



Financial Literacy and Sustainability: The Mediating Role of Innovation Capabilities

Nilkawati*, Sri Dwi Ari Ambarwati, Rini Dwi Astuti
Universitas Pembangunan Nasional "Veteran" Yogyakarta, Indonesia

Received : September 08, 2026

Revised : September 16, 2026

Accepted : September 16, 2026

Online : October 7, 2026

Abstract

This study examines the influence of Financial Literacy on Financial Sustainability and Environmental Sustainability in Batik Small and Medium Enterprises (SMEs) in Bantul Regency, Yogyakarta, as well as the mediating role of Innovation. Based on the Resource-Based View (RBV) and Sustainability Theory (Triple Bottom Line), small enterprises face significant challenges in balancing economic profitability with ecological responsibility. A quantitative empirical investigation was conducted using a purposive sample of 100 Batik SME owners/managers. Data were collected via structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with 5,000 bootstrap resamples. The results indicate that Financial Literacy has a direct positive and significant effect on Innovation Capability, Financial Sustainability, and Environmental Sustainability. Furthermore, Innovation significantly impacts Financial Sustainability and Environmental Sustainability. Mediation testing reveals that Innovation acts as a complementary (partial) mediator in the relationship between Financial Literacy and Financial Sustainability as well as Environmental Sustainability. These findings underscore that enhancing financial capabilities empowers SME managers to adopt eco-friendly production technologies and business model innovations, simultaneously fostering economic resilience and environmental stewardship.

Keywords: *Financial Literacy, Innovation Capability, Financial Sustainability, Environmental Sustainability, Batik SMEs.*

INTRODUCTION

The Small and Medium Enterprises (SMEs) sector plays a vital role in the Indonesian economy, particularly as a pillar for employment and the preservation of cultural heritage. Batik is one of the region's leading commodities with high economic and cultural value, and Bantul Regency, Yogyakarta Special Region, is one of the largest batik industry centers in Indonesia. However, Batik SMEs in Bantul face dual challenges from global competition and environmental crisis. They are required to maintain financial sustainability amidst market uncertainty and soaring raw material costs (Lusardi & Mitchell, 2014), while batik production, particularly the use of synthetic dyes and liquid waste disposal, generates significant environmental impacts requiring environmental sustainability (Elkington, 1997; Hart, 1995).

Holistic business sustainability requires strong internal capabilities. Financial literacy is a fundamental intangible asset for SME owners and managers (Barney, 1991). Understanding cash flow management, budgeting, risk management, and access to financing enables SMEs to make informed strategic decisions (Lusardi & Mitchell, 2014). However, financial literacy alone may be insufficient to guarantee long-term competitive advantage without innovation capability. Innovation, whether through updated green production processes such as environmentally friendly wastewater treatment technologies and natural dyes, product innovation, or operational efficiency, is a crucial bridge in transforming financial knowledge into dual sustainability performance (Porter & van der Linde, 1995; Teece et al., 1997).

Copyright Holder:

© Nilkawati, Ambarwati, & Astuti. (2026)

Corresponding author's email: nilkawati@upnyk.ac.id

This Article is Licensed Under:



Although literature on financial literacy and SME financial performance has grown rapidly (Yakob et al., 2021; Ali & Li, 2021), research on environmentally friendly innovation has also become increasingly widespread (Zhang & Walton, 2017; Oduro, 2024). However, limited studies simultaneously integrate financial sustainability and environmental sustainability in traditional craft-based SMEs. The mediating mechanism of innovation linking financial literacy to environmental sustainability also requires further empirical evidence in Batik SMEs. Therefore, this study analyzes the direct influence of financial literacy on innovation, financial sustainability, and environmental sustainability and examines the mediating role of innovation.

LITERATURE REVIEW

This research is built on two main theoretical foundations: Resource-Based View (RBV) and Sustainability Theory (Triple Bottom Line).

Resource-Based View

The Resource-Based View developed by Barney (1991) states that internal resources and capabilities that are valuable, rare, imperfectly imitable, and non-substitutable are sources of sustainable competitive advantage. In SMEs, financial literacy represents a managerial cognitive capability that meets the VRIO criteria. Financially literate SMEs can allocate capital efficiently, optimize cost structures, and invest resources in innovative activities (Lusardi & Mitchell, 2014; Wernerfelt, 1984).

Sustainability Theory / Triple Bottom Line

Sustainability Theory or Triple Bottom Line (TBL), pioneered by Elkington (1997) and expanded by Hart (1995) through the Natural-Resource-Based View (NRBV), emphasizes that organizational sustainability is measured not only through financial performance (profit), but also ecological (planet) and social (people) responsibilities. Financial sustainability includes the ability to generate stable cash flow and long-term capital growth, while environmental sustainability includes minimizing carbon footprints, processing hazardous waste, and utilizing environmentally friendly materials in business processes (Elkington, 1997).

Hypothesis Development

Financial Literacy and Innovation Capabilities

Entrepreneurs' financial literacy serves as a cognitive capability that supports innovation. SME owners with high financial knowledge are more skilled at managing cash flow, allocating capital resources for research and development (R&D), and evaluating financial risks. Understanding access to financing can also increase confidence in funding innovative projects, including product innovation, production processes, and adoption of new technologies (Liu et al., 2021). SME managers with high financial literacy can better identify high-risk but potentially high-return investments, such as new machinery or natural batik dyes (Hussain et al., 2018). Liu et al. (2021) found that entrepreneurs' financial literacy has a positive and significant effect on innovation in SMEs.

H1: Financial Literacy has a positive and significant effect on Innovation.

Financial Literacy and Sustainability

Careful financial management strengthens business resilience against external shocks. Financial literacy provides SME owners/managers with the ability to process financial information, make sound financial decisions, allocate capital efficiently, and manage cash flows, thereby maintaining long-term resilience (Ye & Kulathunga, 2019). Nik Azman et al. (2025) also show that

financial literacy has a positive effect on financial sustainability.

Financial literacy also affects environmental sustainability by improving resource allocation. Managers with sound financial knowledge can better assess the long-term costs of environmental damage, encouraging environmentally friendly technologies, renewable energy investment, and more efficient energy-use decisions (Salahodjaev & Sadikov, 2025). Financial literacy also provides budgetary capacity to allocate funds to environmentally friendly practices, such as independent wastewater treatment installations (Lusardi & Mitchell, 2014). Salahodjaev and Sadikov (2025) further show that financial literacy positively and significantly contributes to environmental sustainability through reduced emissions/pollution and improved environmental quality.

H2: Financial Literacy has a positive and significant effect on Financial Sustainability.

H3: Financial Literacy has a positive and significant effect on Environmental Sustainability.

Innovation and Sustainability Capabilities

Innovation capability is an organization's ability to develop and implement new ideas, methods, processes, and approaches in business activities (Abd Aziz et al., 2024). Innovation enables SMEs to transform abstract concepts into tangible economic value, creating resilience and competitive advantage in long-term market dynamics (Heenkenda et al., 2022). SMEs cannot rely solely on conventional operations; strengthening innovation capabilities enables them to create new knowledge and adopt advanced technologies. Hamzah (2025) shows that innovation has a positive effect on financial sustainability.

Innovation capability can also improve resource efficiency and reduce environmental impacts. From the Dynamic Capability Theory perspective, innovation capability enables organizations to develop and reconfigure resources and processes in response to changes in the business environment and sustainability demands (Abd Aziz et al., 2024). Research by Abd Aziz et al. (2024) demonstrates that innovation capability has a positive and significant effect on environmental sustainability.

H4: Innovation has a positive and significant effect on Financial Sustainability.

H5: Innovation has a positive and significant effect on Environmental Sustainability.

The Mediating Role of Innovation Capabilities

Financial literacy enables SME owners/managers to understand financial conditions, evaluate risks and opportunities, and allocate resources effectively. This supports the development of innovation capabilities because innovation activities require decisions regarding resource use and allocation. Sayekti et al. (2026) demonstrate that financial literacy contributes to improving innovation capability in SMEs. Innovation capabilities subsequently enable SMEs to develop products, improve processes, increase efficiency, and respond to market changes, thereby strengthening business sustainability and creating economic value.

Financial literacy can also enable SME owners/managers to allocate resources more appropriately to innovation activities. Process innovation can reduce energy, water, and material use and decrease waste, thereby supporting environmental sustainability. Molina-García et al. (2025) show that financial literacy drives process innovation and subsequently improves environmental sustainability, with process innovation functioning as a mechanism linking financial literacy and environmental sustainability. This finding is consistent with Abd Aziz et al. (2024), who demonstrate that innovation capability positively contributes to environmental sustainability. Thus, innovation capability transforms financial knowledge and skills into innovative practices supporting environmental sustainability.

H6: Innovation Capability mediates the influence of Financial Literacy on Financial Sustainability.

H7: Innovation Capability mediates the influence of Financial Literacy on Environmental

Sustainability.

RESEARCH METHODOLOGY

This study employed a quantitative explanatory design to examine relationships among Financial Literacy, Innovation Capability, Financial Sustainability, and Environmental Sustainability. The population comprised owners/managers of Batik SMEs in Bantul Regency, Yogyakarta, registered in SI-ADEK. Of 111 registered SMEs, 100 completed questionnaires were obtained, representing 90.1% coverage. [Chin \(2010\)](#) states that 100 to 200 respondents are sufficient for PLS-SEM analysis. Purposive sampling targeted owners/managers knowledgeable about financial practices, innovation activities, and sustainability decisions. Data were collected through a structured cross-sectional questionnaire.

Financial Literacy referred to knowledge and cognitive abilities for effective financial management ([Ye & Kulathunga, 2019](#)), measured using [Bongomin et al. \(2017\)](#). Innovation Capability represented the ability to transform knowledge and ideas into value-creating products, processes, and systems ([Ali et al., 2020](#)). Financial Sustainability referred to maintaining financial condition and business continuity over time ([Nik Azman et al., 2025](#)), using [Hamzah \(2025\)](#). Environmental Sustainability concerned resource preservation and efficient resource use ([Molina-García et al., 2025](#)). All constructs used a five-point Likert scale.

Data were analyzed using PLS-SEM following [Chin \(2010\)](#) and [Hair et al. \(2019\)](#). The measurement model was assessed using loadings, Cronbach's alpha, composite reliability, AVE, and HTMT ([Henseler et al., 2015](#)). The structural model assessed path coefficients, R^2 , and f^2 . Direct effects tested H1–H5, while indirect effects tested H6–H7 using 5,000 bootstrap resamples and 95% confidence intervals. Significant direct and indirect effects indicated complementary mediation ([Zhao et al., 2010](#)).

FINDINGS AND DISCUSSION

Outer Model Evaluation (Measurement Model)

The measurement model was assessed through convergent validity, construct reliability, and discriminant validity. All outer loadings exceeded 0.70, confirming indicator reliability and convergent validity ([Hair et al., 2019](#)). The average loadings were 0.781 for Financial Literacy, 0.824 for Innovation Capability, 0.878 for Financial Sustainability, and 0.814 for Environmental Sustainability.

Table 1. Outer Loading Indicator Evaluation Results

Construct	Loading	Criteria	Information
Financial Literacy (X)	0.781	> 0.70	Valid
Innovation (Z)	0.824	> 0.70	Valid
Financial Sustainability (Y1)	0.878	> 0.70	Valid
Environmental Sustainability (Y2)	0.814	> 0.70	Valid

Cronbach's alpha ranged from 0.775 to 0.909, composite reliability from 0.874 to 0.938, and AVE from 0.654 to 0.791, exceeding the recommended thresholds of 0.70 and 0.50, respectively. Thus, all constructs demonstrated satisfactory reliability and convergent validity.

Table 2. Construct Reliability and AVE Evaluation

Construct	Cronbach's Alpha	Composite Reliability	AVE	Conclusion
Financial Literacy	0.822	0.883	0.654	Fulfil
Innovation	0.775	0.874	0.698	Fulfil
Financial Sustainability	0.909	0.938	0.791	Fulfil
Environmental Sustainability	0.839	0.906	0.764	Fulfil

Discriminant validity was evaluated using the Heterotrait-Monotrait ratio (HTMT). All HTMT values were below 0.90, ranging from 0.442 to 0.873, indicating that Financial Literacy, Innovation Capability, Financial Sustainability, and Environmental Sustainability represent empirically distinct constructs (Henseler et al, 2015).

Table 3. Discriminant Validity (HTMT Ratio)

Construct Pair	HTMT Value	Criteria	Information
Financial Literacy – Innovation	0.442	< 0.90	Fulfil
Financial Literacy – Financial Sustainability	0.789	< 0.90	Fulfil
Financial Literacy – Environmental Sustainability	0.836	< 0.90	Fulfil
Innovation – Financial Sustainability	0.556	< 0.90	Fulfil
Innovation – Environmental Sustainability	0.581	< 0.90	Fulfil
Financial Sustainability – Environmental Sustainability	0.873	< 0.90	Fulfil

Inner Model Evaluation and Direct Hypothesis Testing

Direct effects were assessed using 5,000 bootstrap resamples. All five direct hypotheses were supported ($p < 0.05$; $t > 1.96$).

Table 4. Results of Direct Effect Hypothesis Testing

Hip.	Relationship Path	β	t-statistic	p-value	Decision
H1	Financial Literacy → Innovation	0.375	3,999	0.0000	Accepted
H2	Financial Literacy → Financial Sustainability	0.585	7,792	0.0000	Accepted
H3	Financial Literacy → Environmental Sustainability	0.601	8,121	0.0000	Accepted
H4	Innovation → Financial	0.267	3,558	0.0006	Accepted

Hip.	Relationship Path	β	t-statistic	p-value	Decision
Sustainability					
H5	Innovation → Environmental Sustainability	0.256	3,460	0.0008	Accepted

Financial Literacy positively affected Innovation Capability ($\beta = 0.375$; $t = 3.999$; $p = 0.0000$), supporting H1. Financial Literacy also positively affected Financial Sustainability ($\beta = 0.585$; $t = 7.792$; $p = 0.0000$) and Environmental Sustainability ($\beta = 0.601$; $t = 8.121$; $p = 0.0000$), supporting H2 and H3. Innovation Capability positively affected Financial Sustainability ($\beta = 0.267$; $t = 3.558$; $p = 0.0006$) and Environmental Sustainability ($\beta = 0.256$; $t = 3.460$; $p = 0.0008$), supporting H4 and H5.

Indirect Effect Hypothesis Test (Mediation)

The mediation analysis showed significant indirect effects through Innovation Capability. Financial Literacy significantly affected Financial Sustainability through Innovation Capability (β indirect = 0.100; $t = 2.545$; $p = 0.0109$), supporting H6. Similarly, Financial Literacy significantly affected Environmental Sustainability through Innovation Capability (β indirect = 0.096; $t = 2.479$; $p = 0.0132$), supporting H7. Because the corresponding direct effects remained significant, Innovation Capability functions as a complementary or partial mediator.

Table 5. Results of Mediation Hypothesis Testing (Indirect Effect)

Hip.	Mediation Path	β indirect	t-stat	p-value	Decision
H6	Financial Literacy → Innovation → Financial Sustainability	0.100	2,545	0.0109	Accepted
H7	Financial Literacy → Innovation → Environmental Sustainability	0.096	2,479	0.0132	Accepted

Coefficient of Determination (R^2) and Effect Size (f^2)

The model explained 53.0% of the variance in Financial Sustainability and 54.3% in Environmental Sustainability, while 14.0% of Innovation Capability was explained by Financial Literacy.

Table 6. Value of the Coefficient of Determination (R^2)

Endogenous Variables	R^2	Model Strength Category
Innovation	0.140	Weak – Moderate
Financial Sustainability	0.530	Moderate / Strong Enough
Environmental Sustainability	0.543	Moderate / Strong Enough

The f^2 results showed that Financial Literacy had large effects on Financial Sustainability (0.626) and Environmental Sustainability (0.680), whereas its effect on Innovation Capability (0.163) and the effects of Innovation Capability on Financial Sustainability (0.131) and Environmental Sustainability (0.123) were smaller to moderate.

Table 7. Effect Size (f^2) Measurement Results

Path Relationship	f^2	Interpretation of Effect Size
Financial Literacy → Innovation	0.163	Currently
Financial Literacy → Financial Sustainability	0.626	Big
Innovation → Financial Sustainability	0.131	Small – Medium
Financial Literacy → Environmental Sustainability	0.680	Big
Innovation → Environmental Sustainability	0.123	Small – Medium

Discussion

The positive relationship between Financial Literacy and Innovation Capability supports H1. Financial knowledge can help Batik SME owners/managers identify, evaluate, finance, and implement new ideas by improving their ability to assess investment requirements and financial risks. This finding is consistent with [Liu et al. \(2021\)](#), who found a positive relationship between entrepreneurs' financial literacy and innovation among Chinese SMEs. The present study extends this evidence to traditional craft-based SMEs, where innovation may involve product development, production-process improvement, resource efficiency, and environmentally oriented practices. From the Resource-Based View (RBV), Financial Literacy represents an intangible managerial resource that can facilitate the deployment and reconfiguration of other organizational resources into Innovation Capability. Thus, financial knowledge is not merely an administrative competence but can support the firm's capacity to develop and implement new solutions.

The significant positive effect of Financial Literacy on Financial Sustainability supports H2. This result is consistent with [Ye and Kulathunga \(2019\)](#), who identified financial literacy as an important knowledge resource associated with SME sustainability, and [Hamzah \(2025\)](#), who reported a positive contribution of financial literacy to financial sustainability among Indonesian SMEs. It is also directionally consistent with [Nik Azman et al. \(2025\)](#), who identified financial literacy as an important factor in the financial sustainability of micro-entrepreneurs. Financially literate owners/managers are better positioned to prepare budgets, manage cash flows, evaluate financing alternatives, and anticipate financial risks. These capabilities can strengthen business resilience and continuity. This relationship is particularly relevant for Batik SMEs, which face fluctuations in raw-material costs, market demand, and competition.

Financial Literacy also positively affects Environmental Sustainability, supporting H3. The finding is consistent with [Salahodjaev and Sadikov \(2025\)](#) and [Molina-García et al. \(2025\)](#), who reported positive relationships between financial literacy and environmental sustainability in SME contexts. Financially capable owners/managers may better recognize the long-term financial consequences of waste, inefficient resource use, and environmental impacts and consequently allocate resources to more efficient practices. For Batik SMEs, these practices can include reducing material and energy consumption, improving wastewater management, reducing production waste, and adopting more sustainable production inputs. The finding therefore indicates that financial capability can contribute to both economic and environmental dimensions of sustainability.

Innovation Capability positively affects Financial Sustainability, supporting H4. The result is consistent with [Heenkenda et al. \(2022\)](#), who found that innovation capability contributes to SME sustainability, and [Hamzah \(2025\)](#), who emphasized the importance of internal capabilities for financial sustainability. Innovation can enhance financial sustainability by creating new revenue

opportunities through products, reducing production costs through process improvements, and strengthening competitiveness through improved marketing and management practices. From the RBV perspective, organizational capabilities become economically valuable when firms can deploy them to create and capture value. The present study contributes to the literature by examining Financial Sustainability as a distinct outcome rather than combining it with sustainability in a single construct.

Innovation Capability also positively affects Environmental Sustainability, supporting H5. This finding is consistent with [Heenkenda et al. \(2022\)](#), [Abd Aziz et al. \(2024\)](#), and the broader evidence synthesized by [Oduro \(2024\)](#), which links innovation and eco-innovation with sustainable SME performance. In Batik SMEs, innovation can improve resource efficiency, reduce waste, and support more environmentally responsible production. The finding suggests that the ability to develop and implement new solutions is relevant to sustainability in traditional manufacturing contexts as well as other industries.

The significant indirect effect of Financial Literacy on Financial Sustainability through Innovation Capability supports H6. The result indicates that Financial Literacy contributes to Financial Sustainability through two complementary channels: directly and indirectly by strengthening Innovation Capability. Financial Literacy provides an intangible resource, while Innovation Capability represents the organizational capacity to transform knowledge and resources into value-creating activities. This interpretation is consistent with the RBV and complements [Liu et al. \(2021\)](#) and [Heenkenda et al. \(2022\)](#).

Innovation Capability also mediates the relationship between Financial Literacy and Environmental Sustainability, supporting H7. Financially literate owners/managers may evaluate the costs and benefits of process changes and allocate scarce resources to innovations that improve material, water, energy, and waste efficiency. The result is related to [Molina-García et al. \(2025\)](#), who found that the relationship between CEOs' financial literacy and environmental sustainability operated through process innovation among Spanish SMEs.

However, unlike the full mediation reported by [Molina-García et al. \(2025\)](#), the present study identifies complementary mediation because the direct effect of Financial Literacy on Environmental Sustainability remains significant. This suggests that financial literacy may influence environmental practices directly through budgeting, resource allocation, and investment decisions, while Innovation Capability provides an additional pathway.

CONCLUSION AND FURTHER RESEARCH

Overall, Financial Literacy has a direct and significant impact on Innovation, Financial Sustainability, and Environmental Sustainability in Batik SMEs in Bantul Regency. Innovation also plays a significant mediating role in explaining the influence of Financial Literacy on Financial Sustainability and Environmental Sustainability.

The findings provide three contributions. First, theoretically, the study integrates RBV and Sustainability Theory to explain how Financial Literacy as an intangible managerial resource can contribute to economic and environmental sustainability through Innovation Capability. Second, empirically, it distinguishes Financial Sustainability and Environmental Sustainability as separate outcomes, allowing their relationships with financial literacy and innovation to be examined independently. Third, contextually, the study provides evidence from Batik SMEs in Bantul, a traditional manufacturing setting in which financial resilience and environmental responsibility must be pursued simultaneously.

For SME owners/managers, the findings suggest that Financial Literacy development should be accompanied by practical support for Innovation Capability. Financial training can be integrated with budgeting for innovation, investment appraisal, cash-flow planning, cost analysis,

and evaluation of environmentally oriented technologies. Local governments and SME development agencies can support this integration through programs combining financial management training, innovation mentoring, and access to financing for resource-efficient production and wastewater treatment.

This study has several limitations. First, it focuses on Batik SMEs in Bantul Regency and 100 respondents from a registered population of 111 SMEs. The high population coverage strengthens the relevance of the findings to the identified population but limits generalization to SMEs in other regions and sectors. Second, the cross-sectional design captures relationships at one point in time and cannot establish temporal changes. Longitudinal research could examine whether improvements in Financial Literacy lead to subsequent changes in Innovation Capability and sustainability.

Third, the study relies on owner/manager-reported questionnaire measures, which may be influenced by respondent perceptions and common-method bias. Future studies could combine survey measures with objective indicators such as sales growth, cash-flow stability, energy and water consumption, waste volumes, and environmental investment. Fourth, the model does not include other potentially relevant factors, such as government support, green finance access, market orientation, environmental dynamism, digital capability, and institutional pressure. Future research could examine these variables as predictors, mediators, or moderators.

Finally, comparative research across Batik centers or different SME sectors could determine whether the complementary mediation pattern identified in this study is context-specific or more general.

REFERENCES

- Abd Aziz, N., Al Mamun, A., Reza, M. N. H., & Naznen, F. (2024). The impact of big data analytics on innovation capability and sustainability performance of hotels: Evidence from an emerging economy. *Journal of Enterprise Information Management*, 37(3), 1044–1068. <https://doi.org/10.1108/JEIM-07-2023-0354>
- Ali, H., Hao, Y., & Aijuan, C. (2020). Innovation capabilities and small and medium enterprises' performance: An exploratory study. *The Journal of Asian Finance, Economics and Business*, 7(10), 959–968. <https://doi.org/10.13106/jafeb.2020.vol7.no10.959>
- Ali, H., & Li, Y. (2021). Financial literacy, network competency, and SMEs financial performance: The moderating role of market orientation. *Journal of Asian Finance, Economics and Business*, 8(10), 341–352. <https://doi.org/10.13106/jafeb.2021.vol8.no10.0341>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Bongomin, G. O. C., Ntayi, J. M., Munene, J. C., & Malinga, C. A. (2017). The relationship between access to finance and growth of SMEs in developing economies: Financial literacy as a moderator. *Review of International Business and Strategy*, 27(4), 520–538. <https://doi.org/10.1108/RIBS-04-2017-0037>
- Chin, W. W. (2010). How to write up and report PLS analyses. In V. E. Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares: Concepts, methods and applications* (pp. 655–690). Springer.
- Elkington, J. (1997). *Cannibals with forks: The triple bottom line of 21st century business*. Capstone Publishing.
- 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>
- Hamzah, A. (2025). The role of internal capabilities in driving the financial sustainability of SMEs:

- A resource-based perspective. *Journal of Financial and Banking Sciences (JIKa)*, 14(2), 1–16. <https://doi.org/10.34010/jika.v14i2.15887>
- Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986–1014. <https://doi.org/10.5465/amr.1995.9512280033>
- Heenkenda, H., Xu, F., Kulathunga, K., & Senevirathne, W. (2022). The role of innovation capability in enhancing sustainability in SMEs: An emerging economy perspective. *Sustainability*, 14(17), Article 10832. <https://doi.org/10.3390/su141710832>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hussain, J., Salia, S., & Karim, A. (2018). Is formal finance accessible to African SACCOs for sustainability growth? *The International Journal of Entrepreneurship and Innovation*, 19(2), 114–126. <https://doi.org/10.1177/1465750318764239>
- Lawson, B., & Samson, D. (2001). Developing innovation capability in organizations: A dynamic capabilities approach. *International Journal of Innovation Management*, 5(3), 377–400. <https://doi.org/10.1142/S1363919601000427>
- Liu, B., Wang, J., Chan, K. C., & Fung, A. (2021). The impact of entrepreneurs' financial literacy on innovation within small and medium-sized enterprises. *International Small Business Journal: Researching Entrepreneurship*, 39(3), 1–19. <https://doi.org/10.1177/0266242620959073>
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
- Molina-García, A., Galache-Laza, M. T., González-García, V., & Diéguez-Soto, J. (2025). Financial literacy and environmental sustainability in SMEs: Process innovation as an association mechanism. *Eurasian Business Review*, 15(3), 765–802. <https://doi.org/10.1007/s40821-025-00289-8>
- Nik Azman, N. H., Zulkafli, A. H., Masron, T. A., & Abdul Majid, A. R. (2025). The interconnectivity between Islamic financial literacy and financial sustainability: Evidence from Muslim micro-entrepreneurs in Malaysia. *Journal of Islamic Accounting and Business Research*, 16(4), 791–810. <https://doi.org/10.1108/JIABR-07-2022-0191>
- Oduro, S. (2024). Eco-innovation and SMEs' sustainable performance: A meta-analysis. *European Journal of Innovation Management*, 27(9), 248–279. <https://doi.org/10.1108/EJIM-11-2023-0961>
- Porter, M. E., & van der Linde, C. (1995). Toward a new conception of the environmental-competitiveness relationship. *Journal of Economic Perspectives*, 9(4), 97–118. <https://doi.org/10.1257/jep.9.4.97>
- Salahodjaev, R., & Sadikov, A. (2025). Financial literacy and environmental sustainability: A cross-country test. *Frontiers in Sustainability*, 6, Article 1514393. <https://doi.org/10.3389/frsus.2025.1514393>
- Saunders, M., Lewis, P., & Thornhill, A. (2003). *Research methods for business students*. Pearson Education/Prentice Hall.
- Sayekti, F., Official, S., & Pahlevi, R. W. (2026). Financial literacy, governance mechanisms, and innovation capability in explaining SME performance: The moderating role of organizational culture. *Indonesian Journal of Business and Entrepreneurship Research*, 4(2), 13–30. <https://doi.org/10.62794/ijober.v4i2.268>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–

180. <https://doi.org/10.1002/smj.4250050207>

Yakob, S., Yakob, R., Hafizuddin-Syah, B. A. M., & Rusli, R. Z. A. (2021). Financial literacy and financial performance of small and medium-sized enterprises. *The South East Asian Journal of Management*, 15(1), Article 5. <https://doi.org/10.21002/seam.v15i1.13117>

Ye, J., & Kulathunga, K. M. M. C. B. (2019). How does financial literacy promote sustainability in SMEs? A developing country perspective. *Sustainability*, 11(10), Article 2990. <https://doi.org/10.3390/su11102990>

Zhao, X., Lynch, J. G., Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>