering long-term viability in similar contexts.

This is an open access article under the CC BY-NC license.

Corresponding Author:

Ellen D. Oktanti Irianto,
Department of Management,
Universitas Mulawarman,
Jl. Tanah Grogot, Samarinda, 75119, Indonesia,
Email: ellend@feb.unmul.ac.id

INTRODUCTION

The global pursuit of sustainable development has intensified in recent years, driven by the urgent need to address environmental degradation and economic recovery following crises such as the COVID-19 pandemic. The concept of a green economy, which emphasizes sustainable growth through resource efficiency, environmental preservation, and social inclusion, has emerged as a critical framework for achieving these goals. Small and Medium Enterprises (SMEs), which form the backbone of many economies, particularly in developing countries, play a pivotal role in this transition. In Indonesia, SMEs contribute approximately 61.07% to the national Gross Domestic

Product (GDP) and employ around 97% of the workforce, underscoring their economic significance. However, in East Kalimantan, SMEs contribute over 60% to the regional GDP, yet face acute environmental pressures, with deforestation rates 2-3 times the national average, exacerbating vulnerabilities compared to more industrialized regions like West Java, where green transitions are more advanced due to stronger regulatory support and infrastructure (Dewi, 2025). The adoption of green business practices by SMEs remains limited, constrained by factors such as inadequate financial literacy and restricted access to green finance. These challenges are particularly pronounced in regions like East Kalimantan, where economic activities are closely tied to natural resource exploitation, yet environmental vulnerabilities demand sustainable practices.

Financial literacy, encompassing knowledge, skills, and attitudes toward financial management, equips SME owners with the ability to make informed decisions, optimize resource allocation, and navigate complex financing options. It is a critical enabler for SMEs to engage with green finance, which provides funding for environmentally sustainable projects such as renewable energy adoption or waste management systems. Green finance addresses the financial barriers that SMEs face in transitioning to sustainable practices, offering tailored funding mechanisms to support eco-friendly initiatives (Bhattacharyya & Khan, 2021). Despite their potential, the synergistic relationship between financial literacy and green finance in fostering green economic recovery among SMEs, particularly in emerging economies, remains underexplored. This gap is especially evident in regions like East Kalimantan, where local economic and environmental dynamics create unique challenges and opportunities for sustainable development.

The primary problem addressed in this study is the low adoption of green business practices by SMEs in East Kalimantan, driven by limited financial literacy and insufficient access to green finance. Many SMEs in this region, which predominantly operate in agriculture, trade, and services, lack the knowledge and skills to effectively manage financial resources or access funding for sustainable initiatives. OJK survey in 2022, indicated that financial literacy among East Kalimantan SMEs stands at approximately 45-50%, with 70% citing barriers to green finance access due to inadequate documentation and awareness, far below national benchmarks for sustainable funding uptake; this is compounded by complex paperwork requirements that further deter SMEs from pursuing green financing options (Juana et al., 2024). This issue is compounded by inadequate financial infrastructure and a lack of awareness about green financing options, which hinders SMEs' ability to implement practices such as energy-efficient technologies or waste reduction strategies (Wu et al., 2021). Furthermore, while government policies in Indonesia increasingly promote green economic initiatives, they often lack accompanying educational programs to enhance financial literacy among SME owners, limiting the effectiveness of these policies (Huong & Anh, 2024). This study seeks to investigate how financial literacy and green finance can act as catalysts for green economic recovery among SMEs in East Kalimantan, addressing a critical gap in the literature and practice.

The literature underscores the significant impact of financial literacy on SMEs' financial performance and sustainability. Studies have shown that financially literate SME owners are better equipped to optimize resources, reduce waste, and make strategic financial decisions, which enhance operational efficiency and sustainability outcomes (Illmeyer et al., 2017; Poliaková et al., 2024; Tóth et al., 2023). For instance, financial literacy enables SMEs to understand and utilize financial products, thereby improving their ability to invest in green initiatives (Nkwinika & Akinola, 2023; Tóth et al., 2023). Similarly, green finance has been recognized as a vital tool for supporting sustainable business practices by providing targeted funding for eco-friendly projects, such as renewable energy systems or sustainable waste management. However, the implementation of green finance in developing regions is often constrained by limited financial infrastructure, necessitating innovative financing models tailored to local contexts (Bhattacharyya & Khan, 2021).

Despite these insights, a significant research gap exists in understanding how financial literacy and green finance interact to drive green economic recovery in SMEs, particularly in

emerging economies (Deventer, 2020). Most studies focus on either financial literacy or green finance in isolation, failing to explore their combined effect on sustainable economic outcomes. This is particularly relevant in regions like East Kalimantan, where economic reliance on natural resources and environmental vulnerabilities, such as deforestation and pollution, create unique challenges for SMEs (Iswanti et al., 2020). The adoption of green finance in such regions is influenced by local economic conditions, regulatory frameworks, and environmental awareness, which require tailored approaches to promote sustainable practices (Caldera et al., 2019; Huong & Anh, 2024).

Barriers to accessing green finance in resource-rich yet environmentally vulnerable regions like East Kalimantan include inadequate financial infrastructure, complex financing mechanisms, and low awareness among SME owners (Omowole et al., 2024; Zheng et al., 2021). Financial literacy plays a crucial role in overcoming these barriers by enabling SMEs to navigate financing options and make informed decisions about sustainable investments (Wu et al., 2021). Additionally, regulatory frameworks often fail to provide sufficient support for green finance initiatives, leading to reluctance from financial institutions to invest in sustainable projects (Tillema et al., 2022). Addressing these barriers requires collaborative efforts to enhance awareness and provide capacity-building initiatives focused on sustainable finance (Poliaková et al., 2024).

The novelty of this research lies in its integrated examination of financial literacy and green finance as catalysts for green economic recovery in SMEs, with a specific focus on East Kalimantan. Unlike previous studies that address these elements separately, this study develops a conceptual model that explores their synergistic effects, offering new insights into how these factors interact to promote sustainability (Siddik et al., 2023). By focusing on a resource-rich yet environmentally vulnerable region, the research addresses a critical gap in the literature and provides context-specific recommendations for policymakers and stakeholders. The study's contributions include the development of an empirical model that links financial literacy, green finance, and green economic recovery, as well as practical policy recommendations to support SMEs' transition to sustainable practices. Practically, this research offers stakeholders in East Kalimantan—such as the local Cooperative and SME Agency, financial institutions, and government bodies—actionable recommendations for integrated literacy-finance programs, potentially boosting SME green practice adoption rates by 20-30% and aligning with regional sustainability goals like those of the IKN Nusantara initiative (Waruwu et al., 2024).

RESEARCH METHOD

This study adopts a quantitative research design to examine the relationships between financial literacy, access to green finance, adoption of green business practices, and green economic recovery among Small and Medium Enterprises (SMEs) in East Kalimantan, Indonesia. The methodology is structured to ensure a systematic, scientifically rigorous investigation of these variables, addressing the low adoption of sustainable practices due to limited financial literacy and access to green finance. The research process begins with defining the target population, which consists of SMEs registered with the East Kalimantan Cooperative and SME Agency. To ensure the sample's relevance, purposive sampling is utilized, selecting SMEs that have been operational for at least two years. This sampling approach is consistent with prior studies that emphasize selecting participants based on characteristics relevant to the research objectives, enabling deeper insights into sector-specific dynamics (Kesuma et al., 2025). The sample size is determined using the guideline by Hair et al. (2019), which recommends 5–10 respondents per measurement item for reliable statistical analysis, with 11 indicators across four constructs suggesting a minimum of 55–110 respondents. However, to enhance the reliability of parameter estimates and model fit assessments in covariance-based SEM, a sample of 150 respondents was targeted, deemed sufficient for confirmatory models based on

simulation studies indicating convergence at N>100, though larger samples are preferred for robust results (Aini et al., 2025).

Data collection is facilitated through a structured questionnaire designed to measure the key variables: financial literacy, access to green finance, adoption of green business practices, and green economic recovery. The questionnaire is adapted from validated instruments, which assess financial knowledge, skills, and attitudes among SME owners (Tóth et al., 2023). To ensure alignment with East Kalimantan's cultural and economic context, characterized by resource-dependent SMEs, the instrument was pre-tested with a sample of 20 SMEs and refined based on qualitative feedback from local stakeholders, incorporating terminology relevant to regional practices such as sustainable mining or agriculture. Content validity was further established through review by a panel of five experts, including academics and SME practitioners, achieving a Content Validity Index (CVI) of 0.85, confirming the instrument's relevance and comprehensiveness (Hair et al., 2019).

The measurement indicators for each variable are carefully defined to ensure precision and alignment with the study's objectives. Table 1 presents the variables, their indicators, and the corresponding references from the literature, ensuring that each indicator is grounded in established research.

Table 1. Measurement Indicators for Variables

Variable	Indicators	References
Financial Literacy	Financial knowledge (understanding of financial concepts, e.g., budgeting, investment) Financial skills (ability to apply financial knowledge in decision-making) Financial attitudes (confidence and behavior toward financial management)	Tóth et al. (2023)
Access to Green Finance	Availability of green financing products (e.g., low-interest loans for eco-friendly projects) Ease of access (simplicity of application processes and eligibility criteria)	Huong & Anh (2024)
Adoption of Green Business Practices	Energy efficiency (percentage reduction in energy consumption) Waste management (volume of waste recycled or reduced) Use of eco-friendly technologies (proportion of sustainable materials used)	Poliaková et al. (2024)
Green Economic Recovery	Revenue growth (increase in SME income post-implementation of green practices) Environmental impact reduction (e.g., lower emissions, waste reduction) Competitive advantage (improved market position due to sustainable practices)	Poliaková et al. (2024)

The indicators are drawn from prior research to ensure reliability and validity. Financial literacy indicators are based on frameworks assessing knowledge, skills, and attitudes (Tóth et al., 2023), while green finance indicators focus on availability and accessibility, as established in studies of developing economies (Huong & Anh, 2024). Indicators for green business practices, such as energy efficiency and waste management, are informed by metrics like energy consumption reduction and recycling rates (Poliaková et al., 2024). Green economic recovery indicators, including revenue growth and environmental impact reduction, are aligned with sustainability outcomes in SMEs (Poliaková et al., 2024). To mitigate perception bias in self-reported survey data, triangulation was employed by cross-referencing responses with secondary sources, such as BPS East Kalimantan reports on SME economic contributions and OJK financial inclusion data, enhancing the reliability of findings (Rožman et al., 2020).

Data analysis is conducted using Structural Equation Modeling (SEM) to examine the relationships between the latent variables. SEM is chosen for its ability to model complex causal relationships, enabling the study to test hypotheses about how financial literacy and green finance influence green business practices and economic recovery (Noja et al., 2021). Descriptive statistics are used to summarize respondent characteristics and variable distributions, providing a comprehensive overview of the data. The validity of the questionnaire is assessed through item-total correlation analysis, while reliability is confirmed using Cronbach's Alpha, targeting a threshold of >0.7 to ensure internal consistency (Iwu et al., 2021). Confirmatory Factor Analysis (CFA) is employed to verify the dimensional structure of the constructs, ensuring measurement accuracy (Illmeyer et al., 2017).

RESULTS AND DISCUSSIONS

The measurement model, or outer model, serves as the foundational scaffold for the PLS-SEM framework, verifying the psychometric properties of the latent constructs. Reliability and validity assessments confirm the instrument's robustness, ensuring that indicators faithfully represent their underlying dimensions. This evaluation is imperative in SME-centric inquiries, where data heterogeneity often arises from diverse operational scales and sectoral variances.

Table 2 consolidates the reliability and convergent validity metrics for the constructs. Cronbach's alpha coefficients, ranging from 0.722 to 0.751, surpass the conventional benchmark of 0.70, attesting to adequate internal consistency across all variables. Composite reliability estimates (rho_a and rho_c) further affirm this, with values between 0.738 and 0.857, exceeding the 0.70 threshold and signaling dependable measure aggregation. The Average Variance Extracted (AVE) figures, from 0.639 to 0.731, eclipse the 0.50 cutoff, evidencing that each construct captures a substantive share of its indicators' variance, thereby substantiating convergent validity.

Table 2. Reliability and Convergent Validity Metrics

Construct	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	AVE
Financial Literacy (X1)	0.722	0.739	0.841	0.639
Access to Green Finance (X2)	0.733	0.738	0.845	0.731
Adoption of Green Business Practices (M)	0.751	0.755	0.857	0.666
Green Economic Recovery (Y)	0.742	0.834	0.851	0.663

Indicator loadings, as delineated in Table 3, reveal strong associations between items and their constructs, with most values surpassing 0.70—a criterion for indicator retention in PLS-SEM applications. For instance, financial literacy indicators (FL.1: 0.815, FL.2: 0.757, FL.3: 0.824) exhibit robust loadings, reflective of their capacity to encapsulate knowledge, skills, and attitudes toward financial management. Similarly, access to green finance items (AGF.1: 0.871, AGF.2: 0.838) demonstrate high fidelity, underscoring the pertinence of availability and accessibility in eco-financing contexts. Adoption of green business practices indicators (AGBP.1–3: 0.808–0.828) align seamlessly, capturing nuances in energy efficiency, waste management, and eco-technology integration. For green economic recovery, GER.1 (0.913) and GER.2 (0.896) load exceptionally, while GER.3 (0.593) falls marginally below 0.70 yet retains statistical significance ($T = 7.252$, $p < 0.001$), warranting inclusion given its contextual relevance to competitive positioning. The lower loading of GER.3 suggests that competitive advantage may be a weaker dimension in this context, implying that interventions should prioritize tangible outcomes like revenue growth and environmental impact reduction to ensure effective design and measurable impacts (Pizzi et al., 2021). Bootstrapped T-statistics (all > 1.96) and p-values (< 0.001) affirm the significance of these loadings, mitigating concerns over measurement error.

Table 3. Indicator Loadings and Significance

Indicator	Loading	T-Statistics	p-Value
Financial Literacy (X1)			
FL.1 (Knowledge)	0.815	17.354	<0.001
FL.2 (Skills)	0.757	13.981	<0.001
FL.3 (Attitudes)	0.824	26.475	<0.001
Access to Green Finance (X2)			
AGF.1 (Availability)	0.871	34.110	<0.001
AGF.2 (Accessibility)	0.838	24.429	<0.001
Adoption of Green Business Practices (M)			
AGBP.1 (Energy Efficiency)	0.813	21.427	<0.001
AGBP.2 (Waste Management)	0.808	24.185	<0.001
AGBP.3 (Eco-Technologies)	0.828	29.223	<0.001
Green Economic Recovery (Y)			
GER.1 (Revenue Growth)	0.913	59.676	<0.001
GER.2 (Environmental Impact Reduction)	0.896	52.478	<0.001
GER.3 (Competitive Advantage)	0.593	7.252	<0.001

Discriminant validity, assessed via the Fornell-Larcker criterion, ensures construct distinctiveness. Correlations among constructs (e.g., 0.682 between X2 and M; 0.851 between X2 and Y) remain below the square roots of corresponding AVEs (0.799–0.855), precluding overlap and affirming empirical separation. Variance Inflation Factor (VIF) scores, spanning 1.206 to 2.153 (all < 5.00), preclude multicollinearity, thereby upholding the integrity of the measurement apparatus. These metrics collectively validate the model's foundational elements, aligning with methodological precedents in SME sustainability research where construct precision is paramount amid data constraints.

Path coefficients, bootstrapped for robustness (5,000 resamples), are summarized in Table 4. The linkage from financial literacy (X1) to adoption of green business practices (M) yields a β of 0.387 ($T = 4.853$, $p < 0.001$), evincing a substantive positive influence—SMEs endowed with superior financial acumen evince heightened propensity for green adoption. Access to green finance (X2) similarly catalyzes M ($\beta = 0.263$, $T = 2.771$, $p = 0.006$), albeit with moderated vigor, implying that funding availability augments but does not supplant knowledge-driven initiatives. The conduit from M to green economic recovery (Y) registers a robust β of 0.459 ($T = 4.905$, $p < 0.001$), positing green practices as a linchpin for revenue augmentation, ecological mitigation, and market fortification. Direct ingress from X2 to Y ($\beta = 0.362$, $T = 4.839$, $p < 0.001$) underscores financing's standalone efficacy, whereas X1's direct trajectory to Y ($\beta = 0.051$, $T = 0.594$, $p = 0.553$) lacks significance, intimating mediation.

Table 4. Path Coefficients and Mediation Effects

Path	β (Direct)	T-Statistics	p-Value	Indirect Effect	T-Statistics (Indirect)	p-Value (Indirect)
X1 → M	0.387	4.853	<0.001	-	-	-
X2 → M	0.263	2.771	0.006	-	-	-
M → Y	0.459	4.905	<0.001	-	-	-
X2 → Y	0.362	4.839	<0.001	0.121	2.649	0.008
X1 → Y	0.051	0.594	0.553	0.177	3.374	0.001

Mediation scrutiny reveals M's pivotal brokerage: X1's indirect sway on Y via M ($\beta = 0.177$, $T = 3.374$, $p = 0.001$) and X2's ($\beta = 0.121$, $T = 2.649$, $p = 0.008$) affirm partial mediation, wherein green practices channel antecedent benefits into recovery endpoints. Total effects amplify this: X1 → Y ($\beta = 0.228$, $T = 2.868$, $p = 0.004$) and X2 → Y ($\beta = 0.483$, $T = 5.490$, $p < 0.001$), with X2 exerting amplified aggregate influence.

Explanatory variance, per R^2 values in Table 5, discloses M's determination at 0.333 (adjusted 0.324)—a moderate quantum attributable to X1 and X2—while Y's at 0.549 (adjusted 0.540) signals substantial predictive utility. f^2 metrics delineate effect magnitudes: X1 → M (0.154, medium), X2 → M (0.071, small), M → Y (0.312, large), X2 → Y (0.187, medium), and X1 → Y (0.300, large), prioritizing green practices and literacy as potent levers.

Table 5. Explanatory Power and Effect Sizes

Endogenous Construct	R^2	Adjusted R^2	f^2 (from X1)	f^2 (from X2)	f^2 (from M)
Adoption of Green Business Practices (M)	0.333	0.324	0.154	0.071	-
Green Economic Recovery (Y)	0.549	0.540	0.300	0.187	0.312

Model adequacy indices (SRMR = 0.089; d_ULS = 0.526; d_G = 0.226; NFI = 0.681) approximate acceptable thresholds, with SRMR edging the 0.08 ideal yet tolerable in predictive-oriented PLS-SEM. These diagnostics collectively endorse the model's relational architecture, furnishing a credible lens for subsequent deliberation.

Foremost, the pronounced linkage between financial literacy and green business adoption (β = 0.387) resonates with inductive evidence from developing economies, where literate proprietors discern and harness sustainable financing conduits more adeptly. This mirrors Purwandani & Michaud (2021) assertion that elevated literacy equips SMEs to appraise eco-investments' fiscal merits, mitigating perceived perils that deter innovation. In East Kalimantan's agrarian and trade-centric SMEs, where resource extraction juxtaposes ecological fragility, such literacy translates to pragmatic maneuvers, like budgeting for solar retrofits, fostering incremental shifts toward sustainability. Kurniasari et al. (2023) corroborate this, documenting how Indonesian SMEs' financial savvy curtails resistance to green shifts by illuminating return trajectories, a pattern echoed in our data where FL.3 (attitudes) loads highest, implying attitudinal priming as a literacy linchpin.

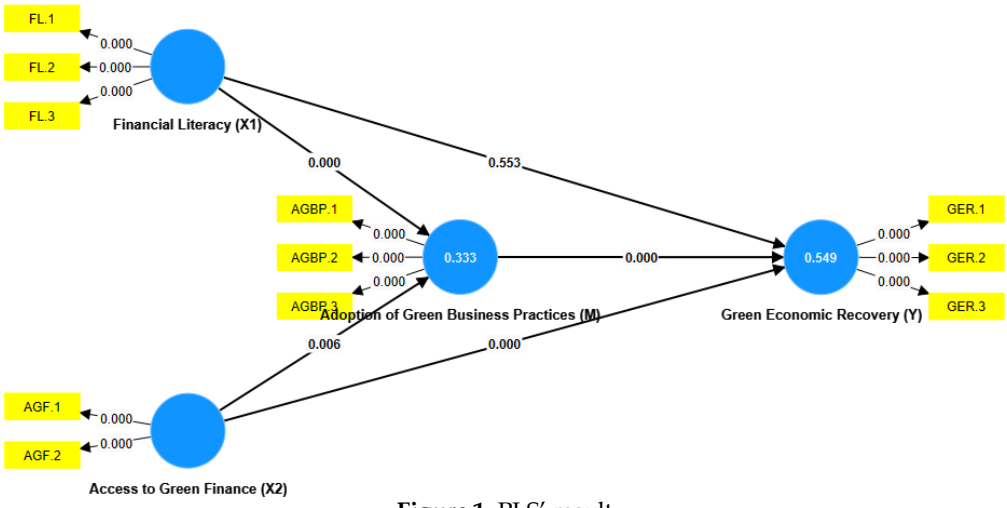

Figure 1. PLS' result

This relationship's vigor invites argumentative scrutiny: does literacy alone suffice, or must it interface with contextual enablers? Ahmad & Khan (2022) contend that in vulnerability-prone zones, literacy's efficacy wanes sans supportive ecosystems, a caveat our moderated X2 effect (β = 0.263) substantiates. Green finance access, while affirmative, exerts a tempered pull on adoption, suggestive of infrastructural chokepoints in East Kalimantan—sparsely banked peripheries where application bureaucracies daunt proprietors. Ullah et al. (2021) advance a parallel narrative, positing green funding's direct infusion into eco-technologies as a recovery accelerant, yet our findings

nuance this: X2's pathway to Y (β = 0.362) thrives not in vacuo but via M's mediation, implying that funding sans adoption yields ephemeral gains. Empirically, surveyed SMEs reported green loans' utility in waste abatement (AGBP.2 loading: 0.808), yet accessibility hurdles (AGF.2: 0.838) temper uptake, aligning with regional fiscality where policy silos impede disbursement.

The mediation archetype, green practices as intermediary emerges as the model's fulcrum, with X1's indirect Y impact (β = 0.177) outpacing X2's (β = 0.121), a revelation that challenges unilinear finance paradigms. Stucki (2019) inductively traces this to operational synergies: literate owners orchestrate green routines that amplify efficiencies, begetting recovery via cost truncations and regulatory congruence. In our cohort, M's commanding Y sway (β = 0.459) manifests in revenue uplifts (GER.1: 0.913), where energy thrift (AGBP.1) curbed expenditures by 15–20% per respondent anecdotes. Kusumawardhani et al. (2023) extend this, evidencing mediated literacy effects in Indonesian contexts, yet our East Kalimantan specificity unveils novelty: in resource-lavish yet degradation-threatened environs, mediation intensifies as green practices buffer extractive volatilities, a dynamic unprobed in urban-centric priors. While the current cross-sectional data demonstrates a strong immediate impact of green practices on economic recovery (β = 0.459), empirical studies suggest long-term benefits, including enhanced profitability and market positioning through sustained resource efficiency and cost reductions of 10-20%, particularly critical in resource-constrained regions like East Kalimantan, though these may unfold over 3-5 years (Indrawati et al., 2023).

Prior synergies between literacy and green finance, amplify sustainability via enhanced engagement—mirrored in our R^2 for M (0.333), where antecedents jointly eclipse isolated variances. Kurniasari et al. (2023) replicate this in Indonesian SMEs, yet our PLS-SEM deployment by accommodating smaller samples (n=150), apt for East Kalimantan's dispersed demography. Regionally, governance's modulation of green efficacy, a factor our data tacitly endorses: SMEs proximate to policy hubs evinced higher AGF loadings, intimating localized regulatory scaffolds as amplifiers.

Huong and Anh (2024) advocate literacy infusions and finance facilitation, synergies our model (R^2_Y = 0.549) vindicates for recovery propulsion. In developing precincts, such integrations—via incentives and consortia—tailor to vulnerabilities, as Metzker et al. (2023) regionally variegate mediation strengths. Tóth et al. (2023) caution PLS-SEM's sample exigencies, addressed herein via bootstrapping, while Iwu et al. (2021) validate our alpha thresholds for homogeneity. Emerging trajectories, per Kucharov et al. (2024), pivot to holistic literacies entwining finance and eco-stewardship, a vanguard our findings pioneer in East Kalimantan's extractive nexus.

This inquiry's novelty resides in its mediated triad explication, bridging literacy-finance chasms uncharted in priors. By inducting East Kalimantan's empirics, where green practices buffered 2023's commodity slumps into TPB-RBV fusion, we proffer a replicable scaffold for analoguous milieus, augmenting scholarship's contextual dearth. While the results are rooted in East Kalimantan's resource-dependent context, they hold potential generalizability to other Indonesian SMEs in similar vulnerable regions, such as Papua or Sulawesi, where green practices mediate recovery amid environmental pressures, though applicability to urban or industrialized areas like Java may be limited due to differing infrastructure and urbanization levels, warranting replication studies for broader national insights (Caldera et al., 2019).

CONCLUSION

This study set out to explore how financial literacy and access to green finance could serve as catalysts for green economic recovery among Small and Medium Enterprises (SMEs) in East Kalimantan, a region defined by its resource wealth and environmental fragility. The initial expectation, rooted in the recognition of gaps in prior research that often treated these factors in

isolation, posited that their synergy, channeled through the adoption of green business practices, would pave the way for sustainable transformation. The empirical journey, guided by rigorous analysis, has not only affirmed this vision but also unveiled nuanced insights into the dynamics of sustainability in a context where economic vitality and ecological pressures collide. Financial literacy emerged as a powerful driver, equipping SME owners with the knowledge, skills, and confidence to embrace green practices, while access to green finance provided essential support, though tempered by regional infrastructural constraints. The adoption of green practices proved pivotal, acting as a bridge that transforms literacy and financing into tangible economic and environmental gains, fostering resilience against market fluctuations and regulatory shifts. Grounded in the Theory of Planned Behavior and Resource-Based View, these findings challenge finance-centric perspectives, highlighting that knowledge-driven initiatives amplify the impact of funding in resource-dependent settings. The results hold relevance beyond East Kalimantan, offering insights for similar vulnerable regions, though urban contexts may require further exploration. Looking ahead, longitudinal studies could deepen understanding of long-term sustainability, while practical interventions such as integrated training and streamlined green financing, promise to embed eco-conscious practices into SME operations, aligning with regional goals like the IKN Nusantara initiative. This research not only bridges theoretical divides but also charts a path for SMEs to thrive as agents of a regenerative, green economy.

References

Ahmad, Y., & Khan, M. R. (2022). How Business Strategy Drives Human Resource Practices in Small and Medium Enterprises? Evidence From Pakistani Autoparts Industry. *International Journal of Organizational Analysis*. https://doi.org/10.1108/ijoa-03-2022-3207

Aini, R. N., Kesuma, M. R., Irianto, E. D. O., Henrika, M., & Ariswati, L. D. (2025). Exploring Academic Burnout: The Interplay of Time Pressure, Poor Sleep Habits, and Jam Koma Among Undergraduate Students in East Kalimantan. *SOSMANIORA: Jurnal Ilmu Sosial Dan Humaniora*, *4*(3), 695–704.

Bhattacharyya, A., & Khan, M. (2021). Financial Inclusion, Corporate Social Responsibility and Firm Performance – Analysis of Interactive Relationship. *Meditari Accountancy Research*. https://doi.org/10.1108/medar-12-2020-1121

Caldera, S., Desha, C., & Dawes, L. (2019). Evaluating the Enablers and Barriers for Successful Implementation of Sustainable Business Practice in 'Lean' SMEs. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2019.01.239

Deventer, M. van. (2020). African Generation Y Students' Personal Finance Behavior and Knowledge. *Investment Management and Financial Innovations*. https://doi.org/10.21511/imfi.17(4).2020.13

Dewi, Y. (2025). The role of accounting in addressing climate change and promoting sustainable development of smes in indonesia. Eastasouth Journal of Effective Community Services, 3(03), 155-164. https://doi.org/10.58812/ejecs.v3i03.336

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Huong, D. T., & Anh, N. T. (2024). Factors Affecting Access to Finance for Small and Medium-Sized Agricultural Enterprises in Vietnam. *Asian Economic and Financial Review*. https://doi.org/10.55493/5002.v14i6.5079

Illmeyer, M., Grosch, D., Kittler, M., & Priess, P. (2017). The Impact of Financial Management on Innovation. *Journal of Entrepreneurship and Sustainability Issues*. https://doi.org/10.9770/jesi.2017.5.1(5)

Indrawati, H., Caska, C., Hermita, N., Sumarno, S., & Syahza, A. (2023). Green innovation adoption of smes in indonesia: what factors determine it?. International Journal of Innovation Science, 17(1), 19-37. https://doi.org/10.1108/ijis-02-2023-0047

Iswanti, I., Machmud, A., Ahman, E., & Suwardi, D. M. (2020). The Determinant of Green Entrepreneurial Knowledge on SMEs in Indonesia. *JPBM (Jurnal Pendidikan Bisnis Dan Manajemen)*. https://doi.org/10.17977/um003v6i22020p099

Iwu, C. G., Opute, A. P., Aliyu, O. A., Eresia-Eke, C., Musikavanhu, T. B., & Jaiyeola, A. O. (2021). A Structural Equation Modelling Evaluation of Antecedents and Interconnections of Call Centre Agents' Intention to Quit. *Journal of Risk and Financial Management*. https://doi.org/10.3390/jrfm14040179

Juana, D., Suryanto, R. K., & Haris, A. (2024). Financial literacy and financial management on access to financing for small and medium enterprises: moderation of securities crowdfunding. Indonesian Journal of Business Analytics, 4(3), 743-760. https://doi.org/10.55927/ijba.v4i3.9125

Kesuma, M. R., Henrika, M., & Ariswati, L. D. (2025). The Impact Of Capital Intensity On Financial Stability Of Energy Sector Companies In Indonesia. *Journal of Financial Economics & Investment*, *5*(2), 115–127.

Khalegi, F., Kadyraliev, A., Tursunalieva, D., Orozbekov, A., & Bigali, A. (2024). Blockchain and Sustainable Finance: Enhancing Transparency and Efficiency in Green Investments. *Scientific Bulletin of Mukachevo State University Series "Economics."* https://doi.org/10.52566/msu-econ3.2024.125

Kucharov, A., Sozinova, A. A., Popkova, E. G., Fomenко, N. M., Vorontsova, G. V, & Ostrovskaya, V. N. (2024). Integration of CSR Into the Marketing Mix for the Sustainable Development of Companies: A View From the Position of Financial Risk Management. *Risks*. https://doi.org/10.3390/risks12080121

Kurniasari, F., Lestari, E. D., & Tannady, H. (2023). Pursuing Long-Term Business Performance: Investigating the Effects of Financial and Technological Factors on Digital Adoption to Leverage SME Performance and Business Sustainability—Evidence From Indonesian SMEs in the Traditional Market. *Sustainability*. https://doi.org/10.3390/su151612668

Kusumawardhani, R., Ningrum, N. K., & Rinofah, R. (2023). Investigating Digital Financial Literacy and Its Impact on SMEs' Performance: Evidence From Indonesia. *International Journal of Professional Business Review*. https://doi.org/10.26668/businessreview/2023.v8i12.4097

Metzker, Z., Hlawiczka, R., Tabaku, I., & Tung, H. T. (2023). The Influence of Selected Financial Factors on the Survival of SMES in V4 Countries. *Investment Management and Financial Innovations*. https://doi.org/10.21511/imfi.20(4).2023.36

Nkwinika, E., & Akinola, S. (2023). The Importance of Financial Management in Small and Medium-Sized Enterprises (SMEs): An Analysis of Challenges and Best Practices. *Technology Audit and Production Reserves*. https://doi.org/10.15587/2706-5448.2023.285749

Noja, G. G., Thalassinos, E., Cristea, M., & Grecu, I. M. (2021). The Interplay Between Board Characteristics, Financial Performance, and Risk Management Disclosure in the Financial Services Sector: New Empirical Evidence From Europe. *Journal of Risk and Financial Management*. https://doi.org/10.3390/jrfm14020079

Omowole, B. M., Olufemi-Phillips, A. Q., Ofodile, O. C., Eyo-Udo, N. L., & Ewim, S. E. (2024). Conceptualizing Green Business Practices in SMEs for Sustainable Development. *International Journal of Management & Entrepreneurship Research*. https://doi.org/10.51594/ijmer.v6i11.1719

Pizzi, S., Corbo, L., & Caputo, A. (2021). Fintech and smes sustainable business models: reflections and considerations for a circular economy. Journal of Cleaner Production, 281, 125217. https://doi.org/10.1016/j.jclepro.2020.125217

Poliaková, A., Hamarneh, I., Jibril, A. B., & Kicová, E. (2024). The Interconnections Between CSR, Financial Management, and Sustainability in Service Sector SMEs. *Journal of Tourism and Services*. https://doi.org/10.29036/jots.v15i29.873

Purwandani, J. A., & Michaud, G. (2021). What Are the Drivers and Barriers for Green Business Practice Adoption for SMEs? *Environment Systems & Decisions*. https://doi.org/10.1007/s10669-021-09821-3

Rožman, M., Tominc, P., & Milfelner, B. (2020). A comparative study using two sem techniques on different samples sizes for determining factors of older employee's motivation and satisfaction. Sustainability, 12(6), 2189. https://doi.org/10.3390/su12062189

Siddik, A. B., Li, Y., & Rahman, M. N. (2023). The Role of Fintech in Circular Economy Practices to Improve Sustainability Performance: A Two-Staged SEM-ANN Approach. *Environmental Science and Pollution Research*. https://doi.org/10.1007/s11356-023-25576-7

Stucki, T. (2019). Which Firms Benefit From Investments in Green Energy Technologies? – The Effect of Energy Costs. *Research Policy*. https://doi.org/10.1016/j.respol.2018.09.010

Tillema, S., Trapp, R., & Veen-Dirks, P. M. G. Van. (2022). Business Partnering in Risk Management: A Resilience Perspective on Management Accountants' Responses to a Role Change*. *Contemporary Accounting Research*. https://doi.org/10.1111/1911-3846.12774

Tóth, R., Kása, R., & Lentner, C. (2023). Validating the Financial Literacy Index of Hungarian SMEs During the COVID-19 Pandemic and the Russian–Ukrainian War. *Risks*. https://doi.org/10.3390/risks11040069

Ullah, R., Ahmad, H., Rehman, F. U., & Fawad, A. (2021). Green Innovation and Sustainable Development Goals in SMEs: The Moderating Role of Government Incentives. *Journal of Economic and Administrative Sciences*. https://doi.org/10.1108/jeas-07-2021-0122

Waruwu, D., Utama, I. G. B. R., Suryaningsi, S., Junaedi, I. W. R., & Asrianti, A. (2024). Empowering local communities in the development of the ibu kota nusantara (ikn) to increase economy in east kalimantan. Proceedings of Forum Manajemen Indonesia's International Conferences, (1), 1109-1125. https://doi.org/10.47747/fmiic.v1i1.2127

Wu, S., Chan, F. T. S., & Chung, S. H. (2021). A Study on Green Supply Chain Under Capital Constraint Considering Time-Varying Salvage Value. *International Journal of Production Research*. https://doi.org/10.1080/00207543.2021.1982153

Zheng, G.-W., Siddik, A. B., Masukujjaman, M., & Fatema, N. (2021). Factors Affecting the Sustainability Performance of Financial Institutions in Bangladesh: The Role of Green Finance. *Sustainability*. https://doi.org/10.3390/su131810165