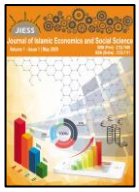

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Green Innovation and Firm Performance in Jakarta's Bakery MSMEs: The Influence of Absorptive Capacity, GSCM, Organizational Learning, and Market Turbulence

Djati Karnadji*, Willy Arafah, Agustinus Sri Wahyudi
[1,2]Universitas Trisakti, Jakarta, Indonesia
[3]STIE Trisakti, Jakarta, Indonesia

(*) Corresponding Author: dkarnadji756@gmail.com

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Abstract

This study aims to explore the influence of absorptive capacity, green supply chain management, organizational learning, and market turbulence on green innovation and firm performance in the MSME bakery industry in Indonesia. The research design is quantitative research using exploratory research. Data were collected from 210 respondents of bakery MSME business actors specializing in sweet or fresh bread located in Jakarta and surrounding areas. Data analysis using PLS-SEM. The analysis consists of descriptive statistics, measurement model evaluation, structural model evaluation, and hypothesis testing. The results showed that absorptive capacity, organizational learning, and green innovation affect firm performance, while green supply chain management and market turbulence have no effect on firm performance. Absorptive capacity affects green innovation, but green supply chain management and organizational learning have no effect on green innovation. Other findings show that market turbulence does not moderate the relationship between green innovation and firm performance, so green innovation does not mediate the relationship between absorptive capacity, green supply chain management, and organizational learning and firm performance. In this study, absorptive capacity is the most influential exogenous variable on the endogenous variables of green innovation and firm performance. These results contribute to the strategic management literature and the resource-based view (RBV), dynamic capability, knowledge-based view (KBV), agency theory, and legitimacy theory theories used in this study.

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INTRODUCTION

Micro, small, and medium enterprises (MSMEs), together with corporations, are part of the national industry. MSMEs are a milestone of the people's economy that can support the community's economy. On the other hand, the picture of MSME actors on average has internal weaknesses such as: the company's vision is still short-term; low-quality human resources; the

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technology used is still traditional; and a culture that still focuses on closed innovation processes (Matejun, 2017; Nugroho, Gal, et al., 2024; Nugroho, Melzatia, et al., 2024). Entering the era of the Industrial Revolution 4.0. There will be changes in various fields, which will also have an impact on the business world, including MSMEs. One of the things that will change and affect the business world is the phenomenon of the Internet of Things (IoT), where the use of the internet in a business unit becomes important (Min et al., 2019; Nugroho, Setiyawati, et al., 2024; Nurdany et al., 2024). In the era of industrial globalization 4.0, the existence of MSMEs must be able to follow market developments amid intense competition through increasing product and service innovation, the use of sophisticated technology, the use of innovation in marketing, and even making environmentally friendly innovations. This needs to be done to increase competitive advantage and increase the selling value of MSME products (Ihwanudin et al., 2023; Nugroho, 2020; Syahputra et al., 2024; Tripathy et al., 2016).

According to Maslow's Theory of Needs, food is the most basic physiological need of humans, and the fulfillment of food needs can basically be met from various types of commodities (Nugroho, 2022b; Oleson, 2004). In Indonesia, the main food fulfillment product is rice; however, in addition to rice, bakery products are the next alternative choice. This shows that bread has become a substitute product for rice, which is also in very high demand in Indonesia. GAPMMI (Indonesian Food & Beverage Association) stated that bread has ranked third after rice and noodles as the staple food of the Indonesian people.

The bakery industry is part of the processed food industry by utilizing wheat flour (wheat) as the main raw material in the production process. Bakery products broadly include a variety of sweet or white bread, cake or sponge, pastry, cookies, brownies, donuts, rolls, pizza, and others. In this case, sweet and white bread products are included in bakery products that are very popular among the public.

The results of initial research on sweet bread bakery MSME entrepreneurs indicate that competition among the bakery MSME industry is relatively high and generally occurs in terms of product design, taste quality, and selling price. There is no special cooperation in fulfilling the supply of main raw materials (wheat flour) and supporting materials, generally depending on the availability in the market. The understanding of "green product" is still limited to hearing and knowing only and has not been fully implemented. It is proven that it still uses plastic materials as packaging materials for bread and shopping bags. In addition to direct marketing (through stores, outlets, and mobile services), companies have also utilized online marketing channels, both through social media and market places. However, efforts to improve employee skills are still considered low because bakery MSME entrepreneurs have never given their employees the opportunity or sent them to attend training outside the company. Most of the management of the bakery business is handed over to unit managers, with considerable authority over business operational policies. Business capital uses more own or family funds than from other sources of funds (banks or investors), so it is quite difficult to innovate responsively and significantly in the face of market changes. In addition, the position of the sweet or unsalted bakery MSME industry is quite depressed. In addition to competing fiercely with fellow bakery MSME industry players, it also has to deal with the national large-scale bakery industry.

Therefore, this study needs further analysis to understand the relationship between absorptive capacity, green supply chain management, organizational learning, market turbulence, green innovation, and its effect on MSME firm performance.

Talking about innovation, especially green innovation, some recent studies still find a positive influence between green innovation and firm performance (Novitasari & Agustia, 2021; Xue et al., 2019). However, some previous studies still disagree, such as Grewatsch & Kleindienst

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(2017) and Yuniarti et al. (2022), where 41% of studies reported insignificant or mixed influence results. Therefore, findings about green products and process innovation are still uncertain.

Furthermore, several researchers have discussed the positive influence of absorptive capacity with green innovation on firm performance (Kale et al., 2019; Raisal et al., 2020; Rehman et al., 2020). In addition, challenges arise from Aliasghar et al. (2019) because their findings show that potential absorptive and realized absorptive capacity represent different capabilities with different antecedents and impacts on firm performance. The effect of green supply chain management (GSCM) on green innovation and firm performance is generally positive (Abu Seman et al., 2019; Aldaas et al., 2022); on the contrary, there are still research results that argue the relationship between GSCM and green innovation and firm performance, such as that GSCM has nothing to do with green innovation (Novitasari & Agustia, 2021) and does not affect firm performance (Cahyaningrum et al., 2022). The challenges of GSCM implementation in MSMEs arise from Setyaningsih and Kelle (2021), who conducted a study on the MSME sector and found that most MSMEs do not implement supply chain management due to a lack of resources and knowledge. The findings of Cahyaningrum et al. (2022) state that supply chain management practices and strategic information systems in MSMEs do not directly impact organizational performance. The same goes for Setyaningsih and Kelle (2021), who state that small and medium enterprises (SMEs) in Indonesia have great difficulties implementing supply chain management (SCM) strategies.

Previous organizational learning (OL) research generally supports the positive influence of organizational learning (OL) on green innovation and firm performance. Including Orego & Wainaina (2019), Zheng et al. (2019), and Rianto et al. (2021), But on the contrary, Yuliansyah et al. (2021) found a negative influence between organizational learning (OL) and organizational performance. Based on previous research, there are still differences in research results between absorptive capacity variables, green supply chain management, organizational learning, market turbulence towards green innovation, and firm performance. So, this research will be continued by providing novelty by placing green innovation as a mediating variable between absorptive capacity, green supply chain management, organizational learning on green innovation and firm performance, and market turbulence as a moderation variable for the relationship between green innovation and firm performance.

LITERATURE REVIEW

To innovate, resources are needed; in this case, it can be in the form of tangible assets (land, buildings, human resources, infrastructure, finance, technology, and so on) and intangible assets / intangible / capability (skills, knowledge, business networks, learning processes, supply chains, and so on). Resource View (RBV) Theory encourages companies to gain a competitive advantage by focusing on internal resources, which must be valuable, scarce, imitable, and irreplaceable. Dynamic capabilities are needed for organizations to create new ideas, skills, and creativity to increase competitiveness through innovations that support business performance improvement (Brink, 2019; Putri & Nugroho, 2023). Knowledge-Based View (KBV) cannot be separated from organizational learning management, where competitive advantage can be achieved through increased employee involvement in the formulation of operational goals and long-term, transformational goals of the company (Bairizki et al., 2021). Agency theory is used to understand the relationship between principals (shareholders) who employ agencies to carry out various activities on behalf of principals (Nugroho, Utami, et al., 2023). According to Purwanti et al. (2022), the legitimacy of the company will be obtained if the company pays attention to the prevailing social norms and there are similarities between the results and those expected by the

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community from the company so that there are no demands from the community (Legitimacy Theory).

According to Purwanti et al. (2022), it is a company innovation device that is related to the creation and development of products or processes, including technological innovations that can create energy savings, pollution prevention, the implementation of waste recycling, environmentally friendly product design, or environmental management. Green innovation is an important strategic step to encourage higher levels of environmental sustainability (Schiederig et al., 2012). The results of implementing green innovation minimize carbon emissions and reduce water and energy consumption (Afum et al., 2020). According to Chen et al. (2006), green innovation can be grouped into two dimensions: product innovation and process innovation. Both types of green innovation will provide a competitive advantage for companies that implement both (Xie et al., 2019).

According to Selvam et al. (2016), firm performance generally includes profitability, growth, market value, customer satisfaction, employee satisfaction, environmental performance, environmental audit performance, company management performance, and social performance. So far, measuring firm performance can be seen from two perspectives, both financial and non-financial. A company's success is explained by its performance over time. So, measuring a company's performance by comparing it over different time periods is possible. According to Xue et al. (2019), new insights into firm performance measurement using the company's operational performance, financial performance, and environmental performance dimensions are provided. This is supported by research (Ali et al., 2021), which measures firm performance in the SME sector using operational performance, business performance, and environmental performance dimensions.

According to Zahra & George (2002), absorptive capacity is defined as an organization's ability to acquire, assimilate, and then use knowledge or information for commercial needs. Furthermore, according to Srivastava (2007) and Cohen & Levinthal (1990), reconceptualizing and extending absorptive capacity involves two general dimensions: potential absorptive capacity and realized absorptive capacity.

Green Supply Chain Management (GSCM), according to Geng et al. (2017) and Nugroho, Utami, et al. (2024), is the integration of environmental thinking in the supply chain, including product design, selection of raw materials and their sources, manufacturing processes, and product delivery processes to consumers, as well as thinking about environmental impacts on the end of helpful product life, including product management after its useful life (reverse logistics). GSCM aims to maximize benefits for the overall environment by adopting a life cycle approach covering product design, material selection, manufacturing processes, sales, recovery, and helping companies realize sustainable development.

Organizational learning (OL), according to Mohammad (2019) and Nugroho, Setiyawati, et al. (2024), is defined as the process of acquiring, retaining, and transferring knowledge within an organization; it is recognized as essential in the development of new products when facing a turbulent and dynamic environment. The appeal of this concept lies in the widespread need for individuals and companies to continue to be able to adapt to change. Organizations with a high level of organizational learning ability tend to adapt to environmental changes better than organizations with lower levels of organizational learning ability (Nugroho, Briandana, et al., 2024).

Market turbulence, according to Riyadi et al. (2024) and Nugroho et al. (2020), occurs in unpredictable, asymmetric, dynamic, inconsistent, and pervasive environments and occurs in an environment where consumer needs are different due to changes such as during the COVID-19 pandemic. In markets with very high market turbulence, customers can react very aggressively and

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boycott the products of companies that engage in environmentally unfriendly practices. On the other hand, customers value eco-friendly companies and build company reputation through eco-friendly behavior (Hidayah et al., 2021, 2023; Labetubun et al., 2022).

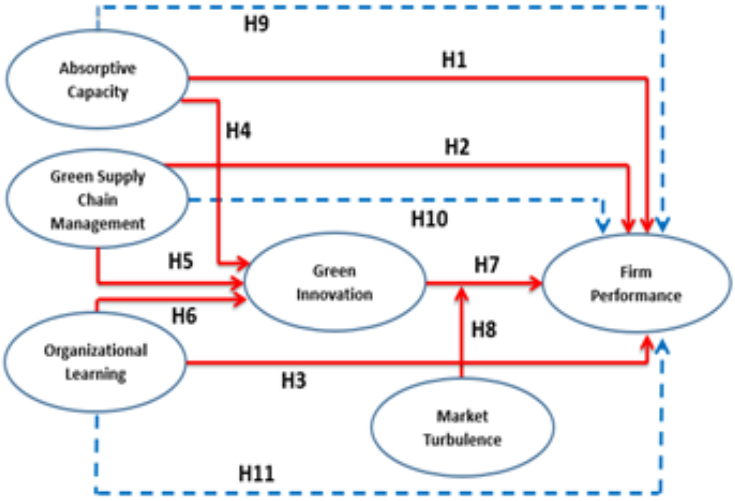

Figure 1. Conceptual Framework

According to Figure 1. The conceptual framework above, the hypothesis in this study is as follows:

The Effect of *Absorptive Capacity* on *Firm Performance*

Previous findings support the above statements, including absorptive capacity has a positive effect on firm performance (Rehman et al., 2020), positively affects business performance (S. S. Ahmed et al., 2020), a solid causal relationship emerges between entrepreneurial orientation (EO), absorptive capacity and firm performance (FP), where absorptive capacity has a strong positive impact on firm performance. According to Raisal et al. (2020), absorptive capacity directly affects firm performance. But findings of Aliasghar et al. (2019) are a challenge because, according to him, potential absorptive and realized absorptive capacity represent different capabilities, with different antecedents and different impacts on firm performance. Therefore, the formulation of the hypothesis proposed is as follows:

H.1: There is an influence of absorptive capacity on firm performance

The Effect of Green Supply Chain Management on Firm Performance

Several recent studies have supported the above statement, including the practice of GSCM has a significant influence on the environmental performance and operating costs of MSMEs in the food and beverage industry (Siregar & Pinagara, 2022); GSCM positively affects firm performance (C. Zhou et al., 2020); Significantly and positively affect environmental performance (Aldaas et al., 2022); has a positive (direct) impact on environmental, economic and operational performance, as well as an indirect positive impact on organizational performance (Habib et al., 2022), positive influence on financial performance & environmental performance (Khan et al., 2021), positively affect business performance (Kim et al., 2021).

However, some findings still disagree, such as GSCM has no effect on firm performance, but green innovation mediates the relationship between GSCM and firm performance (Novitasari & Agustia, 2021). The direct effect of GSCM on business performance proved negative but not significant, but the total positive effect of GSCM on business performance was indirect and entirely through Environmental Performance and Operational Performance (Abdallah & Al-Ghwayeen, 2020). Internal GSC practices and institutional pressure have an insignificant negative impact on

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economic performance (W. Ahmed et al., 2020). Therefore, the formulation of the proposed hypothesis

H.2: Green supply chain management influences firm performance.

The Effect of Organizational Learning (OL) on Firm Performance.

Many recent studies have supported the above statement, including finding a robust organizational learning capacity can improve firm performance (Pham & Hoang, 2019; Sudirman et al., 2020), together with the variables of strategic change, transformational leadership, and knowledge management affect firm performance (Badawi et al., 2023; Rianto et al., 2021) Organizational learning skills (openness & experimentation and managerial commitment have a direct positive impact on firm performance; (Hooi, 2019), positively affect organizational performance (Shurafa & Mohamed, 2016), affecting sustainable performance (Bilan et al., 2020), a positive influence between management commitment and knowledge transfer with firm performance (Pham & Hoang, 2019). Therefore, the formulation of the hypothesis proposed is as follows:

H.3: Organizational learning influences firm performance.

The Effect of Absorptive Capacity on Green Innovation

Previous research supports the above statements, including finding a significant positive effect on green innovation performance (Albort-Morant, Leal-Rodríguez et al., 2018), Potential Absorptive Capacity and Realized Absorptive Capacity have a positive effect on Green Product Innovation Performance, and Green Process Innovation Performance (Albort-Morant, Henseler, et al., 2018), Green Absorptive Capacity Positively Affects Green Innovation Performance (Pacheco et al., 2018),. The absorptive capacity dimension (knowledge acquisition, knowledge dissemination, knowledge utilization) positively affects green innovation (Ramayah et al., 2020), the absorptive capacity dimension (interpretation, assimilation, exploitation) has a positive effect on green innovation (Song et al., 2020), the absorptive capacity dimension (openness, formal training) has a positive effect on green innovation (Medase &; Barasa, 2019). Therefore, the formulation of the hypothesis proposed is as follows:

H.4: There is an influence of absorptive capacity on green innovation.

The Effect of Green Supply Chain Management on Green Innovation

Previous research supports the above statements, including GSCM proven to have a significant impact on green innovation (Novitasari & Agustia, 2021) so that there is a significant and positive relationship between GSCM and green innovation, where GSCM's significant influence in encouraging green innovation of manufacturing companies, will ultimately improve the environment (Nugroho, 2015; Nugroho et al., 2017)Proactive GSCM has a higher effect on green innovation than reactive GSCM (Li et al., 2022), positively related to green innovation (Novitasari & Agustia, 2021). Therefore, the formulation of the hypothesis proposed is as follows:

H.5: Green supply chain management influences green innovation.

The Influence of Organizational Learning on Green Innovation

Previous research supports the above statement, including finding that inter-organizational learning has a positive effect on green innovation (Cui et al., 2020), Organizational learning has a positive effect on sustainable organizational innovation (Begum et al., 2020), Green Training Positively Affects Green Innovation Behavior (Xie & Zhu, 2020), learning resources positively affect green innovation (Y. Zhang et al., 2018). Furthermore, the organizational learning dimension (exploration learning & exploitation learning) positively affects green innovation (F. Zhang & Zhu, 2019). Therefore, the formulation of the hypothesis proposed is as follows:

H.6: Organizational learning influences green innovation.

The Effect of Green Innovation on Firm Performance

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Previous research supports the above statement, including the application of green innovation (dimensions of green product innovation and green process innovation) has a positive effect on firm performance (Ma et al., 2018; Xue et al., 2019), the dimension of green product innovation has a positive effect on firm performance, green innovation has a positive effect on financial performance (Afum et al., 2020), the dimension of green process innovation affects financial performance and stakeholder performance (Karabulut &; Hatipoğlu, 2020) The Green Product Innovation Dimension Positively Affects Financial Performance (Xie et al., 2019), Therefore, the formulation of the hypothesis proposed is as follows:

H.7: Green innovation influences firm performance.

The Effect of Green Innovation on Firm Performance Moderated by Market Turbulence

Previous research supports the above statement, including that market turbulence plays a positive role as a moderation variable in the relationship between green innovation and firm performance (Tariq et al., 2019), moderating the relationship between innovation capability and financial performance (J. Zhou et al., 2019), moderating the relationship between organizational innovation and SMEs performance (Aryanto et al., 2021). Different findings regarding the role of market turbulence and technology turbulence on firm performance in SMEs are that market turbulence and technology turbulence do not significantly moderate the relationship between Entrepreneurial Proclivity (innovativeness, proactiveness, and risk-taking) to SMEs performance (Chen et al., 2015). Therefore, the formulation of the hypothesis proposed is as follows:

H.8: Green innovation influences firm performance moderated by market turbulence.

The Effect of Absorptive Capacity on Firm Performance through Green Innovation

Previous research supports the above statement, including green service innovation, which has been proven to positively mediate the relationship between green absorptive capacity and firm performance (Widodo et al., 2022). Absorptive capacity can directly improve business performance, and indirectly, through innovation and mass customization capability (Liu et al., 2018), green innovation (dimensions of green product innovation and green process innovation) has been positively proven to mediate the relationship between absorptive capacity and performance resources (competitive advantage) (Y. Zhang et al., 2018). Green innovation mediates the relationship between green absorptive capacity (GAC), sustainable human capital (SHC), and organization support (OS) and sustainable business performance (environmental, economic, and social performance) (Isabel & Vargas, 2015). Therefore, the formulation of the hypothesis proposed is as follows:

H.9: There is an indirect influence of the absorptive capacity relationship on firm performance through green innovation.

The Influence of Green Supply Chain Management on Firm Performance through Green Innovation

Previous research supports the above statement, including green innovation, which plays a positive role in mediating the relationship between GSCM and firm performance (Novitasari & Agustia, 2021), plays a positive role in mediating the relationship between GSCM practice and environmental performance; therefore, the formulation of the hypothesis proposed is as follows:

H 10: There is an indirect influence of the green supply chain management relationship on firm performance through green innovation.

The Influence of Organizational Learning on Firm Performance through Green Innovation

Previous research supports the above statement, including that green innovation positively mediates the relationship between organizational learning and firm performance (Y. Zhang et al., 2018). Green innovation mediates the green training relationship with firm performance (Xie & Zhu, 2020); green product innovation and green process innovation positively mediate the

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relationship between knowledge process integration and environmental performance (Frare & Beuren, 2022). Therefore, the formulation of the hypothesis proposed is as follows:

H.11: There is an indirect influence of organizational learning relationships on firm performance through green innovation.

METHODS

The design of this study is quantitative, using exploratory research and descriptive research methods. This study used primary data, where data collection techniques were arranged in questionnaires as Likert scale statements. Data were obtained by conducting interviews using pre-set questionnaires. The unit of analysis is the Sweet & Fresh Bread Bakery MSME business unit located in Jakarta and its surroundings. In contrast, the observation unit is the Sweet & Fresh Bread Bakery MSME business actors.

The population in this study is the bakery MSME industry (sweet or white bread, cake, cookies, pastries, brownies, donuts, pizza, and others) in the Jakarta area and its surroundings. Because the population of bakery MSMEs in the Jakarta area and its surroundings is unpredictable, this study used non-probability sampling techniques with purposive sampling methods. The sample criteria are bakery MSME businesses following Government Regulation No. 7/2021, Article 35, concerning the ease, protection, and empowerment of cooperatives and micro, small, and medium enterprises; bakery products are specialized in sweet and white bread; they are located in Jakarta and surrounding areas; and the business has been running for more than or at least two years.

Operational and measurement variables

Operational variables used in this study are six: green innovation, absorptive capacity, green supply chain management, organizational learning, market turbulence, and firm performance. The measurement scale used is the Likert scale. Green innovation variables are measured using research (Huang & Li, 2017). With two dimensions, namely, green product innovation (3 indicators) and green process innovation (3 indicators), The absorptive capacity variable was measured using research (Albort-Morant, Leal-Rodríguez, et al., 2018). With two dimensions, namely potential absorptive capacity (6 indicators) and realized absorptive capacity (6 indicators), Green supply chain management variables were measured using research (Karabulut & Hatipoğlu, 2020). With two dimensions, namely green purchasing (3 indicators) and green customer cooperation (4 indicators), Organizational learning variables were measured using research (Mohammad, 2019) with four statement indicators: Market turbulence variables are measured using research (Jaworski & Kohli, 2012) with four indicators. The firm performance variable is measured using three dimensions, namely financial performance (3 indicators) using research (Ali et al., 2021), operational performance (3 indicators), and environmental performance (3 indicators) using research (Xue et al., 2019). The data analysis technique used in this study emphasizes statistical analysis using structural equation modeling (SEM). The SEM model chosen uses PLS-SEM because this research focuses more on predictions to develop theories than testing existing theories (Napitupulu et al., 2020; Oktris et al., 2022).

RESULT AND DISCUSSION

The results of data processing using structural equation modeling (SEM) in this study are as follows table 1.

E-ISSN : 2722-7111
P-ISSN : 2722-7499

Table 1. Validity and Reliability Testing

Variable	Indicator	Loading Factor	P Values	Results	Cronbach's Alpha	Results
Absorptive Capacity	AC_1. Product design information	**0,525**	0,000	Valid	**0,871**	Reliable
	AC_2. Taking advantage of new opportunities in the market	**0,691**	0,000	Valid		
	AC_3. Information on industry development	**0,622**	0,000	Valid		
	AC_4. Understanding market changes	**0,637**	0,000	Valid		
	AC_5. Analysis of market conditions	**0,693**	0,000	Valid		
	AC_6. Analysis of technology trends	**0,737**	0,000	Valid		
	AC_7. Communicating knowledge	**0,667**	0,000	Valid		
	AC_8. Owner discusses new technology information	**0,648**	0,000	Valid		
	AC_9. Employees share experience	**0,547**	0,000	Valid		
	AC_10. Consistently applying technology	**0,624**	0,000	Valid		
	AC_11. Taking advantage of technology	**0,652**	0,000	Valid		
	AC_12. Have the same language about products and services	**0,649**	0,000	Valid		
Green Supply Chain Management	GSCM_1. Prevent irresponsible suppliers	**0,645**	0,000	Valid	**0,747**	Reliable
	GSCM_2. Evaluate the environmentally friendly practices of suppliers	**0,696**	0,000	Valid		
	GSCM_3. Close cooperation with suppliers	**0,671**	0,000	Valid		
	GSCM_4. Maximum planning cooperation in logistics	**0,561**	0,000	Valid		
	GSCM_5. Cooperation with customers for the production process	**0,594**	0,000	Valid		
	GSCM_6. Cooperation with customers for packaging	**0,619**	0,000	Valid		
	GSCM_7. Collaboration with customers for product design	**0,574**	0,000	Valid		
Organizational Learning	OL_1. Record the required science	**0,770**	0,000	Valid	**0,675**	Reliable
	OL_2. Help each other learn	**0,764**	0,000	Valid		
	OL_3. Providing adequate learning facilities	**0,710**	0,000	Valid		
	OL_4. Bosses are always looking for new science.	**0,594**	0,000	Valid		
Market Turbulence	MT_1. Customer preferences are constantly changing	**0,784**	0,001	Valid	**0,718**	Reliable
	MT_2. Customers are always looking for new products	**0,814**	0,000	Valid		

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Variable	Indicator	Loading Factor	P Values	Results	Cronbach's Alpha	Results
	MT_3. Customers are very sensitive to the price	**0,729**	0,006	Valid		
	MT_4. Lots of product and service requests from new customers	**0,521**	0,063	Valid		
Green Innovation	GI_1. Environmentally friendly material	**0,668**	0,000	Valid	**0,779**	Reliable
	GI_2. Environmentally friendly packaging	**0,765**	0,000	Valid		
	GI_3. Label yang ramah lingkungan	**0,753**	0,000	Valid		
	GI_4. Low carbon energy	**0,680**	0,000	Valid		
	GI_5. Clean, pollution-free technology	**0,684**	0,000	Valid		
	GI_6. Does not contain toxic substances	**0,562**	0,000	Valid		
Firm Performance	FP_1. Sales have grown over the last two years	**0,580**	0,000	Valid	**0,794**	Reliable
	FP_2. Profits have grown over the last two years.	**0,723**	0,000	Valid		
	FP_3. Dividend increased significantly	**0,697**	0,000	Valid		
	FP_4. Response to delivery time is better	**0,583**	0,000	Valid		
	FP_5. Has improved product quality	**0,578**	0,000	Valid		
	FP_6. Has improved the ability to possess	**0,551**	0,000	Valid		
	FP_7. The ability to reduce pollution is better	**0,605**	0,000	Valid		
	FP_8. Reduction of work crashes that have a better impact on the environment	**0,553**	0,000	Valid		
	FP_9. Business environment conditions are more conducive	**0,646**	0,000	Valid		

Following on Table 1, the loading factor's or outer loading value is more significant than 0.5 (> 0.5). According to Nugroho, Fajarsari et al. (2023), a loading factor of 0.5–0.6 is still considered sufficient for early-stage research in measurement development. Therefore, we declare valid indicators measuring absorptive capacity, green supply chain management, organizational learning, market turbulence, green innovation, and firm performance. Based on the measurement of cross-loading, which results in a more significant loading factor compared to cross-loading on other variables, indicators that measure variables such as absorptive capacity, green supply chain management, organizational learning, market turbulence, green innovation, and firm performance can be declared valid.

Composite reliability is more significant than 0.7, and/or Cronbach's alpha is greater than 0.6. Thus, based on composite reliability and/or Cronbach's alpha calculations, all indicators that measure absorptive capacity, green supply chain management, organizational learning, market

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turbulence, green innovation, and firm performance are declared reliable. Furthermore, the model fit test on structural equation modeling is as follows table 2.

Table 2. Calculation of AVE, R-Square, and Goodness of Fit, SRMR

Variable	AVE	R Square	GOF	SRMR
Absorptive Capacity	0,414		0,241	0,071
Green Supply Chain Management	0,390			
Organizational Learning	0,508			
Market Turbulence	0,520			
Green Innovation	0,474	0,070		
Firm Performance	0,379	0,190		

Referring to Table 2, the R-square of the green innovation variable is 0.070, or 7.0%. This indicates that absorptive capacity, green supply chain management, organizational learning, and market turbulence account for 7.0% of the explanation of green innovation variables, with other factors not covered in this study contributing the remaining 93.0%. The R-square of the firm performance variable is 0.190, or 19.0%. This indicates that absorptive capacity, green supply chain management, organizational learning, market turbulence, and green innovation account for 19.0% of the firm performance variable's explanation, with other factors not covered in this study contributing the remaining 81.0%. In addition, the GOF in the results of data processing in this study is between 0.10 and 0.25. This shows that the variables absorptive capacity, green supply chain management, organizational learning, market turbulence, green innovation, and the interaction of green innovation with market turbulence have little influence on firm performance. While the Standardized Root Mean Square Residual (SRMR) produces values that match the fit criteria (< 0.08), This means that the resulting PLS model is a Fit model.

The direct relationship between variables

The results of data processing using structural equation modeling (SEM) in this study are as follows table 3. On the Table 3 explains the acceptance of H1, where absorptive capacity influences firm performance at a level of significance (alpha = 5%) with a p-value of 0.010. These results support previous research, namely that absorptive capacity has a positive effect on firm performance (Raisal et al., 2020), small business performance (W. Ahmed et al., 2020), business performance, family firm performance (Hernández-Perlines et al., 2017), and sustainability performance (Forés & Fernández-Yáñez, 2023).

H2 is rejected, where the p-value (0.095) > the level of significance (alpha = 5%) means that green supply chain management has no effect on firm performance. These results support previous research that is still debating or not supporting the above statement, namely that GSCM has no effect on firm performance (Novitasari & Agustia, 2021), the immediate effect of GSCM on business performance proved negative but not significant (Dao et al., 2011), internal GSC practices have a negative, insignificant impact on economic performance (W. Ahmed et al., 2020), no relationship was found between green purchasing and eco-design and environmental performance in SMEs (Epoh & Mafini, 2018), and supply chain management practices in the MSME sector have not been running effectively (Kirchoff et al., 2016). H3 is accepted, where the p-value (0.017) < the level of significance (alpha = 5%) means that organizational learning affects firm performance. These results support the findings of previous research, namely that

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organizational learning affects firm performance (Mohammad, 2019), organizational performance (Nugroho, 2022a), operational performance (Bhatia & Jakhar, 2021), a firm's sustainability (Bilan et al., 2020), together with the variables of strategic change, transformational leadership, and knowledge management, affect firm performance (D. Wang et al., 2022), organizational learning skills (openness and experimentation), and managerial commitment have a direct positive impact on firm performance.

Table 3. Direct Influence of Variable Interfaces

Hypothesis	Exogen	Endogen	Path Coefficient	P Values	Decision
H1	*Absorptive Capacity*	*Firm Performance*	0,199	0,010	There's an influence
H2	*Green Supply Chain Management*	*Firm Performance*	0,120	0,095	No Influence
H3	*Organizational Learning*	*Firm Performance*	0,167	0,017	There's an influence
H4	*Absorptive Capacity*	*Green Innovation*	0,205	0,013	There's an influence
H5	*Green Supply Chain Management*	*Green Innovation*	0,057	0,296	No Influence
H6	*Organizational Learning*	*Green Innovation*	0,053	0,267	No Influence
H7	*Green Innovation*	*Firm Performance*	0,147	0,033	There's an influence

H4 is accepted, where the p-value (0.013) < the level of significance (alpha = 5%) means that the absorptive capacity has an effect on green innovation. These results support previous research that absorptive capacity is positively and significantly related to innovation performance (Tian et al., 2021), green innovation performance (Albort-Morant, Leal-Rodríguez, et al., 2018), green product and green process innovation (Ramayah et al., 2020), and green innovation (Song et al., 2020).

H5 is rejected, where the p-value (0.296) > the level of significance (alpha = 5%) means that green supply chain management has no effect on green innovation. These results are supported by previous findings that the relationship between GSCM and green innovation is inconsistent, the impact of GSCM on green innovation varies between "learning contexts" (Li et al., 2022), environmental supplier collaboration has no impact on eco-innovation (Aboelmaged, 2018), and does not affect the level of investment in green innovation (Kesidou & Demirel, 2012).

H6 is rejected, where the p-value (0.267) > level of significance (alpha = 5%) means organizational learning has no effect on green innovation. These results support previous findings, namely that knowledge management sharing proved to have no effect on green process innovation (Kesidou & Demirel, 2012), indicating that incoming knowledge sharing cannot directly improve innovation performance.

H7 is accepted, where the p-value (0.033) < the level of significance (alpha = 5%) means that green innovation affects firm performance. These results support previous research showing that green innovation positively affects firm performance (Xue et al., 2019) and financial performance (Afum et al., 2020).

Relationship Moderation

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The results of processing data in this study show that the moderation relationship shown in the table below is as follows table 4.

Table 4. Moderation Variable Testing

Hypothesis	Eksogen	Endogen	Path Coefficient	P Values
H8	Green Innovation * Market Turbulence	Firm Performance	-0,064	0,235

Following on Table 4, it can be explained that H8 is rejected, with a p-value of 0.235 > the significance level (alpha = 5%). This means that market turbulence does not moderate the influence of green innovation on firm performance. These results support previous research, namely that market turbulence does not significantly moderate the relationship of entrepreneurial proclivity (innovativeness) to SMEs performance; market turbulence weakens or does not moderate the relationship of strategic innovation to new product performance.

Indirect Relationship/Mediation

The results of data processing in this study, it is known that the mediation relationship shown in the table below is as follows table 5.

Table 5. Testing Mediation Variables

Hypothesis	Eksogen	Mediation	Endogen	Indirect Coefficient	P Value	Decision
H9	*Absorptive Capacity*	*Green Innovation*	*Firm Performance*	0,030	0,081	Not Mediated
H10	*Green Supply Chain Management*	*Green Innovation*	*Firm Performance*	0,008	0,317	Not Mediated
H11	*Organizational Learning*	*Green Innovation*	*Firm Performance*	0,008	0,300	Not Mediated

Following table 5, it is known that H9 is rejected, where p-value (0.081) > level of significance (alpha = 5%) means that the variable green innovation does not mediate absorptive capacity for firm performance. These results do not support previous studies, namely that green service innovation has been positively proven to mediate the relationship between green absorptive capacity and firm performance [72], mediate the relationship of absorptive capacity with performance resources (competitive advantage) [64], and mediate the relationship between green absorptive capacity and sustainable business performance (environmental, economic, and social) [74].

H10 is rejected where the p-value (0.317) > the level of significance (alpha = 5%), meaning that the green innovation variable does not mediate green supply chain management against firm performance. These results do not support previous research that green innovation plays a mediating effect between GSCM practices and firm performance (Novitasari & Agustia, 2021), GSCM with environmental performance, and GSCM with green innovation performance (Xue et al., 2019). H11 is rejected where the p-value (0.300) > the level of significance (alpha = 5%) means that the green innovation variable does not mediate organizational learning against firm

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performance. These results do not support previous research, namely that green innovation mediates the relationship of organizational learning with firm performance, mediates the relationship of green training with firm performance (C. Wang et al., 2022), and mediates the relationship between knowledge process integration and environmental performance.

CONCLUSION

Based on the results of the research and discussion described above, the results show that the variables absorptive capacity, organizational learning, and green innovation affect firm performance, while the variables green supply chain management and market turbulence do not affect firm performance. The absorptive capacity variable affects green innovation, but the green supply chain management variable and organizational learning do not affect green innovation. Other findings show that the market turbulence variable does not moderate the relationship between green innovation and firm performance, and the green innovation variable does not mediate the relationship between absorptive capacity, green supply chain management, organizational learning, and firm performance. In this study, the absorptive capacity variable is the exogenous or independent variable that most affects the endogenous or dependent variables, green innovation, and firm performance. The suggestion for further research is that this research can be expanded by examining internal influences such as green human resource management, organizational culture, entrepreneurship skills, marketing orientation, and other variables, as well as external influences such as government support and environmental turbulence on the business performance of bakery MSMEs. Therefore, future opportunities are open for other researchers to develop conceptual models from the addition of research variables.

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