



Organizational Resilience, Strategic Foresight, and Green Supply Chain Integration: A Pathway to Sustainable Performance in MSMEs Through Green Competitive Advantage

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Abstract. The Green Economy represents a deliberate strategy aimed at fostering economic growth, advancing sustainable development objectives, and inspiring nations worldwide to prioritize environmental responsibility. This study explores the interconnected relationships between Organizational Resilience, Strategic Foresight, Green Supply Chain Integration, and the Sustainable Business Performance of MSMEs, with particular focus on the mediating role of Green Competitive Advantage. The study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data from 440 MSME managers across four districts in Madura. Findings reveal that Green Competitive Advantage is significantly and positively influenced by Organizational Resilience, Strategic Foresight, and Green Supply Chain Integration. These factors, in turn, exert a favorable impact on the Sustainable Business Performance of MSMEs. Moreover, the results demonstrate that Green Competitive Advantage mediates the effects of Organizational Resilience, Strategic Foresight, and Green Supply Chain Integration on business performance outcomes, contributing positively to Sustainable Business Performance. This report underscores the critical importance of MSME management enhancing their understanding and implementation of the Green Economy framework. Such a strategy not only mitigates environmental degradation but also bolsters local economic resilience while addressing the Sustainable Development Goals comprehensively—across economic, social, and environmental dimensions.

Keywords: Green competitive advantage, Green supply chain integration, organizational resilience, Strategic foresight, Sustainable MSME business performance.

JEL Classification: A11; A12; C10; C12; C30.

1. INTRODUCTION

The green economy has emerged as a cornerstone strategy for fostering economic growth and facilitating the achievement of the Sustainable Development Goals (Gyimah et al., 2024); (Asyik et al., 2024; Muchlis et al., 2024). In recent years, environmentally conscious practices and sustainable development have garnered increasing attention. The adverse effects of unsustainable corporate behaviors have intensified, raising significant concerns amidst escalating environmental degradation. To address this, organizations must proactively design and implement strategies that prioritize environmental sustainability, paving the way for a sustainable future (Abid et al., 2023); (Asyik, Agustia, et al., 2023; Wahidahwati & Asyik, 2022). A green entrepreneurial approach has been widely recognized as a vital framework, enabling businesses to align their commercial objectives with ethical values and environmental sustainability standards (Ishaq et al., 2024); (Asyik, Wahidahwati, et al., 2022; Dewianawati & Asyik, 2021). As key drivers of economic development, micro, small, and medium-sized enterprises (MSMEs) play an essential role in achieving several Sustainable Development Goals (Šebestová, 2020); (Wijaya et al., 2020).

Micro, Small, and Medium-sized Enterprises (MSMEs) face fierce competition across all fronts within dynamic and complex market environments. For businesses, maintaining a competitive edge in such demanding markets has become both a critical challenge and a pressing priority (YahiaMarzouk & Jin, 2022); (Indrawati et al., 2024; Sudaryanto et al., 2024). The pursuit of strategies to sustain competitive advantages remains an ongoing endeavor, as achieving such an edge largely hinges on securing unique and non-replicable resources. Organizational Resilience (OR) emerges through the dynamic interplay between an organization's internal resources and its external environment. Resilient organizations demonstrate the capacity to anticipate potential risks and adapt effectively to evolving circumstances. In this context, MSME resilience refers to the ability of MSMEs to recover and thrive following unpredictable events. While appropriate organizational structures and management approaches play vital roles in building resilience, MSMEs often encounter challenges such as poor management practices. To address these issues, capability-focused approaches are increasingly adopted as strategies to strengthen organizational resilience (Verreynne et al., 2023); (Martha Hendrati et al., 2024; Utari et al., 2024).

Strategic Foresight (SF) plays a crucial role in enabling companies to identify emerging issues without solely relying on data. Unlike traditional forecasting methods, which merely extend existing trends, disruptive innovation cannot be achieved through prediction alone. The formal outputs of SF, such as anticipated scenarios, provide the foundation for establishing innovation-driven goals and creating new opportunities (Purwanto et al., 2023); (Prasetyo et al., 2024; Sabihaini et al., 2024). While SF processes are well-established for large enterprises, formalized strategic frameworks still require significant refinement for MSMEs. In this regard, Green Supply Chain Integration (GSCI) offers a cohesive and strategic approach to enhancing the efficiency and performance of green supply chains. A critical component of GSCI is supplier integration, which fosters organizational

partnerships through information sharing. Strengthening MSME innovation through such strategies has been shown to improve overall business performance (Benzidia et al., 2021); (Prasetio et al., 2024; Sabihaini et al., 2024).

Despite the growing body of research on topics such as Green Competitive Advantage (Baah et al., 2024); (Hendrati et al., 2024; Sabihaini et al., 2023), Organizational Resilience (OR) (Gu et al., 2023); (Laily et al., 2023; Shabbir et al., 2023), Strategic Foresight (SF) (Akinuoye & Onuoha, n.d.), Green Supply Chain Integration (GSCI) (Han & (Han & Huo, 2020); (Asyik, Muchlis, et al., 2023; Eko Prasetio et al., 2023), and Sustainable MSME Business Performance (SMBP) (Haseeb et al., 2019); (Nuswantara et al., 2023; Prasetyo et al., 2023), a significant research gap remains in understanding the interrelationships among these variables within the context of MSMEs. Previous studies have examined the effects of OR on sustainable business performance and GCA independently. Similarly, separate investigations have assessed the influence of SF on both sustainable business performance and GCA. Research on the impact of GSCI on sustainable MSME performance and GCA has also been conducted in isolation. However, a comprehensive exploration of the relationships among OR, SF, GSCI, and SMBP—with specific attention to the mediating role of GCA—is still needed. Addressing this research gap requires a more holistic approach that integrates these factors to uncover their combined effects on sustainable MSME outcomes.

The purpose of this study is to investigate and evaluate the relationships among Organizational Resilience (OR), Strategic Foresight (SF), Green Supply Chain Integration (GSCI), and the sustainable business performance of MSMEs, with particular emphasis on the mediating role of Green Competitive Advantage (GCA). This study seeks to offer valuable insights to help MSMEs formulate strategies that enhance their GCA and achieve long-term organizational sustainability by examining the intricate interplay among these interconnected elements.

The findings of this study are anticipated to provide insightful guidance to MSME management in Madura, Indonesia. The study aims to advance progress toward achieving the Sustainable Development Goals (SDGs) and enhancing the sustainability of the local economy by improving understanding of the green economy and its critical role in mitigating environmental harm. By leveraging Organizational Resilience (OR), Strategic Foresight (SF), and Green Supply Chain Integration (GSCI), the study offers MSMEs a comprehensive framework for aligning Green Competitive Advantage (GCA) with sustainable economic performance. These findings can assist MSME managers and other business professionals in implementing eco-friendly practices and enhancing overall business performance toward long-term sustainability.

To address the knowledge gap among MSME managers in Madura regarding the green economy and the impact of unsustainable business practices—which adversely affect Green Competitive Advantage (GCA) and sustainable business performance—this study proposes an approach centered on Organizational Resilience (OR), Strategic Foresight (SF), and Green Supply Chain Integration (GSCI). By harnessing these capabilities, MSMEs can enhance both their sustainable business performance and GCA, fostering long-term resilience and competitiveness.

2. LITERATURE REVIEWS & HYPOTHESIS DEVELOPMENT

2.1. Organizational Resilience (OR) and Green Competitive Advantage (GCA)

Rapid changes in the environment, such as adjustments to environmental regulations or shifting consumer preferences toward greener products, can be effectively navigated by firms possessing Organizational Resilience (OR). Organizations with this flexibility can swiftly adapt to sustainability trends and capitalize on emerging opportunities, thereby achieving a Green Competitive Advantage (GCA). OR is widely recognized as a strategic asset that empowers companies to adjust and thrive in the face of adversity, fostering GCA through the adoption of sustainable practices (Duchek, 2020). Conversely, GCA emphasizes resource efficiency and ecological awareness as key competitive differentiators, enabling firms to fulfill their environmental responsibilities while achieving long-term success (Singh et al., 2022); (Hendrati et al., 2023; Prasetyo et al., 2022). Research conducted by (YahiaMarzouk & Jin, 2022); (Asyik, Muchlis, et al., 2022; Kalbuana et al., 2022) has consistently demonstrated that GCA is significantly and positively influenced by OR. In light of this reasoning, we propose the following hypothesis:

Hypothesis 1: Organizational Resilience (OR) has a positive effect on Green Competitive Advantage (GCA).

2.2. Strategic Foresight (SF) and Green Competitive Advantage (GCA)

The development of competitive advantages rooted in environmental sustainability relies on an organization's ability to foresee, assess, and strategically plan for the future. By enabling companies to identify potential environmental opportunities and threats, Strategic Foresight (SF) facilitates proactive planning of sustainable business practices, granting firms a competitive edge in the green economy (Rohrbeck & Kum, 2018); (Sudaryanto et al., 2022; Tjaraka et al., 2022). Organizations that successfully implement SF will be better positioned to develop green strategies that offer them a market advantage. This highlights the critical role of SF capabilities in helping organizations achieve long-term and exceptional commercial performance. Research conducted by (Kaivo-Oja & Roth, 2023); (Prasetio et al., 2021; Utari, Sudaryanto, et al., 2021) has confirmed that SF has a positive and significant effect on Green Competitive Advantage (GCA). Based on this explanation, we propose the following hypothesis:

Hypothesis 2: Strategic Foresight (SF) has a positive effect on Green Competitive Advantage (GCA).

2.3. Green Supply Chain Integration (GSCI) and Green Competitive Advantage (GCA)

Businesses can achieve a long-term competitive advantage by integrating green practices into their supply chains. A company's competitive positioning in a sustainable market is significantly strengthened by Green Supply Chain Integration (GSCI), which enhances resource efficiency and reduces environmental impact (Gelmez et al., 2024); (Aliyyah, Siswomihardjo, et al., 2021; Indrawati et al., 2021).

Sustaining a competitive edge over time necessitates embedding green practices throughout the supply chain. By implementing GSCI, organizations can improve their overall performance and market positioning in an environment increasingly driven by sustainability concerns. GSCI also contributes to greater efficiency, innovation, reputation, and risk mitigation. Research by (Setiawan et al., 2023); (Endarto, Taufiqurrahman, Kurniawan, et al., 2021; Utari, Iswoyo, et al., 2021) has demonstrated that GSCI has a positive and significant effect on Green Competitive Advantage (GCA). Based on this explanation, we propose the following hypothesis:

Hypothesis 3: Green Supply Chain Integration (GSCI) has a positive effect on Green Competitive Advantage (GCA)

2.4. Organizational Resilience (OR) and Sustainable Business Performance (SBP)

The ability of a firm to achieve long-term success by integrating economic, social, and environmental sustainability into its operations—benefiting both stakeholders and society as a whole is referred to as sustainable business performance (SBP) (Purwanto et al., 2023); (Endarto, Taufiqurrahman, Suhartono, et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Utari, et al., 2021); (Endarto, Taufiqurrahman, Suhartono, et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Utari, et al., 2021). Sustainability not only enhances competitive advantage but also unlocks new market opportunities, as investors and consumers increasingly prioritize it (Fathi et al., 2021); (Abadi et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Kalbuana, et al., 2021).

Micro, Small, and Medium-sized Enterprises (MSMEs) can achieve more sustained company performance by strengthening Organizational Resilience (OR). This highlights that investments in OR are both critical for crisis survival and essential for achieving long-term stability and sustainable performance. Strong resilience enables MSMEs to remain innovative, manage risks effectively, and adapt to changes all of which support the long-term viability and success of their businesses. Research by (Trieu et al., 2024); (Aliyyah, Prasetyo, et al., 2021; Rusdiyanto et al., 2021) has demonstrated that OR has a positive and significant effect on Sustainable Business Performance (SBP). Based on this explanation, we propose the following hypothesis:

Hypothesis 4: Organizational Resilience (OR) has a positive effect on Sustainable Business Performance (SBP).

2.5. Strategic Foresight (SF) and Sustainable Business Performance (SBP)

According to research, MSMEs that effectively implement Strategic Foresight (SF) tend to achieve more sustainable company performance as they are better equipped to address both current and future opportunities (Taferner, 2023); (Kalbuana, Suryati, et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Nartasari, et al., 2021a). By leveraging their ability to anticipate and plan for change, these businesses can drive innovation that promotes social responsibility, environmental sustainability, and long-term prosperity (Elmi & Kinyua, 2022); (Kalbuana, Prasetyo, et al., 2021; Prasetyo, Endarti, Endarto, Aliyyah, et al., 2021).

The capacity of MSMEs to foresee, strategize, and develop with a long-term perspective plays a crucial role in fostering enduring business success. Consequently, MSMEs that adopt SF can achieve more sustainable business performance by establishing a robust foundation for growth and survival. This approach enables MSMEs to maintain steady performance, innovate in ways that advance sustainability, and adapt more effectively to change. Research by (Taferner, 2023); (Prasetyo, Aliyyah, Rusdiyanto, Chamariah, et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Nartasari, et al., 2021b) further confirms that SF has a positive and significant effect on Sustainable Business Performance (SBP). Based on this explanation, we propose the following hypothesis:

Hypothesis 5: Strategic Foresight (SF) has a positive effect on Sustainable Business Performance (SBP).

2.6. Green Supply Chain Integration (GSCI) and Sustainable Business Performance (SBP)

According to research, MSMEs that effectively implement Strategic Foresight (SF) tend to achieve more sustainable company performance as they are better equipped to address both current and future opportunities (Taferner, 2023); (Rusdiyanto, Karman, et al., 2020; Susanto et al., 2021). By leveraging their ability to anticipate and plan for change, these businesses can drive innovation that promotes social responsibility, environmental sustainability, and long-term prosperity (Elmi & Kinyua, 2022); (Hidayat et al., 2020; Prabowo et al., 2020).

The capacity of MSMEs to foresee, strategize, and develop with a long-term perspective plays a crucial role in fostering enduring business success. Consequently, MSMEs that adopt SF can achieve more sustainable business performance by establishing a robust foundation for growth and survival. This approach enables MSMEs to maintain steady performance, innovate in ways that advance sustainability, and adapt more effectively to change. Research by (Taferner, 2023); (Juanamasta et al., 2019; Rusdiyanto, Agustia, et al., 2020) further confirms that SF has a positive and significant effect on Sustainable Business Performance (SBP). Based on this explanation, we propose the following hypothesis:

Hypothesis 6: Green Supply Chain Integration (GSCI) has a positive effect on Sustainable Business Performance (SBP).

2.7. Green Competitive Advantage (GCA) and Sustainable Business Performance (SBP)

Environmentally friendly practices provide MSMEs with a competitive edge, enhancing their long-term business performance. MSMEs that adopt Green Competitive Advantage (GCA) can achieve better and more sustainable company performance. This demonstrates that investing in eco-friendly strategies not only delivers a long-term competitive edge but also benefits the environment. By leveraging GCA, MSMEs can foster business growth and sustainability by balancing long-term profitability with environmental responsibility. Research conducted by (Maziriri & Maramura, 2022);(Nuryakin & Maryati, 2022); (Putri & Riyanto, 2023); (Zainurrafiqi & Gazali, 2024) has confirmed that GCA has a positive and significant effect on Sustainable Business Performance (SBP). Based on this explanation, we propose the following hypothesis:

Hypothesis 7: Green Competitive Advantage (GCA) has a positive effect on Sustainable Business Performance (SBP)

2.8. The Mediating Role of Green Competitive Advantage (GCA)

By developing competitive advantages that prioritize environmental considerations, Organizational Resilience (OR) can indirectly enhance Sustainable Business Performance (SBP). Strengthening OR to achieve a Green Competitive Advantage (GCA) is a pivotal strategy for ensuring the long-term viability of MSME operations. This highlights that MSMEs become more resilient, competitive, and sustainable when OR is aligned with green policies.

When MSMEs' long-term vision and strategic planning are transformed into eco-friendly competitive advantages, they can effectively enhance their sustainable business performance. Therefore, the key to improving SBP lies in investing in Strategic Foresight (SF) aimed at achieving GCA. This illustrates how green strategy and SF complement each other to prepare MSMEs for the future, establishing a robust foundation for greater competitiveness and sustainability.

Additionally, Green Supply Chain Integration (GSCI) can indirectly improve SBP by fostering environmentally- based competitive advantages. Investments in GSCI, with a focus on achieving GCA, represent a critical strategy for enhancing SBP. This demonstrates that GSCI delivers direct benefits for sustainability and bolsters MSME competitiveness by cultivating sustainable competitive advantages. Based on this explanation, we propose the following hypothesis:

Hypothesis 8: Green Competitive Advantage (GCA) mediates the effect of Organizational Resilience (OR) and Sustainable Business Performance (SBP).

Hypothesis 9: Green Competitive Advantage (GCA) mediates the effect of Strategic Foresight (SF) and Sustainable Business Performance (SBP).

Hypothesis 10: Green Competitive Advantage (GCA) mediates the effect of Green Supply Chain Integration (GSCI) and Sustainable Business Performance (SBP).

2.9. Conceptual Framework

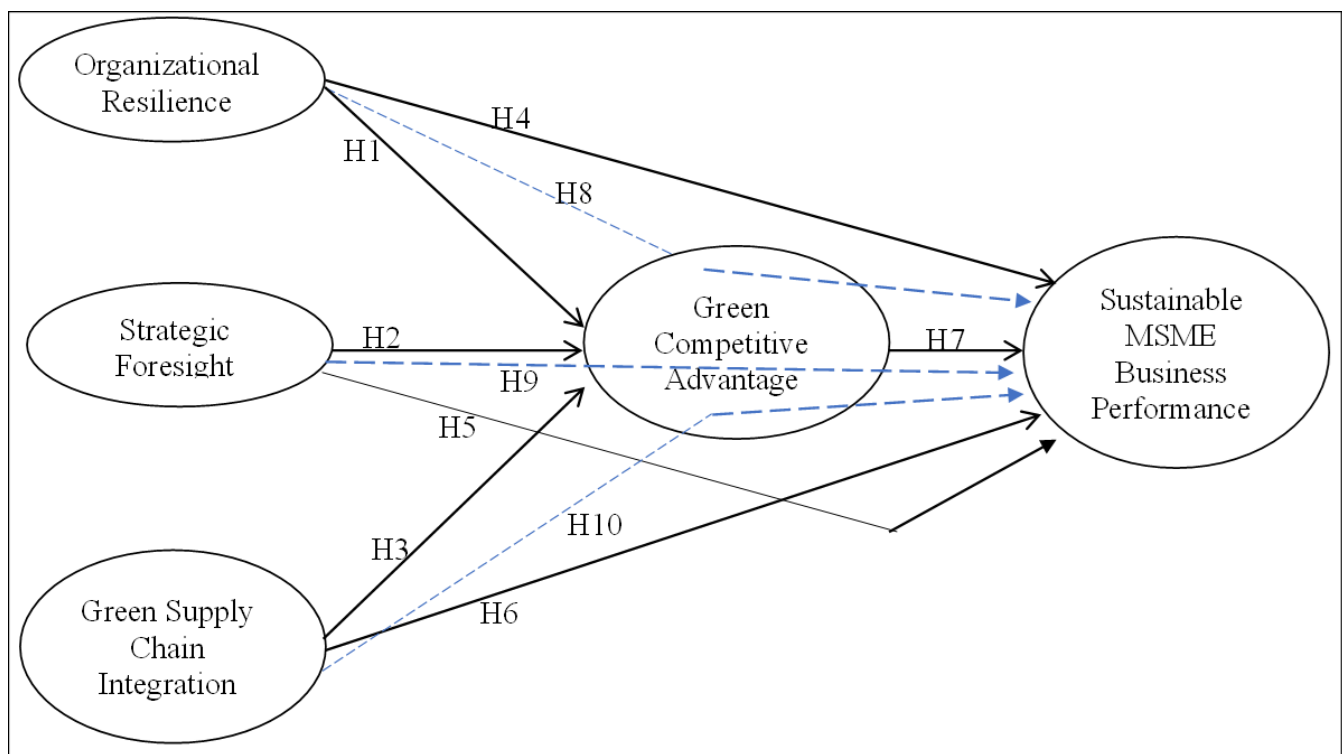


Figure 1: Conceptual Framework

3. METHODOLOGY

3.1 The Design of Research

This research employed a quantitative survey methodology to evaluate the proposed hypotheses. Specifically, it investigated the influence of Organizational Resilience (OR), Strategic Foresight (SF), and Green Supply Chain Integration (GSCI) on Green Competitive Advantage (GCA), as well as their impact on the Sustainable Business Performance (SBP) of MSMEs. Furthermore, the study explored the relationship between GCA and SBP, focusing on the mediating role of GCA in the effects of OR, SF, and GSCI on Sustainable Business Performance.

3.2. Participants/ Sample

This research targeted MSME managers in four regencies on Madura Island: Sumenep, Pamekasan, Sampang, and Bangkalan. A total of 500 questionnaires were distributed between June and August 2024, with 440 successfully completed and returned. The questionnaire distribution was facilitated by enumerators, specifically Madura University students assigned to their respective regions.

Madura Island was chosen as the study site because its MSMEs are unique and differ from those in other regions. A purposeful sampling technique with predetermined criteria was used to acquire the data. First, to ensure a high level of experience and understanding of human resource management, only managers or owners with more than five years of experience were included. Second, managers had to provide their consent to participate after being selected at random.

Managers were chosen as respondents because, compared to lower-level employees, they possess a thorough understanding of human resources and general business operations (Kurniawati & Fernando, 2024). Addressing challenges related to business operations and human resource management requires this informed perspective.

3.3. Instruments

Data collection was conducted using questionnaires with a five-point Likert scale, where responses ranged from 1 ("strongly disagree") to 5 ("strongly agree"). This study examined five latent factors: Sustainable Business Performance (SMBP), Green Competitive Advantage (GCA), Green Supply Chain Integration (GSCI), and Strategic Foresight. To ensure accuracy and clarity, the questionnaire was translated into Indonesian by language proficiency specialists:

1. OR. The questionnaire's preparation refers to research by (Fathi et al., 2021); (Taferner, 2023), which measures OR using the following indicators: leadership and culture, networks, and adapting to change quickly.
2. SF. The questionnaire was created based on research by (Kassar & Al-Saqal, 2022); (Elmi & Kinyua, 2022), measured by the following indicators: Environmental scanning, Strategic selection capability, Network connection, and Integration capability.
3. GSCI. The questionnaire was created based on research by (Setiawan et al., 2023); (Abbas et al., 2023), measured by the following indicators: An integrated system involving internal stakeholders facilitates collaboration among internal company stakeholders in formulating strategic plans. It also includes sharing demand forecast information, production planning details, and delivery schedules with external stakeholders to ensure seamless coordination and alignment.
4. GCA, the questionnaire was made based on research by (Putri & Riyanto, 2023); (Nuryakin & Maryati, 2022), measured by the following indicators: Green products and services outperform those of competitors, demonstrating a superior GCA. Business processes are more environmentally efficient compared to rivals, while managerial and employee competencies exceed industry standards. Additionally, green strategies and corporate reputation are stronger and more resilient than those of competitors.
5. SMBP: The following indicators are measured by the questionnaire, which was developed based on study by (Haseeb et al., 2019). Overall financial performance has outperformed competitors, profitability growth has increased, the organization's net profit margin has increased, and its return on investment has increased.

3.4. Procedure

To gather data for this study, respondents were provided with online questionnaires. The analysis utilized SmartPLS version 3 software to test the hypotheses through Structural Equation Modeling (SEM-PLS). This method was particularly suitable as it allows for the estimation of complex models involving mediation and moderation effects, making it ideal for examining variance-based correlations. Moreover, PLS-SEM is well-regarded for its predictive power in analyzing variable relationships and its robustness in model validation. Two primary methodologies were applied in the analysis: bootstrapping techniques to evaluate both direct and indirect hypotheses, and algorithm-based tests to assess validity and reliability (Sarstedt et al., 2021).

4. RESEARCH RESULTS AND DISCUSSION

4.1. Results

4.1.1. The Characteristic of Sample

The demographic specifications of the 440 survey participants are presented in Table 1. The sample comprised 100 female respondents and 340 male respondents. In terms of age distribution: 110 respondents were aged 31–40 years, 50 respondents were under 30 years old, 200 respondents fell within the 41–50 age range, and

80 respondents were over 50 years old.

Regarding education levels: 99 respondents had a Senior High School Education, 191 respondents held a Diploma Education Level, and 150 respondents had a Postgraduate Education Level.

For job tenure: 70 respondents had <10 years of tenure, 190 respondents had 11–20 years, and 180 respondents had >21 years of job tenure.

Table 1: Respondents' demographic characteristics (n=440)

Profile	Description	Frequency	Percentage
Gender	Male	340	77%
	Female	100	23%
Age	<30 years	50	11%
	31–40 years	110	25%
	41–50 years	200	45%
	>50 years	80	18%
Education Level	Senior High School	99	25%
	Diploma	191	43%
	Postgraduate	150	34%
Job Tenure	<10 years	70	16%
	11–20 years	190	43%
	>21 years	180	41%

The validity analysis reveals that all item loading factors exceed the minimum threshold of 0.70, as recommended by (Sarstedt et al., 2021). Regarding reliability, the composite reliability values for Organizational Resilience (OR), Strategic Foresight (SF), Green Supply Chain Integration (GSCI), Green Competitive Advantage (GCA), and Sustainable Business Performance (SBP) are 0.92, 0.93, 0.91, 0.94, and 0.93, respectively meeting the required standards (see Table 2). Additionally, the Average Variance Extracted (AVE) values for these variables are 0.58, 0.61, 0.59, 0.62, and 0.61, all of which exceed the acceptable threshold of 0.50. This confirms that each variable satisfies the criteria for discriminant validity (Risher & Hair Jr, 2017).

Table 2: The study variables' validity and reliability.

Variables	Cronbach's Alpha	AVE	Composite Reliability
OR	0.91	0.58	0.92
SF	0.92	0.61	0.93
GSCI	0.90	0.59	0.91
GCA	0.91	0.62	0.94
SBP	0.92	0.61	0.93

Table 3: The Fit of Model.

The Index of Fit	The Criteria of Threshold	The Model of Saturated	Explanation
SRMR	<0.08	0.07	The Model is Fit
NFI	>0.90	0.91	The Model is Fit
Chi-Square	<5	3.57	The Model is Fit

Note: SRMR: Standardized Root Mean Squared Residual, NFI: Normed Fit Index.

Moreover, the Standardized Root Mean Square Residual (SRMR) value for this study is 0.07, which is below the recommended maximum threshold of 0.08, indicating that the research model demonstrates a good fit (Risher & Hair Jr, 2017). Additionally, the Normed Fit Index (NFI) value of 0.91 exceeds the recommended threshold of 0.90, and the Chi-Square value remains below 5, further confirming that the research model achieves an adequate fit (Risher & Hair Jr, 2017) (see Table 3).

Additionally, the Heterotrait-Monotrait (HTMT) ratio, along with the mean and standard deviation values, were analyzed. As all values fall below the 0.90 threshold, the HTMT analysis confirms that each construct satisfies the discriminant validity requirements (Risher & Hair Jr, 2017).

By examining both the inner and outer models, the goodness-of-fit index is used to evaluate the overall fit of the model. This statistic is essential when determining whether structural models in PLS are appropriate for analysis. To further assess the model's goodness-of-fit, predictive relevance (Q^2) values—calculated using the following formula—are employed.

The dependent variable, Sustainable Business Performance (SBP), has an adjusted R-squared value of 0.70, indicating that the independent variables collectively explain 70% of its variance. Similarly, the mediating variable, Green Competitive Advantage (GCA), has an adjusted R-squared value of 0.57, demonstrating that Organizational Resilience (OR), Strategic Foresight (SF), and Green Supply Chain Integration (GSCI) collectively account for 57% of its variance.

$$Q^2 = 1 - (1 - R1^2) (1 - R2^2)$$

$$Q^2 = 1 - (1 - 57) (1 - 70^2)$$

$$Q^2 = 1 - .13$$

$$Q^2 = .87$$

The calculation results yield a value of 0.87, indicating a strong predictive relevance for the model used in this study. This suggests that the research model accounts for 87% of the variation in the data, with the

remaining 13% influenced by factors outside the scope of this study.

4.1.2. The Results of Hypothesis Testing

Table 4: Table 3 The Testing of Hypotheses.

Hypotheses	Path	Std Beta	SE	t-value	Interpretation
H1	OR → GCA	34***	0.05	15.37	Significant Effect
H2	SF → GCA	72***	0.03	27.43	Significant Effect
H3	GSCI → GCA	24***	0.06	9.85	Significant Effect
H4	OR → SMBP	30***	0.04	13.71	Significant Effect
H5	SF → SMBP	28***	0.06	10.62	Significant Effect
H6	GSCI → SMBP	33***	0.05	14.32	Significant Effect
H7	GCA → SMBP	60***	0.03	24.74	Significant Effect
H8	OR → GCA → SMBP	52***	0.04	21.73	Significant Effect
H9	SF → GCA → SMBP	48***	0.06	19.75	Significant Effect
H10	GSCI → GCA → SMBP	39***	0.06	17.82	Significant Effect

Note: * $p < .05$. ** $p < .01$. *** $p < .001$; OR: OR; SF: SF; GSCI: GSCI; GCA: GCA; SBP: SMBP.

The findings of hypothesis testing are shown in Table 3. The study found that OR significantly impacts GCA ($\beta = 0.34$, $p = 0.00$), supporting hypothesis H1. SF favors and significantly influences GCA ($\beta = 0.72$, $p = 0.00$), supporting hypothesis H2. GSCI significantly improves GCA ($\beta = 0.24$, $p = 0.00$), supporting hypothesis H3. OR significantly improves MSME business performance ($\beta = 0.30$, $p = 0.00$), supporting hypothesis H4. SF significantly improves SMBP ($\beta = 0.28$, $p = 0.00$), supporting hypothesis H5. GSCI significantly improves SMBP ($\beta = 0.33$, $p = 0.00$), supporting hypothesis H6. GCA significantly improves SMBP ($\beta = 0.60$, $p = 0.00$), supporting hypothesis H7. Furthermore, GCA positively and significantly mediates the influence of OR on SMBP ($\beta = 0.52$, $p = 0.00$), supporting hypothesis H8. This mediator also applies to the association between SF and SMBP ($\beta = 0.48$, $p = 0.00$), supporting hypothesis H9. GCA strongly mediates the association between GSCI and SMBP ($\beta = 0.39$, $p = 0.00$), confirming hypothesis H10.

4.2. Discussion

Organizational Resilience (OR) has a positive and significant effect on Green Competitive Advantage (GCA). This finding aligns with previous studies by (YahiaMarzouk & Jin, 2022); (Chowdhury & Quaddus, 2017); (Pratono, 2022); (Liu et al., 2018); (Webb & Schlemmer, 2006). These results are consistent with the Resource-Based View (RBV) theory, which asserts that internal resources play a critical role in enhancing a company's efficiency and effectiveness (Barney, 1991). OR defined as an organization's ability to anticipate unforeseen events, respond proactively to crises, and innovatively develop strategies to thrive under challenging circumstances, provides a foundation for achieving a lasting competitive advantage. Previous research, such as studies by (Chen et al., 2021); (Ingram & Bratnicka-Myśliwiec, 2019), has demonstrated how OR enhances competitive advantage. OR metrics significantly contribute to improving a business's green competitive edge. By cultivating a shared vision for sustainability, fostering innovation, and developing an adaptable culture, organizations can effectively navigate environmental challenges and seize opportunities for green growth. This strengthens their position as industry leaders in sustainability.

Green Competitive Advantage (GCA) is positively and significantly influenced by Strategic Foresight (SF). This finding is consistent with previous studies by (Fathi et al., 2021); (Abeysekara et al., 2019); (Akinuoye & Onuoha, n.d.); (Purwanto et al., 2023); (Kassar & Al-Saqal, 2022); (Kaivo-Oja & Roth, 2023). Enhancing GCA requires strong SF indicators, enabling organizations to anticipate changes, make informed decisions, and proactively position themselves as sustainability leaders. By systematically collecting and evaluating external environmental data, organizations can reduce risks and unlock opportunities for innovation and sustained competitive success within the green economy.

Green Competitive Advantage (GCA) is positively and significantly influenced by Green Supply Chain Integration (GSCI). This finding aligns with previous research by (Setiawan et al., 2023); (Lii & Kuo, 2016). The GCA of a business can be substantially enhanced through the use of GSCI indicators. To achieve environmental sustainability goals, GSCI involves the alignment and coordination of various organizational functions, including marketing, production, logistics, and procurement. Organizations can boost the effectiveness, creativity, and responsiveness of their green activities by ensuring that internal stakeholders are seamlessly integrated into a unified system.

Sustainable Business Performance (SBP) is positively and significantly influenced by Organizational Resilience (OR). This finding is consistent with previous studies by (Gu et al., 2023); (Lin & Fan, 2024). A critical component of sustainable company success is resource efficiency, which often stems from OR. Resilient MSMEs are more likely to adopt strategies such as waste reduction, energy conservation, and resource optimization. These practices not only enhance a company's environmental performance but also reduce expenses, thereby contributing to its overall sustainability.

Sustainable Business Performance (SBP) is positively and significantly influenced by Strategic Foresight (SF). This result aligns with previous research by (Fathi et al., 2021); (Taferner, 2023). While pursuing sustainable

growth, MSMEs can build resilience against future challenges through strategies guided by foresight. By incorporating foresight into their strategic planning, MSMEs can develop flexible and adaptable business models capable of thriving in various future scenarios. In an increasingly dynamic and unpredictable world, this long-term resilience is essential for sustaining sustainable business performance.

The performance of sustainable MSME businesses is positively and significantly impacted by GSCI. This result is consistent with earlier research by (Afum et al., 2020); (Abbas et al., 2023). Klik atau ketuk di sini untuk memasukkan teks.. With suppliers, consumers, and other stakeholders that appreciate sustainability, GSCI promotes cooperation and confidence. MSMEs can strengthen their bonds with important partners by collaborating on green projects, which will improve collaboration, information sharing, and benefits for both parties. These solid connections are essential to maintaining company performance in a cutthroat and eco-aware marketplace.

SMBP is positively and dramatically impacted by GCA. This result supports earlier research by (LOCAL, 2020); (Putri & Riyanto, 2023). A company's ability to outperform its rivals by adopting and profiting from ecologically friendly practices is known as its "GCA." In order to improve sustainable business performance, Micro, Small, and Medium-Sized Enterprises (MSMEs) must have a green competitive edge that combines environmental stewardship with economic success. MSMEs are better positioned to improve their Sustainable Business Performance if they provide better green products and services, have a stronger green competitive edge, implement more effective green business processes, exhibit higher levels of managerial and employee competencies, and implement more resilient green strategies and reputations.

OR, SF, GSCI, and SMBP are all mediated by GCA. The MSME may efficiently fulfill market demands by anticipating changes and utilizing its green positioning, which will improve its sustainable business performance. Thus, GCA serves as a link between resilience and a measurable competitive advantage. SF gives MSMEs a long-term view, enabling them to match their business plans with upcoming sustainability objectives. The MSME's capacity to attain sustainable business performance is enhanced when a GCA supports this alignment. MSMEs can reduce the risks of non-compliance and maintain compliance with environmental standards by implementing GSCI. The MSME avoids fines and establishes a reputation as a sustainability leader when compliance and risk mitigation are used to generate a GCA. This reputation immediately contributes to sustainable business performance by increasing stakeholder trust and creating new business prospects.

5. CONCLUSION AND RECOMMENDATIONS

According to the study's findings, GCA plays a crucial mediating role in enhancing the beneficial impacts of SF, OR, and GSCI on SMBP. MSMEs may make sure that their efforts in supply chain integration, resilience, and foresight result in long-term success in a market that is becoming more and more driven by sustainability needs by creating and utilizing this competitive advantage. This comprehensive strategy improves company performance and ensures a sustainable competitive advantage in the green economy.

Additionally, this study adds significantly to the field of behavioral science. First of all, it emphasizes the important connection between SMBP, GSCI, OR, and SF, with GCA acting as a mediating factor. This finding supports resource-based theory by incorporating OR, SF, and GSCI as internal resources and competitive advantage as a SMBP source. Furthermore, the original contribution to behavioral science is advancing knowledge about the cognitive, collaborative, and competitive behaviors that drive MSMEs toward sustainability, mainly through resilience, foresight, and green supply chain practices. The study sheds light on the behavioral processes that enable these organizations to achieve sustainable business performance and develop a GCA.

The limitations of this study: Firstly, This study utilized a cross-sectional design, indicating that future research could benefit from adopting a longitudinal approach to account for temporal variations in questionnaire distribution. Second, this study only focuses on MSMEs in Madura Island, which consists of four districts, namely Sumenep, Pamekasan, Sampang, and Bangkalan, which are the province of East Java, Indonesia, which shows that future research can examine large companies in different districts. Finally, this study employs PLS-SEM with an organizational unit of analysis, which narrows the scope of the investigation. Future researchers could enhance the comprehensiveness of their findings by utilizing diverse data analysis techniques and incorporating variables such as age, tenure, and education level.

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Authors' Contributions

Z, G, ZR, RH R and NFA conducted the research, drafted, and revised the article. They also developed the main research concept and provided the theoretical framework. Additionally, they oversaw and guided the research process. Finally, Z, G, ZR, RH R and NFA reviewed and finalized the revisions, ultimately approving the article

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