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The role of Green Business Strategy in mediating the relationship between environmental orientation and SMEs

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Background: This study examines the influence of Green Business Strategy on the performance of small and medium enterprises (SMEs) with a particular focus on its mediating role in the relationship between strategic orientation and performance, as well as its implications for long-term sustainability.

Aim: This study seeks to provide empirical evidence on the strategic role of green business as a mediating factor in the relationship between environmental orientation and the performance of SMEs.

Setting: The continuously evolving competitive landscape in the digital era has made the ability to generate innovative ideas a crucial aspect for SMEs. Therefore, understanding the role of Green Business Strategy as a mediator in the relationship between environmental orientation and SME performance has become increasingly important.

Methods: This study examines 103 SME participants in East Java, Indonesia, employing a quantitative research approach. Data were collected through a semi-structured questionnaire. Mediation analysis and t-tests were conducted using SmartPLS 3.0 to trace relationships within the dataset.

Results: The empirical findings indicate that Green Business Strategy serves as a mediating factor in the relationship between environmental orientation and SME performance in East Java, Indonesia.

Conclusion: The study on SMEs in East Java is limited by data availability. A comparative analysis with publicly traded firms and longitudinal data could strengthen findings. Future research should include SMEs from both Asian and European contexts for more comprehensive policy implications.

Contribution: The study suggests that SMEs can adopt a Green Business Strategy encompassing environmental orientation, environmental performance, top management environmental awareness and SME performance to achieve long-term sustainability and enhanced business.

Keywords: Green Business Strategy; environmental orientation; environmental performance; top management environmental awareness; SMEs performance; SmartPLS; SEM.

Introduction

Previous research has established that a strong environmental focus can incentivise companies to proactively address ecological challenges while simultaneously enhancing the performance of small and medium enterprises (SMEs) (Revell, Stokes & Chen 2010). The environmental attitudes of SMEs are shaped by multiple factors, including business performance and ethical considerations. Jansson et al. (2017) observed that business owners with a heightened environmental consciousness tend to allocate a larger proportion of their budget to sustainability-oriented initiatives. Environmental performance serves as a crucial metric in evaluating how effectively a business mitigates its ecological footprint – by minimising waste, optimising resource utilisation and curbing greenhouse gas emissions. Beyond ensuring regulatory compliance, a robust environmental performance strategy fortifies a company's competitive edge in a market increasingly driven by sustainability-conscious consumers (Quintana-García et al. 2021; Sudaryanto et al. 2024).

This study aims to examine the role of Green Business Strategy (GBS) as a mediating factor in the relationship between SMEs' performance and environmental orientation (EO). Small and medium enterprises are expected to actively participate in the Environmental Management Corporate Performance Rating Programme, initiated by the Ministry of Environment and Forestry Indonesia, to enhance their sustainability efforts (Indrawati et al. 2024; Silva et al. 2021; Utari et al. 2024). This research further investigates the correlation between SMEs' sustainability and their environmental performance while also assessing the mediating influence of GBS on the link between EO and SME performance (Martha Hendrati et al. 2024; Prasetio et al. 2024; Silva et al. 2021). Strong environmental performance not only attracts investors but also fosters public trust, ultimately contributing to the long-term success of SMEs (Feng, Wang & Sun 2022; Hendrati et al. 2024; Sabihaini et al. 2024). Moreover, environmental performance is posited to exert a substantial influence on the overall growth trajectory of SMEs. As these enterprises expand, they encounter mounting pressure to enhance their environmental performance, given their increasing ecological footprint and the evolving regulatory landscape (Lin et al. 2020; Sabihaini et al. 2023; Shabbir et al. 2023).

Small and medium enterprises in developing nations face significant challenges in managing environmental performance, including limited resources, complex regulations, low environmental awareness and profit-driven pressures favouring short-term gains over sustainability (Asyik et al. 2023; Laily et al. 2023; Luthra & Mangla 2018). Securing funding for green initiatives remains difficult, alongside challenges in integrating sustainable practices into business operations (Eko Prasetio et al. 2023; Mansour 2023; Prasetyo et al. 2023). For SMEs in developing economies, particularly Indonesia, enhancing environmental performance is an ongoing struggle because of these structural barriers (Hendrati et al. 2023; Khuntia et al. 2018; Nuswantara et al. 2023). While recognising the importance of sustainability is a crucial step, implementation remains complex. Many SMEs still encounter difficulties adopting green practices effectively, hindering progress towards long-term environmental responsibility (Asyik et al. 2022; Prasetyo et al. 2022; Zulfikar et al. 2021).

Previous studies indicate that companies investing in sustainable practices are significantly influenced by management's environmental knowledge (Kalbuana et al. 2022; Moraes et al. 2019; Tjaraka, Hidayat & Rusdiyanto 2022). Adopting green business principles enables organisations to mitigate environmental harm while enhancing SME performance (Utari et al. 2021a; Raharjo 2019; Sudaryanto et al. 2022). Green technology and marketing strategies contribute to sustainability by promoting eco-friendly products and improving living conditions (Aliyyah et al. 2021b; Mukonza & Swarts 2020; Prasetio et al. 2021). Integrating environmental considerations into business strategies – such as green product innovation, sustainable production and eco-friendly waste management – enhances both business and environmental performance (Endarto et al. 2021a; Indrawati et al. 2021; Roy et al. 2020). Green business adoption fosters cost reduction, operational efficiency and new market opportunities while strengthening brand presence, customer satisfaction and loyalty (Meidute-Kavaliauskiene et al. 2021; Prasetyo et al. 2021c; Utari et al. 2021b).

Small and medium enterprises serve as the foundation for economic development in developing countries (Abadi et al. 2021; Endartoet al. 2021b; Latchem & Latchem 2018). However, they frequently encounter obstacles related to funding, research and development and the adoption of advanced technologies (Aliyyah et al. 2021a; Indrawati 2020; Prasetyo et al. 2021a). Despite these challenges, SMEs play a pivotal role in economic growth, contributing significantly to exports and imports (Fekpe & Delaporte, 2019; Kalbuana et al. 2021b; Rusdiyanto et al. 2021). Research on environmental sustainability has primarily focussed on large corporations in developed nations, leaving a gap in understanding its implications for SMEs (Das, Rangarajan & Dutta 2020). Given their substantial environmental impact and flexible decision-making structures, SMEs can leverage this adaptability to improve environmental performance and foster a culture of sustainability within their organisations (Kalbuana et al. 2021a; Prasetyo et al. 2021; Thomas, Scandurra & Carfora 2022).

The literature review section elaborates on the theoretical foundations and hypothesis development. Following this, the research methodology and data collection procedures are outlined. The study then presents a comprehensive analysis of the topic and key findings. Finally, the concluding section discusses the theoretical and practical implications, acknowledges the study's limitations and proposes directions for future research.

Literature review

Environmental orientation, Green Business Strategy and small and medium enterprises performance

Businesses must match their competitive strategy with their green supply practices. According to the resource-based view (RBV) theory, businesses with unique, uncommon and valuable resources may acquire a sustained competitive advantage (Barney 1991). However, according to an expanded version of the RBV – known as the natural- RBV – businesses may improve their environmental operations and competitive advantage by using resources effectively (Hart 1995). Recent research suggests that a company's financial performance can be improved by its size and environmental performance (Keskin, Dincer & Dincer 2020; Prasetyo et al. 2021b, 2021e). The value of a company can increase in relation to its size and environmental performance (Mikial et al. 2020; Prasetyo et al. 2021, 2021f). In addition, the link between environmental performance and company value can be strengthened through effective corporate governance, particularly by utilising an independent board of commissioners (Luwihono et al. 2021; Napitupulu et al. 2023; Susanto et al. 2021).

Businesses that prioritise the environment tend to use resources more efficiently, produce less waste and improve their brand. These factors can positively impact their financial performance (Prabowo et al. 2020; Rusdiyanto et al. 2020c; Sumiati et al. 2021). Previous studies have established a two-way relationship between environmental performance and financial performance (Pradhan & Jena 2017; Rusdiyanto et al. 2020a, 2020b). They demonstrate that better environmental performance can contribute to improved financial results for a company (Nakao et al. 2007). Moreover, research has also indicated that the link between environmental performance and firm value can be strengthened by implementing effective corporate governance practices, such as having an independent board of commissioners (Juanamasta et al. 2019; Khan 2019).

Better performance can be achieved by employing green business techniques. Not only do these techniques help save expenses, but they also contribute to boosting customer happiness and improving operational efficiency (Lun et al. 2015). Previous research has shown that successful marketing strategies, such as fair pricing, excellent service and relevant promotions, can greatly impact consumer happiness (Cakici, Akgunduz & Yildirim 2019). In addition, a strong understanding of consumer preferences and behaviour is crucial for achieving high levels of customer satisfaction (Grewal, Levy & Kumar 2009).

Research has uncovered several strategies that SMEs can employ to boost customer satisfaction, especially considering the impact of the coronavirus disease 2019 (COVID-19) pandemic (Zutshi et al. 2021). These strategies, as outlined by Otengei and Ahebwa (2021), include improving the quality of food and beverages, enhancing the quality of service and innovating to cater to changing consumer preferences.

Mediating role of Green Business Strategy

Small and medium enterprises often hesitate to engage in environmental and sustainable practices because of their dire financial circumstances. As a result, businesses often cut down on a variety of fees and expenses in order to allocate funds to environmental projects. Memon, Yong An & Memon (2020), for instance, conducted research on how SMEs utilise their financial resources to identify these kinds of possibilities, which in turn encourages them to engage in environmental activities. Banerjee (2002) expounded that, as responsible leaders, top managers must take environmental factors into account while making management choices (Tarkang, Nange & Ozturen 2022). Porter (1997) introduced the notion of competitive strategy, which was further emphasised by RBV theory (Barney 1991), which identified the organisation's distinctive resources as the primary factor. Studies, however, have broadened the discussion and shown that businesses should employ organisational resources to improve their environmental performance and competitive advantage (Memon et al. 2020). There exists a varied but generally good correlation between company strategy and environmental initiatives (Orsato 2006). Bıçakcıoğlu, Theoharakis & Tanyeri (2020) found a strong positive correlation between competitive strategy and green company practices, lending support to this notion. Organisational skills and capabilities may enable organisations to modify their operations and processes in a manner that can accomplish environmental management objectives (Aragón-Correa et al. 2008; Çop, Olorunsola & Alola 2021). Christmann (2000) stated that to lessen adverse effects on the environment, for instance, organisations need to preserve their strategy while cutting expenses (Tate & Bals 2018).

Previous research has shown that the adoption of sustainable business practices by SMEs in their local communities is influenced by various negative factors, such as internal motivation and positive public opinion (Thomas et al. 2022). Furthermore, earlier research has identified the main obstacle to SMEs implementing eco-friendly business practices as their limited access to capital (Das et al. 2020). A study conducted by Chai (2022) also examined the implementation of human resource management practices in SMEs, highlighting the critical role of training and development processes. Importantly, researchers have recognised the significance of effective leadership in improving working conditions in small- and medium-sized enterprises (Salazar-Elena & Guimón 2019).

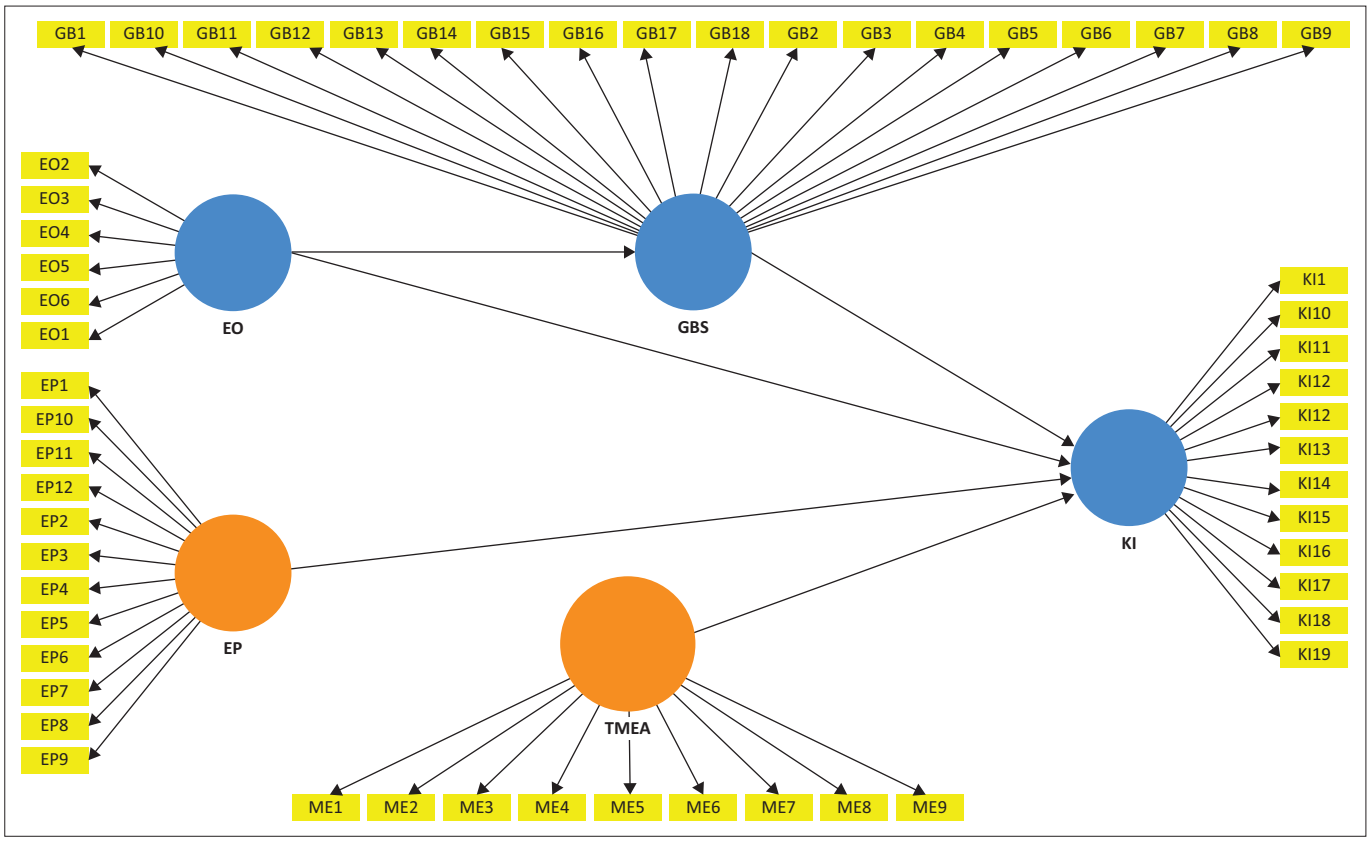
The association between EO and SME performance is mediated by GBS, as seen in Figure 1 of this study model. Small and medium enterprise performance is the dependent variable in this model, while EO is the independent variable. Environmental performance and top management's environmental consciousness are control factors, while the GBS serves as a mediating variable. In light of the theoretical description of the study and the empirical studies discussed earlier, the following theories are presented:

- **H1:** Environmental orientation has a positive influence on GBS.
- **H2:** Green Business Strategy has a positive influence on SME performance
- **H3:** Environmental orientation has a positive influence on SME performance
- **H4:** The role of GBS in mediating the relationship between environmental orientation and SME performance

Research methods and design

Questionnaire development

This study investigates the mediating role of GBS in the relationship between EO and SME performance (Muangmee et al. 2021). Conducted in East Java, Indonesia, the research involved 103 SMEs that agreed to participate. The sample was selected using a saturated sampling method, ensuring a 95% confidence interval (CI) with a 5% margin of error. The



KI, small and medium enterprises performance; EO, environmental orientation; GBS, Green Business Strategy; EP, environmental performance; TMEA, Top Management Environmental Awareness.

FIGURE 1: Research model.

selection process emphasised SMEs with substantial experience and deep understanding of the research variables. The study employed GBS as a mediating variable to analyse its influence on SME performance. Data were collected through an online questionnaire using a Likert scale (1–5), distributed via social media. Google Forms was used to administer the survey. To ensure content validity, the questionnaire was evaluated by five academics and five SME practitioners. Each item demonstrated an item-objective suitability index (IOC) above 0.80, confirming statistical significance (Turner & Carlson 2003).

Data collection took place from July to October 2023, adhering to ethical guidelines established by the Research and Development Committee of the Faculty of Economics, University of Greece. This study focusses on SMEs, particularly human participants, to assess their performance over the research period. Before participation, respondents received a formal letter outlining the study's objectives. Each respondent answered a single question, resulting in a total of 103 responses from SME agents in the Indonesian Java Sea region. The gathered insights contribute to understanding SME dynamics within this context. Figure 1 presents the analytical model used in this study.

Operational definition of variables

All survey variables in this study are derived from previous research and measured using a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). A more detailed explanation of each variable is provided in Table 1.

Ethical considerations

Ethical approval for this research was granted by the Research Ethics Committee of Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya (STIESIA) under approval number No. 205/06/LP2M/IX/2024.

Results

The primary data for this study were collected through questionnaires completed by 103 SME managers. The detailed results are presented in Table 2.

The analysis of respondent data reveals variations in educational attainment across age groups. Among those aged 20–30 years, 34% had a low level of education, while 66% attained a higher level. In the 41–50 and 51–60 age groups, 37% had a high level of education, exceeding the 31% recorded in the 31–40 range. An inconsistency appears in the 6–10 age group, classified within the 1–5-year range, where 33% reported high education levels. In addition, 23% of respondents were aged 11–15 years, 22% were 16–20 years and 13% were above 20 years. These findings suggest a notable trend: a significant proportion of respondents within the 1–5-year age range exhibited high educational levels, prompting further inquiry into the factors influencing this pattern.

TABLE 1: Operational definition of variables.

Variable	Dimensions	Indicator
Dependent variable		
SME performance (KI)	Perspective Money	ROA
The term 'SME performance' refers to how well a company has performed within a specific time period. To measure the performance of SMEs, the 'Balanced Scorecard' (BSC) is utilised. The BSC comprises four dimensions and indicators (Sabihaini et al. 2024).		Sales Growth
		Cash Flow
	Perspective Customer	Satisfaction Customer
		Market Share
		Retention Customer
	Internal Business Process Perspective	Operation Process
		Innovation
	Perspective Learning and Growth	Capability Employee
		Climate Organisation
Independent variable		
Environmental orientation (EO)	Internal Environmental Orientation	Company Commitment
With characteristics and indications of environmental orientation, this term refers to the extent to which a business recognises environmental issues and its approach to addressing them (Sabihaini et al. 2024).		Protection Value Environment
	External Environmental Orientation	Connection with Stakeholders
		Understanding Demands Stakeholder
Mediator variable		
Green Business Strategy (GBS)	Green HRM	Green Recruitment
Green Business Strategy is an approach that aims to integrate environmental considerations into a company's overall strategy in order to achieve the best possible environmental performance. This strategy involves various dimensions and indicators that help guide the implementation of environmentally friendly practices within a business (Sabihaini et al. 2024).		Green Selection
		Green Training and Development
	Green Financing	Reach Superiority Industry
		Development Investment
	Green Marketing	Green Price
		Green Promotion
		Green Distribution
	Green Production	Green Materials
		Waste Reduction
	Green R&D	Green Product Development
		Green Technology Innovation
	Green Purchasing	Purchase Environmentally-Friendly Raw Materials
		Green Supplier Selection
Control variables†		
Environmental performance (EP)	Resource Usage	Source Power Financial
Environmental performance is a corporate strategy aimed at addressing environmental issues in the company's daily operations, with the ultimate objective of improving the firm's operating environment (Sabihaini et al. 2024).		Source Power Physique
		Source Power Man
	Regulatory Compliance	Specification
		Standard
	Stakeholder Interaction	Each other Dependency
		Harmony Objective
		Trust
	Productivity	Efficiency
		Quality
Top management environmental awareness (TMEA)	General Awareness	Knowledge
Top management's environmental awareness refers to the commitment, attitude and values that top management holds regarding environmental issues. It plays a vital role in the company's overall strategy to protect the environment (Sabihaini et al. 2024).		Action
	Cost Benefit Awareness	Cost Prevention Environment
		Cost Detection Environment
	Environmental Attitude	Connectedness to Nature

Note: Please see the full reference list of this article, Laily, N., Asyik, N.F., Wahyuni, D.U., Sari, J. & Rusdiyanto, R., 2025, 'The role of Green Business Strategy in mediating the relationship between environmental orientation and SMEs', *Southern African Journal of Entrepreneurship and Small Business Management* 17(1), a978. https://doi.org/10.4102/sajesbm.v17i1.978, for more information.

ROA, return on assets; R&D, research and development; HRM, human resource management; SMEs, small and medium enterprises.

†, In order to reduce the possibility of false results and increase the credibility of the findings, we controlled for environmental performance (EP) and Top Management Environmental Awareness (TMEA). These variables are recommended for control in SME studies. The results are discussed in structural modelling.

Descriptive statistics

As SmartPLS is recommended for models involving mediators, limited sample sizes and second-order components, it was employed for data analysis. In addition, SmartPLS offers various validity assessments – such as discriminant and convergent validity – which are not available in Statistical Package for the Social Sciences (SPSS, Shah, Anwar & Hussain 2021). Table 3 presents the descriptive statistics. The skewness and kurtosis values confirm that the data exhibit a normal distribution, as no value surpasses the accepted threshold of ±2 (George 2011).

Factor loading, validity and reliability

When initially implementing SmartPLS, we calculated factor loadings, validity and reliability using an algorithmic

approach (see Figure 2). The results (presented in Table 4) indicate that all items in our sample exhibit the desired factor loading (close to or exceeding 0.70), with no significant cross-loading among items. All constructs fulfil the validity criteria outlined by Hair, Sarstedt & Ringle (2019), as their convergent validity exceeds 0.50, and their discriminant validity surpasses 0.70. Furthermore, the composite reliability of all constructs is above the 0.70 threshold, meeting the reliability standards (Hu & Bentler 1999). Table 4 presents the validity and reliability results for all constructs.

TABLE 2: Profile data respondent.

Characteristics	Category	Frequency	%
Gender	Man	68	66
	Female	35	34
	Total	103	100
Age (years)	20–30	11	11
	31–40	25	24
	41–50	38	37
	51–60	23	22
	61–70	6	6
	Total	103	100
'Education'	'Elementary school'	16	16
	'Junior high school'	16	16
	'Senior high school'	39	38
	3-year diploma	9	9
	Bachelor degree	23	22
	Total	103	100
Length of Business (years)	1–5	9	9
	6–10	34	33
	11–15	24	23
	16–20	23	22
	> 20	13	13
	Total	103	100

Based on the *R*-square findings presented in Table 4, the GBS accounts for 58% of operational performance, while the remaining 42% is influenced by external factors beyond the scope of this research. Furthermore, the *R*-square results indicate that operational performance contributes 85% to SME performance, with the remaining 15% being attributable to other variables not examined in this study.

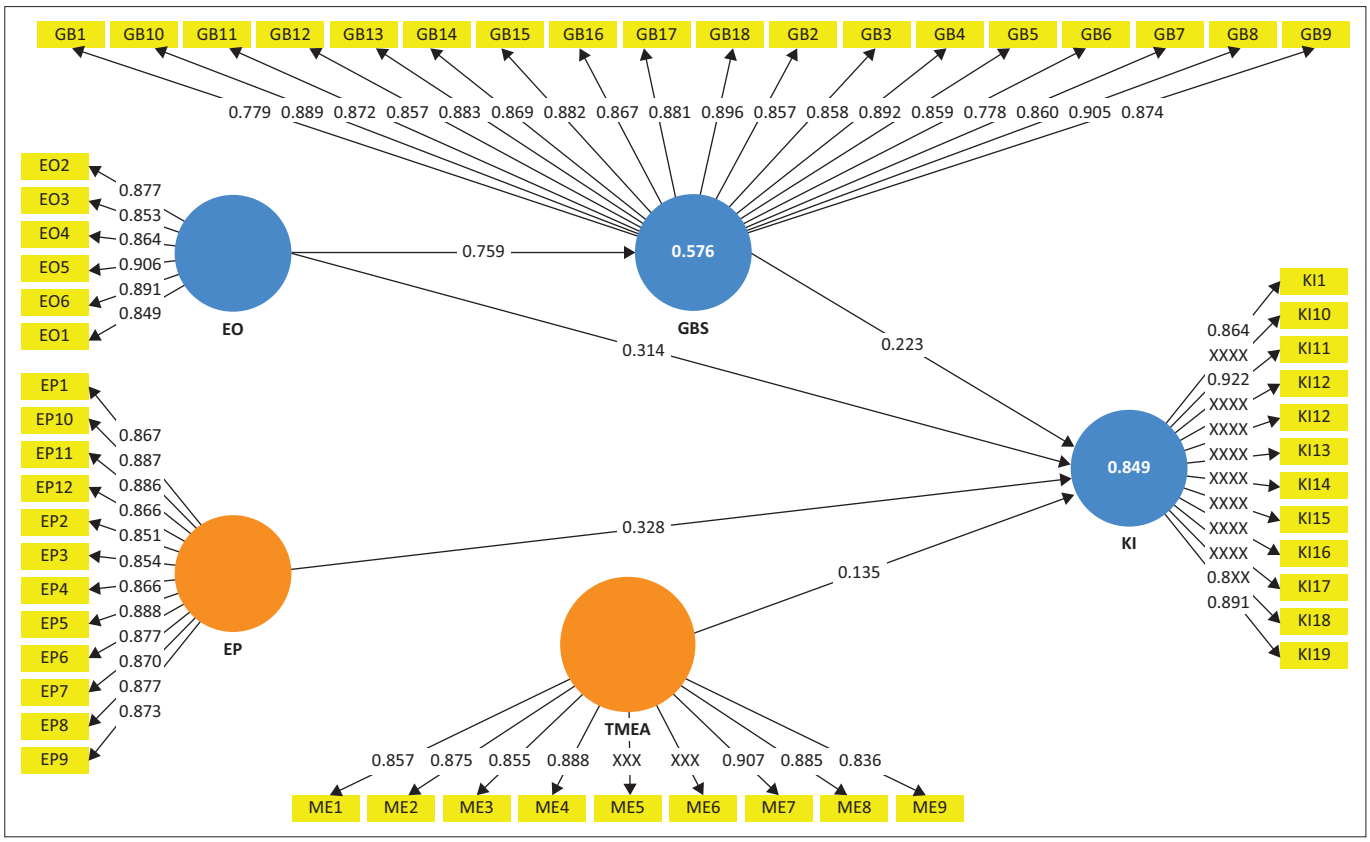
According to Hair et al. (2012), the threshold values for determining f^2 are as follows: a value of 0.02 indicates a small effect, 0.15 signifies a moderate effect and 0.35 represents a large effect, corresponding to minor, medium and substantial impacts, respectively (Hair et al. 2023).

The study demonstrates that EO has a significant impact on GBS and SME performance, exhibiting a moderate effect exceeding 0.15, along with an additional moderate influence

TABLE 3: Descriptive statistics.

Variable	Mean	Min	Max	Standard deviation	Kurtosis	Skewness
KI	0.000	-2.975	1.360	1.000	-0.126	-0.727
EO	0.000	-3.114	1.456	1.000	0.127	-0.823
GBS	0.000	-2.887	1.333	1.000	-0.037	-0.798
EP	0.000	-3.137	1.445	1.000	0.127	-0.801
TMEA	0.000	-2.755	1.318	1.000	-0.356	-0.741

KI, small and medium enterprises performance; EO, environmental orientation; GBS, Green Business Strategy; EP, environmental performance; TMEA, Top Management Environmental Awareness.



KI, small and medium enterprises performance; EO, environmental orientation; GBS, Green Business Strategy; EP, environmental performance; TMEA, Top Management Environmental Awareness.

FIGURE 2: Structural model 1 (algorithm).

of 11% on GBS. According to Hair et al. (2012), if the Q^2 value of a model is greater than zero, it indicates predictive relevance for specific endogenous components. Conversely, a Q^2 value of zero or less suggests a lack of predictive significance. In this study, the Q^2 value for the GBS variable is 0.421, which is greater than 0.000, thereby confirming its predictive relevance. Similarly, the Q^2 value for the SME performance variable is 0.657, also exceeding 0.000, further affirming its predictive significance (Table 5).

Correlation and Heterotrait-Monotrait Ratio

Table 6 presents a strong correlation between SME performance and the GBS. The findings indicate that EO and GBS exhibit a positive correlation, reinforcing their interconnectedness. In addition, the discriminant validity of these constructs surpasses that of other components, ensuring the robustness of the measurement model.

Ensuring the legitimacy of structural relationships requires adherence to established validity standards. A heterotrait-monotrait (HTMT) ratio value below 0.90 indicates sufficient discriminant validity. As presented in Table 6, the results of our study confirm that all HTMT values fall below the 0.90 threshold, thereby satisfying the required validity criterion.

Structural model

The study employed the bootstrapping technique (2,000 resamples) in SmartPLS to examine the hypothesised relationships. The findings support H1, as EO exhibits a significant impact on GBS (T = 15.516, p = 0.000) (see Figure 3, Table 7). Similarly, H2 is supported, as the results indicate that GBS significantly influences SME performance (T = 3.135, p = 0.002). Moreover, H3 is accepted, demonstrating that EO also has a significant impact on SME performance (T = 3.501, p = 0.002). Regarding the control variables, environmental performance positively affects SME performance, whereas Top Management Environmental Awareness (TMEA) does not exhibit a significant influence on SME performance.

As illustrated in Table 7 and Figure 3, SME performance is indirectly influenced by EO through the GBS. While EO has a significant direct impact on SME performance (T = 3.501, p = 0.001), it also exerts a notable indirect effect via the GBS (T = 3.059, p = 0.002). These findings suggest that the impact of EO on SME performance is fully mediated by the GBS, reinforcing its critical role in business sustainability. In addition, Table 7 presents the overall effect of these relationships.

Recent studies have further elucidated the relationship between EO and the performance of SMEs. For instance, research by Weng, Chen & Chen (2015) indicates that an organisation's EO is essential for SMEs' green innovation initiatives. Similarly, Fang et al. (2022) found that a GBS plays a crucial role in adopting green innovation. These findings suggest that SMEs should consider reducing the costs associated with EO to engage more effectively in sustainable practices. By leveraging EO, SMEs can identify opportunities beneficial for long-term environmental initiatives. Furthermore, managing EO through the implementation of green business strategies can enhance sustainability. Therefore, it is advisable for businesses to utilise EO to achieve sound management objectives within their green business strategies.

TABLE 5: f square and Q^2 evaluation.

Variable	GBS	KI
EO	1.361	0.164
GBS	-	0.109
EP	-	0.161
TMEA	-	0.027
Constructs (Q^2)		-
GBS	0.421	-
KI	0.657	-

SMEs, small and medium enterprises; EO, Environmental orientation; GBS, Green Business Strategy; EP, Environmental performance; TMEA, Top Management Environmental Awareness; KI, SME performance.

TABLE 6: Correlation and discriminant validity and Heterotrait-Monotrait ratio.

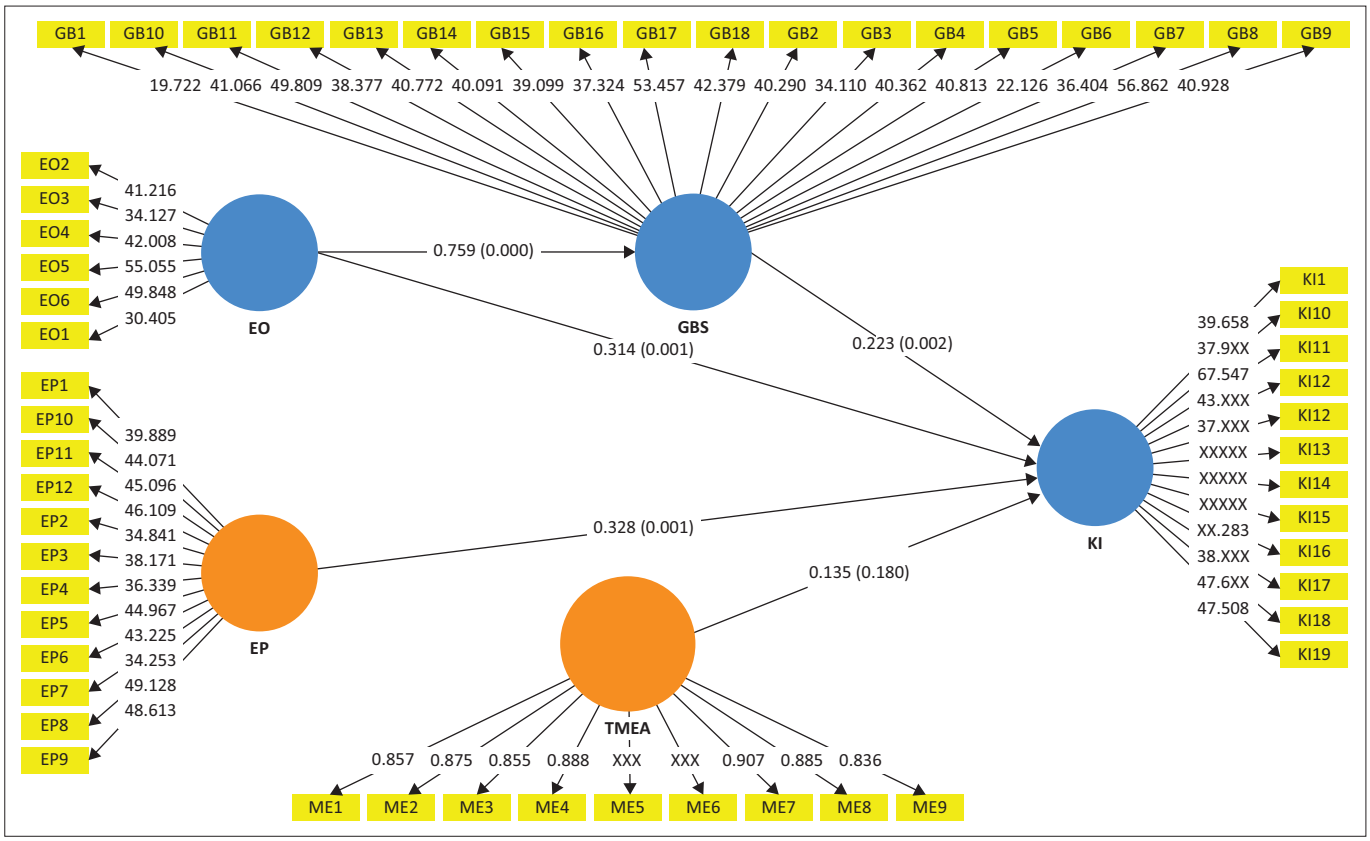
Variable	EO	EP	GBS	KI	TMEA
EO	0.874	-	-	-	-
EP	0.831	0.872	-	-	-
GBS	0.759	0.725	0.865	-	-
KI	0.864	0.865	0.807	0.886	-
TMEA	0.793	0.835	0.789	0.835	0.877
Heterotrait-Monotrait ratio					
EO	-	-	-	-	-
EP	0.871	-	-	-	-
GBS	0.789	0.741	-	-	-
KI	0.903	0.887	0.825	-	-
TMEA	0.833	0.862	0.811	0.860	-

SMEs, small and medium enterprises; EO, Environmental orientation; EP, Environmental performance; GBS, Green Business Strategy; KI, SME performance; TMEA, Top Management Environmental Awareness.

TABLE 4: Validity and reliability R-square.

Variable	Cronbach's alpha	rho_A	Composite reliability	AVE	R-square	R-square adjusted
KI	0.975	0.975	0.978	0.784	-	-
EO	0.938	0.939	0.951	0.763	-	-
GBS	0.980	0.980	0.982	0.748	-	-
EP	0.971	0.972	0.974	0.760	-	-
TMEA	0.962	0.964	0.968	0.770	-	-
GBS	-	-	-	-	0.576	0.572
KI	-	-	-	-	0.849	0.843

AVE, Average variance extracted; KI, small and medium enterprises performance; EO, environmental orientation; GBS, Green Business Strategy; EP, environmental performance; TMEA, Top Management Environmental Awareness.



KI, small and medium enterprises performance; EO, environmental orientation; GBS, Green Business Strategy; EP, environmental performance; TMEA, Top Management Environmental Awareness.

FIGURE 3: Structural model 2 (bootstrapping).

TABLE 7: Direct effects.

Direct effects	Original sample (O)	*T* Statistics	*p*	Information
EO -> GBS	0.759	15.516	0.000*	Accepted
GBS -> KI	0.223	3.135	0.002*	Accepted
EO -> KI	0.314	3.501	0.001*	Accepted
Control Variable				
EP -> KI	0.328	3.355	0.001*	Accepted
TMEA -> KI	0.135	1.342	0.180	Rejected
Indirect Effects				
EO -> GBS -> KI	0.170	3.059	0.002*	Accepted

KI, small and medium enterprises performance; EO, environmental orientation; GBS, Green Business Strategy; EP, environmental performance; TMEA, Top Management Environmental Awareness.

*, significant at $p < 0.01$.

Discussion

This study examines the role of GBS in mediating the relationship between EO and SMEs' performance. It also explores key factors influencing SMEs in Indonesia as a developing country, considering challenges and opportunities in adopting sustainable business strategies for long-term competitiveness and resilience. The results indicate that internal factors mediate the relationship between external factors and business performance. However, external factors also directly influence organisational performance, highlighting the crucial interaction between internal and external variables in shaping business success.

This study highlights the significance of GBS in industry growth, maturity and enhancing business survival, growth and performance. According to Porter (2008), domestic competition is a key factor in industry competitiveness, stimulating external influences that drive companies to adopt flexibility, cost efficiency, quality improvement, innovation and evolution (Slack & Lewis 2002). Furthermore, intense domestic competition compels businesses to continuously adapt to environmental changes, including adopting sustainability-driven strategies and resource efficiency. In the GBS framework, green innovation and operational efficiency are critical in strengthening global market competitiveness and corporate sustainability (Barney 2000; Elkington & Rowlands 1999).

Recent studies have provided empirical support for Hypothesis 1, indicating that EO positively influences the adoption of green business strategies in Indonesia. For instance, Fang et al. (2022) found that EO significantly affects GBS implementation among Indonesian SMEs. In addition, domestic market demand factors play a crucial role in GBS adoption. In developing countries, policies such as fiscal incentives, green financing and environmental regulations support green business strategies. However, their effectiveness depends on technology adoption and industry awareness. Ardhiyansyah and Juniansyah (2024) and Kilby and McWhirter (2022) emphasise that appropriate fiscal policies can address environmental market failures through effective price signals, encouraging private sector investment in green technologies. Similarly, the United Nations Environment Programme (Sabihaini et al. 2024) highlights that green financing can be enhanced through changes in national regulatory frameworks, harmonisation of public financial incentives and increased

investment in clean and green technologies. Therefore, fostering EO and technological advancement is crucial for successful green business practices in Indonesia.

Hypothesis 2 posits that the GBS positively influences the performance of SMEs in Indonesia, supported by a significant structural coefficient. Domestic market demand significantly impacts the adoption of sustainable business strategies. As a developing nation, Indonesia has implemented various measures to encourage GBS, including green tax incentives, renewable energy subsidies and green financing initiatives. However, the effectiveness of these measures is contingent upon the adoption of green technology, heightened business awareness and the availability of supporting infrastructure.

Empirical evidence supports the positive relationship between GBS and SME performance. A study conducted by Sabihaini et al. (2024) found that environmental analysis positively affects environmentally friendly business strategies and performance in SMEs. Similarly, research by Pinem & Listyorini (2022) indicates that a GBS, environmental focus and product differentiation have a positive and statistically significant effect on green innovation, which in turn positively impacts economic success.

To promote GBS, the Indonesian government has introduced several initiatives. The Clean Energy Finance and Investment Policy Review of Indonesia by the Sepulveda and Brooker (2021) and Sumarno and Hohenberger (2022) highlights that support for renewable energy investment, including various tax incentives, has improved in recent years, with encouraging signs that the investment climate is becoming more attractive. In addition, Dhakal and Shrestha (2021) and Dhar (2021) discuss the establishment of an Energy Resilience Fund to boost renewable energy investments in Indonesia, aiming to provide financial incentives for renewable energy developers. However, the success of these policies largely depends on the adoption of green technologies by SMEs, increased awareness of sustainable practices and the development of supporting infrastructure. The Organisation for Economic Co-operation and Development (OECD) emphasises that achieving a clean energy transition in Indonesia will require substantial scale-up in finance and investments for renewable energy and energy efficiency, with private sector engagement playing a crucial role.

Hypothesis 3 posits that EO exerts a positive influence on the performance of SMEs in Indonesia, as evidenced by a significant structural coefficient. The sustainability strategies adopted by SMEs are shaped by domestic market demand, which serves as a critical driver for their long-term viability. As a developing nation, Indonesia has implemented various policy instruments – including fiscal incentives, environmental regulations and green financing – to foster a stronger commitment to EO. Initiatives such as green production standards and sustainability education are designed to enhance SME competitiveness; however, their overall efficacy remains contingent upon the availability of green infrastructure and the nation's technological readiness.

An imbalance or limitation in internal factors can hinder business performance, particularly in meeting market demands. Conversely, organisational structure, business strategy and entrepreneurial orientation serve as key internal factors that enable the effective utilisation of resources. The interaction between internal and external factors, such as market conditions, plays a crucial role in enhancing competitiveness and business performance, thereby reinforcing the validity of Hypotheses 1 and 2.

As a developing country, Indonesia has implemented various strategic policies, including fiscal incentives, environmental regulations and SME empowerment programmes, to strengthen the synergy between internal and external factors. Although internal factors exert a partial impact on business performance, this study affirms that internal factors mediate the relationship between external factors and business performance, thereby supporting Hypotheses 3 and 4.

The primary focus of this article is to examine the role of GBS in mediating the relationship between EO and SME performance, encompassing both internal and external factors, as outlined in Hypothesis 4. As a developing country, Indonesia has implemented fiscal incentives, environmental regulations and green financing to support sustainable business practices. However, the success of these initiatives depends on the adoption of green technology, entrepreneurs' awareness and supporting infrastructure.

The results of the structural equation modelling (SEM) analysis indicate that GBS is a key determinant in enhancing SME performance, exerting a more significant influence than other lower-order constructs (Figure 3 and Table 7). Furthermore, external factors play a more substantial role compared to internal factors, underscoring the importance of a conducive business environment for SME growth. As a developing nation, Indonesia has introduced various strategic policies to promote the adoption of green business practices, including investment incentives, skills training subsidies, environmental regulations and fiscal policies. These programmes aim to enhance SME competitiveness, create employment opportunities and strengthen business adaptation to global economic dynamics. In addition, the government encourages access to green financing, tax incentives for sustainable industries and technical assistance programmes for SMEs to accelerate the implementation of environmentally friendly strategies. Through these policies, SMEs can leverage market opportunities, improve operational efficiency and mitigate the impact of economic crises more effectively.

This study examines the role of GBS in mediating the relationship between EO and SMEs' performance in Indonesia. Environmental orientation is a strategic resource that enhances environmental performance (Hart 1995) and aligns with the RBV theory. Findings confirm that EO positively impacts

SMEs' performance, while GBS plays a crucial role in driving environmental performance (Chahal et al. 2020). In addition, GBS significantly mediates the EO-SMEs' performance relationship, reinforcing its predictive value (Mankgele 2023; Masyhuri 2022; Tjahjadi et al. 2020). Despite progress, challenges remain in policy enforcement, financial access and technology adoption. Strengthening institutional support, expanding green market access and enhancing collaboration between government, financial institutions and businesses are essential to fostering sustainable economic growth.

Management and policy implications

Small businesses can enhance performance by minimising green business costs and adopting EO to balance financial resources for sustainability. Senior management should differentiate offerings, implement cost leadership strategies and secure low-interest loans to optimise environmental benefits. Likewise, large corporations must efficiently allocate financial resources to sustain capital investments and environmental policies, as sustainability concerns extend beyond small enterprises. Adequate financial resources are essential for adopting sustainable practices (Ayuso & Navarrete-Báez 2018; Christmann & Taylor 2001), yet businesses with limited capital often struggle with environmental compliance. Despite financial constraints, businesses can overcome these challenges by strategically leveraging existing resources and employing competitive tactics to enhance sustainability. This is particularly relevant for developing countries, where policymakers should facilitate financial accessibility for businesses committed to environmental responsibility.

Research on SMEs in East Java, Indonesia, faces several limitations. A major challenge is the scarcity of available data, which could be addressed by comparing SMEs with publicly traded enterprises and utilising financial reports from listed firms. While this study employs questionnaire-based data, incorporating longitudinal data and in-depth interviews could enhance the validity of findings by reducing social desirability bias. In addition, the study's scope is limited to East Java, and its findings would benefit from comparative data from SMEs in other countries, particularly in Asia and Europe, for more robust policy implications. This study examines the moderating role of GBS in the relationship between EO and SME performance, using environmental performance and top management awareness as control variables. However, SMEs' sustainability practices are influenced by multiple factors. Prior research highlights the impact of government incentives (Anwar & Shah 2021) and technological innovation (Chege & Wang 2020) on environmental sustainability. Future studies should explore these variables in developing countries, assessing their influence on green business strategies and policy formulation.

Conclusion

This study explores the role of GBS in shaping the performance of SMEs in East Java, Indonesia. Data from 103 SMEs were analysed using SmartPLS, revealing that EO has a direct and significant impact on both SME performance and the adoption of green business strategies. Notably, GBS serves as a crucial intermediary in this relationship, amplifying the benefits of EO on business outcomes.

The findings underscore the need for banks, financial institutions and policymakers to facilitate financial support for SMEs, enabling them to integrate green business strategies and enhance their environmental commitment for sustainable growth. Furthermore, the study emphasises that SMEs should optimise their financial resources to invest in environmental initiatives, ensuring long-term profitability and resilience. These insights hold particular relevance for developing economies, where policy frameworks should actively promote environmental sustainability as a core component of economic advancement.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

N.L., N.F.A., D.U.W., J.S. and R.R. jointly conducted the research, drafted the manuscript and revised the article. They conceptualised the study, developed the theoretical framework, and provided oversight throughout the research process. In addition, they guided the study's progression and ensured its methodological rigour. Finally, N.L., N.F.A., D.U.W., J.S. and R.R. critically reviewed the manuscript, finalised the revisions and approved the article for submission.

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Data availability

The data that support the findings of this study are available from the corresponding author, N.L., upon reasonable request.

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