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Original Article

Integrating Supply Chain Risk Management and Organizational Agility in Post-pandemic Era: A Pathway to Superior MSMEs Performance in Indonesia

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Abstract

SMEs, being crucial contributors to economic growth, often face significant supply chain risks that can impede their performance. The ability to manage these risks effectively in the post-pandemic era and to adapt swiftly to environmental changes (organizational agility) is vital for their success. This study explores the association between supply chain risk management (SCRM) and organizational agility (OA) in enhancing the performance of micro, small, and medium-sized enterprises (MSMEs) in Indonesia. Using a quantitative approach, data were collected from 254 Indonesian MSMEs across various industries through structured questionnaires. The analysis, conducted using structural equation modeling, reveals that both SCRM and OA have a significant positive impact on MSME's performance. The study findings suggest that Indonesian MSMEs that integrate robust risk management practices with agile organizational structures are better equipped to maintain operational efficiency and drive innovation. The study underscores the importance of SCRM and OA as strategic tools for MSMEs to enhance their competitiveness and resilience in a volatile market landscape. The results provide valuable insights for MSME managers and policymakers aiming to foster sustainable business practices and long-term growth.

Keywords: MSMEs, MSMEs' Performance, Organizational Agility, Supply Chain Management, Supply Chain Risk Management.

1. Introduction

The post-pandemic era has brought significant changes to the business landscape, particularly for micro, small, and medium-sized enterprises (MSMEs) (Sudjatmoko et al., 2023). The COVID-19 pandemic disrupted global supply chains, highlighting the importance of supply chain risk management (SCRM) and organizational agility. MSMEs in Indonesia, which form a significant portion of the country's economy, have been particularly affected by these disruptions (Syahchari et al., 2022). The outbreak of the virus laid bare weaknesses in their supply networks, resulting in stoppages in manufacturing, depleted stock levels, and monetary setbacks (Wulandhari et al., 2023). To mitigate these risks, MSMEs must adopt robust SCRM strategies that integrate risk identification, assessment, and mitigation measures (Mukherjee et al., 2024; Pettit et al., 2013). Furthermore, the ability of MSMEs to promptly adjust to shifts in market situations and interruptions in the supply chain relies heavily on their capacity for organizational agility, which involves being flexible, quick, and adaptable (Hohenstein, 2022). The objective of this study is to examine how combining SCRM

and organizational agility can affect the success of small and medium-sized enterprises in Indonesia, shedding light on how these approaches could improve their ability to adapt and succeed in the post-pandemic world.

SCRM is now considered essential for small and medium-sized businesses to adapt to the challenges of the business landscape after the pandemic (Afaq et al., 2023). By recognizing, evaluating, and reducing risks in the supply chain, MSMEs can enhance their readiness for any possible disruptions. Effective SCRM practices enable businesses to maintain continuity, reduce losses, and capitalize on opportunities even in the face of uncertainties (Christopher & Peck, 2004; Wulandhari et al., 2023). However, while SCRM provides a structured approach to managing risks, it must be complemented by organizational agility to achieve superior performance (Braunscheidel & Suresh, 2009; Colicchia & Strozzi, 2012). Organizational agility is essential for MSMEs to quickly adjust to market shifts and new trends, improving their flexibility and responsiveness (Sambamurthy et al., 2003).

The integration of SCRM and organizational agility is crucial for MSMEs in Indonesia to achieve superior performance. This integration involves aligning risk management strategies with organizational processes to ensure that the organization can respond effectively to supply chain disruptions. For example, MSMEs can use technology to enhance their SCRM capabilities, such as implementing supply chain planning software to monitor and adjust production levels in real time (Lee, 2002; Ralston et al., 2015). Additionally, organizational agility can be enhanced through vertical integration, where MSMEs produce their components or raw materials, reducing reliance on external suppliers. Integrating supply chain risk management (SCRM) with organizational agility can have a dual benefit of increasing supply chain resilience and improving operational efficiency. Small and medium-sized enterprises (MSMEs) have the opportunity to minimize the effects of supply chain disruptions, adapt to market changes, and boost their overall performance with this integrated approach (Scholten et al., 2014; C. S. Tang, 2006). This study seeks to delve deeply into the ways in which these tactics can be put into practice, and the consequences they have on the success of small and medium enterprises in Indonesia.

2. Literature Review

2.1. Indonesian MSMEs and the Impact of the Pandemic

MSMEs are crucial for the Indonesian economy, making substantial contributions to employment, GDP, and social cohesion. The Ministry of Cooperatives and SMEs reports that MSMEs make up around 99% of all businesses in Indonesia and support over 97% of the labor force. These enterprises are not only crucial for economic development but also serve as a foundation for innovation and entrepreneurship across various sectors (Tambunan, 2022). However, the functioning of small and medium-sized enterprises was greatly impacted by the COVID-19 crisis, resulting in substantial financial setbacks, shutdowns of businesses, and layoffs. The sudden drop in demand, supply chain interruptions, and stringent health protocols exacerbated the challenges faced by these businesses, highlighting their vulnerabilities and the urgent need for robust risk management and agility strategies. The pandemic also led to a significant decrease in sales, difficulty in marketing goods, finance or capital challenges, diminished manufacturing and distribution activities, and difficulties in obtaining raw materials. The social restriction policy (PSBB), in particular, has led to severe decreases in sales, making it challenging for MSMEs to operate effectively (Dhewanto et al., 2020).

The pandemic underscored the importance of resilience and adaptability in business operations, particularly for MSMEs. Many enterprises struggled with liquidity issues, declining revenues, and increased operational costs due to disrupted supply chains and reduced consumer spending. The crisis also exposed the limitations of traditional business models and the critical need for digital transformation and strategic agility (Sudjatmoko et al., 2023). As Indonesia moves towards post-pandemic recovery, the focus on strengthening the resilience of MSMEs through effective risk management and organizational agility becomes imperative. This context sets the stage for examining how MSMEs can better navigate future uncertainties and enhance their performance through integrated approaches (Wulandhari et al., 2023). The pandemic has forced small and medium enterprises to think outside the box and find new ways to thrive in the ever-evolving business landscape. Faced with supply chain disruptions, fluctuating demand, and health protocols, many MSMEs leveraged digital technologies to maintain operations and reach customers. For instance, there was a significant increase in the adoption of e-commerce platforms, digital payments, and remote work solutions among MSMEs. These innovations not only helped them navigate the immediate impacts of the pandemic but also laid the foundation for more resilient and adaptable business models. The drive toward innovation has been crucial for MSMEs in enhancing their competitiveness and ensuring long-term sustainability in a post-pandemic world (Sari et al., 2023). Therefore, we suggest a hypothesis:

H_1: In the post-pandemic era, the Innovation Performance of Indonesian MSMEs positively affects MSMEs' Performance

2.2. Supply Chain Risk Management (SCRM)

Supply Chain Risk Management (SCRM) is the process of recognizing, evaluating, and lessening risks within the supply chain to guarantee the sustainable operation and flexibility of a business (Jüttner et al., 2003; Rajagopal, P. & Bernard, 2013). Successful supply chain risk management practices allow companies to predict possible disruptions, create backup strategies, and sustain operational productivity even when facing challenging circumstances. In the context of MSMEs, SCRM is crucial due to its limited resources and higher vulnerability to supply chain disruptions (Rana & Ha-Brookshire, 2023). Implementing SCRM allows MSMEs to manage risks such as supplier failures, logistical delays, and fluctuating market demands, which can significantly impact their operations and profitability. MSMEs can reduce uncertainties, stabilize their supply chains, and enhance their ability to meet customer needs by adopting proactive risk management strategies (Sheffi, 2015; C. S. Tang, 2006). Effective SCRM strategies include diversifying supplier bases, maintaining adequate inventory levels, and implementing backup plans to ensure business continuity. Implementing technology to enhance SCRM capabilities, such as supply chain planning software, can also help businesses monitor and adjust production levels in real time (O. Tang & Musa, 2011).

The role of SCRM extends beyond merely reacting to supply chain disruptions; it also involves building a culture of resilience and preparedness within the organization (Vanany et al., 2009). MSMEs should incorporate risk management into the fundamental aspects of their operations and when making decisions. The adoption of SCRM practices, such as diversifying suppliers, investing in technology, and enhancing supply chain visibility, can help MSMEs mitigate risks and leverage opportunities more effectively. Furthermore, SCRM fosters collaboration and trust among supply chain partners, enabling MSMEs to create more robust and flexible supply networks. This resilience is essential for sustaining operations and achieving long-term growth, especially in a post-pandemic landscape where uncertainties remain prevalent (Sudjatmoko et al., 2023; O. Tang & Musa, 2011).

SCRM is vital for improving the efficiency of small and medium-sized enterprises through preventing disruptions and maintaining smooth operations. Successful SCRM methods consist of recognizing possible risks, evaluating their consequences, and putting in place plans to address these risks ahead of time. For MSMEs, which often operate with limited resources and are highly vulnerable to supply chain disruptions, SCRM can significantly reduce uncertainties and stabilize operations. MSMEs can better manage risks such as supplier failures, logistical delays, and market fluctuations by diversifying suppliers, enhancing supply chain visibility, and investing in risk assessment tools. This proactive approach not only helps in maintaining consistent product delivery and customer satisfaction but also improves overall operational efficiency and resilience (Ralston et al., 2015; Wulandhari et al., 2023). Research indicates that businesses with robust SCRM frameworks are better positioned to navigate disruptions and achieve long-term growth, thus contributing to superior performance for MSMEs in a volatile business environment (Rajagopal, P. & Bernard, 2013). Therefore, we suggest a hypothesis:

H_2: In the post-pandemic era, the Supply Chain Risk Management of Indonesian MSMEs positively affects MSMEs' Performance

2.3. Organizational Agility

Organizational Agility pertains to a corporation's capacity to quickly adjust to shifts in the business landscape and successfully embrace fresh obstacles and prospects. This capability is essential for businesses to stay competitive and resilient in dynamic and uncertain conditions (Sambamurthy et al., 2003). For MSMEs, organizational agility is critical due to their limited resources and smaller scale, which require them to be nimbler and more responsive than larger enterprises (Braunscheidel & Suresh, 2009; Tambunan, 2022). Agility involves flexible decision-making processes, the ability to innovate quickly, and a culture that encourages continuous learning and adaptation. MSMEs can better navigate market fluctuations, customer preferences, and technological advancements, thereby enhancing their overall performance and sustainability by fostering agility. During the pandemic, organizations that were able to adjust swiftly to the changing circumstances were in a better position to not only survive but also prosper (Gligor & Holcomb, 2012). For example, MSMEs that implemented strategies such as product improvements, service improvements, and promotional strategies were more likely to survive the pandemic. For small and medium-sized enterprises, it is important to have organizational flexibility in order to effectively handle disruptions in the supply chain and stay competitive in the market (Sambamurthy et al., 2003; Wulandhari et al., 2023).

Organizational agility plays a crucial role in all areas of business, including product innovation, advertising, supply chain handling, and client support. Agile organizations are characterized by their proactive approach to change, willingness to experiment and pivot, and emphasis on cross-functional collaboration (Sambamurthy et al., 2003). For MSMEs, developing organizational agility can lead to improved responsiveness to customer demands, faster time-to-market for new products, and enhanced operational efficiency. Moreover, small and medium-sized enterprises that are adaptable are in a prime position to take advantage of new chances and reduce the negative impacts of market instability. In the changing business environment after the pandemic, the key factor for success of MSMEs will be their capacity to stay flexible (Gligor & Holcomb, 2012; Tse et al., 2016; Wulandhari et al., 2023). Thus, we suggest a hypothesis:

H_3: In the post-pandemic era, the Organizational Agility of Indonesian MSMEs positively affects MSMEs' Innovation Performance

2.4. Integrating Supply Chain Risk Management and Organizational Agility to Enhance MSMEs Performance in Indonesia

Integrating Supply Chain Risk Management (SCRM) with organizational agility provides a comprehensive approach for MSMEs to enhance their performance and resilience (Sambamurthy et al., 2003; C. S. Tang, 2006; Vanany et al., 2009). The synergy between these two strategies allows MSMEs to proactively manage risks while remaining flexible and responsive to changes in the business environment. Effective SCRM practices ensure that MSMEs can anticipate and mitigate supply chain disruptions, while organizational agility enables them to adapt quickly and innovate in response to new challenges and opportunities. In the era following the pandemic, businesses face a range of challenges due to uncertainties and shifts in the market. By combining supply chain risk management (SCRM) with organizational agility, small and medium enterprises (MSMEs) can lessen the effects of supply chain disruptions, adapt better to changing market conditions, and boost their overall performance (Spekman & Davis, 2004; Tambunan, 2022; C. S. Tang, 2006). Implementing this strategy not only boosts the strength of the supply chain but also improves operational effectiveness, positioning MSMEs to be more competitive in the marketplace.

For Indonesian MSMEs, the integration of SCRM and organizational agility can lead to superior performance by enhancing their ability to maintain operational continuity, improve customer satisfaction, and drive sustainable innovation (Pettit et al., 2013; Sudjatmoko et al., 2023; Wulandhari et al., 2023). MSMEs can better manage supply chain risks, streamline their operations, and leverage new market opportunities by implementing robust risk management frameworks and fostering a culture of agility and innovative ways of thinking. This dual approach not only strengthens the resilience of MSMEs but also equips them with the capabilities needed to thrive in an increasingly volatile and competitive market landscape. This study's results will offer insightful information and useful suggestions for MSME leaders and policymakers aiming to assist in the sector's recovery and sustained growth (Gunasekaran et al., 2017; Pettit et al., 2013; Ralston et al., 2015). Therefore, we suggest a hypothesis:

H_4: In the post-pandemic era, the Supply Chain Risk Management of Indonesian MSMEs positively moderates MSMEs' Innovation Performance and MSMEs' Performance

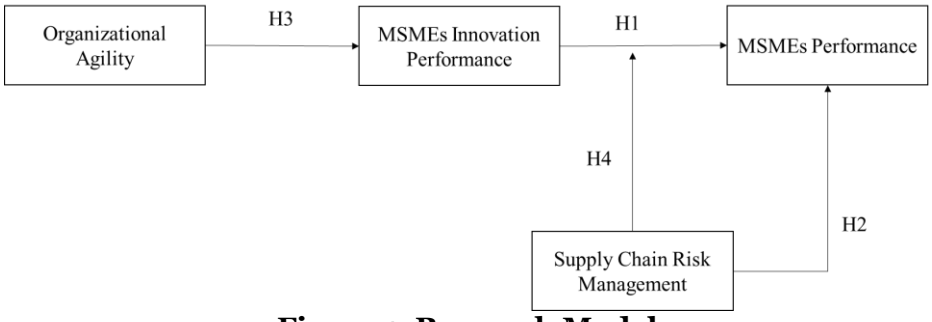

Figure 1. Research Model

3. Methods

The research in Indonesia centered on investigating micro, small, and medium-sized businesses. Small firms are preferred since many economies, particularly those in developing countries, heavily depend on them. Small businesses, which make up the majority of organizations around the world, are crucial in fueling the expansion of the global economy and creating fresh job prospects. Small businesses in Indonesia are of great importance for the country's future economic growth (Tambunan, 2022).

This research utilizes a quantitative method to investigate how supply chain risk management (SCRM), organizational agility (OA), and the effectiveness of micro, small, and medium-sized enterprises (MSMEs) in Indonesia are interconnected. The study uses a formal survey as the main tool for collecting data, aiming to obtain specific details on supply chain risk management practices, company adaptability, and overall business success. The questionnaire was created using proven scales found in prior research, guaranteeing accuracy and consistency. A preliminary trial was carried out using a limited number of MSMEs to improve the survey and guarantee its comprehensibility and importance. After the trial, the improved survey was shared with a more extensive range of MSMEs from different sectors in Indonesia.

3.1. Data Collection

This study exclusively utilized primary data and had a cross-sectional temporal perspective. The samples included Indonesian creative industries. Questionnaires were utilized as a survey instrument to gather data for this inquiry. The research paradigm is positivist due to its ability to be statistically examined and its utilization of a meticulously designed data collection method, such as a survey. The quiz uses a scale from 1 to 5, where "1" represents "Strongly Disagree" and "5" represents "Strongly Agree." The researchers opted for non-probability sampling to choose participants for their research. This methodology is considered the most effective way to get quantitative survey data from a specific sample (Hameed et al., 2018). The data collection process involved administering the structured questionnaires to a sample of 254 Indonesian MSMEs. The questionnaires were distributed through both online platforms and in-person visits to accommodate the respondents' preferences and increase the response rate. Respondents were typically owners, managers, or senior executives with comprehensive knowledge of their firm's supply chain practices and organizational dynamics. The period for collecting data lasted for three months, and during this time, follow-ups and reminders were sent to encourage more people to participate. The study's goal was to promote truthful and precise answers from the participants by guaranteeing confidentiality and anonymity. Table 1 below shows respondents' profile of this research.

Table 1. Respondents' Profile

Parameters		Number	Percentage
Business Size	Micro-sized Businesses	118	48.2%
	Small-sized Businesses	72	29.4%
	Medium-sized Businesses	55	22.4%
TOTAL		245	100%
	Manufacturing	23	9.4%
Business Sector	Retail	136	55.5%
	Service	86	35.1%
TOTAL		245	100%
Position	CEO/Owner	110	44.9%
	Manager/Supervisor	39	15.9%
	Employee	96	39.1%
TOTAL		245	100%

Source: Author (2024)

In order to evaluate the level of agreement among respondents for each item or statement, we employed a five-point Likert scale. This scale ranged from 1, indicating "strongly disagree," to 5, indicating "strongly agree." The measurement indicators of each variable were modified based on prior research. Specifically, the "Supply Chain Risk Management" indicator from Tang (2006) was used, the "Organizational Agility" indicator from Sambamurthy et al. (2003) was used, the "Innovation Performance" indicator from Gunday et al. (2011) was used, and the "MSMEs performance" variable was assessed by modifying measures from Chandler and Chandler & Hanks (1993) and Wiklund & Shepherd (2003). The measures were adjusted to be appropriate within the context of Indonesian and MSMEs (Table 2).

Table 2. Measurement

Item	Code	Question	Source
Supply Chain Risk Management	SR1	We identify potential risks in the supply chain (e.g., supplier failure, transportation delays).	(C. S. Tang, 2006)
	SR2	We evaluate the likelihood and impact of identified risks.	
	SR3	We implement strategies to reduce or eliminate risks (e.g., diversifying suppliers, safety stock)	
Organizational Agility	OA1	We are able to adapt to changes in the market and operational environment	(Sambamurthy et al., 2003)
	OA2	We are able to make quick decisions in response to market changes.	
	OA3	We are able to innovate products, services, and processes.	
Innovation Performance	IP1	We are able to introduce new products to the market	(Gunday et al., 2011)
	IP2	We are able to allocate R&D cost-effectively	
	IP3	We are able to gain customer feedback and satisfaction levels regarding new products.	
MSMEs Performance	MS1	We are able to minimize cost and maximize output	(Chandler & Hanks, 1993; Wiklund & Shepherd, 2003)
	MS2	Our sales increase over a specific period.	
	MS3	Our customers continue to do business with our company over a given period.	

3.2. Data Analysis

The information gathered was processed through structural equation modeling-partial least squares (SEM-PLS) software Smart PLS version 3.3.3. SEM-PLS serves as a reliable statistical method that enables the investigation of numerous connections at once, as well as the evaluation of intricate models, which makes it a suitable tool for this research. The analysis began with a confirmatory factor analysis (CFA) to validate the measurement model, ensuring the constructs' reliability and validity (Hair et al., 2013). Later on, the structural model was analyzed to evaluate the impact of SCRM and OA on the performance of MSMEs, both directly and indirectly. The findings shed light on the intensity and importance of the connections among the factors, confirming the assumptions of the research and providing useful recommendations for managers and policymakers in the MSME sector.

4. Results and Discussion

4.1. Research Results

4.1.1. Assessment of The Measurement Model

The quality of the measurement model is evaluated using various criteria. The findings shown in Table 3 suggest that the standardized outer factor loadings, utilized to determine the convergent validity of the items created, meet expectations. These loadings exceed the critical value of 0.70 ($p<0.001$), as stated by Hair et al. (2013). Table 4 displays that the composite reliability (CR) exceeds 0.7, while the Cronbach alpha (CA) surpasses 0.6, suggesting that each variable demonstrates sufficient internal reliability. Furthermore, the AVE value of 0.664 exceeds the specified threshold of 0.5 (Hair et al., 2013), showing that it also satisfies the requirements for convergent validity. Additionally, we utilized the Fornell & Larcker (1981) An evaluation standard for determining discriminant validity is used. The visual representation in Table 6 demonstrates that the square root of the Average Variance Extracted (highlighted diagonal elements) was higher than the correlations between different constructs.

When gathering information from unique creative industries through a self-reported survey, there is a high chance of coming across standardized procedure differences. These differences can create a bias in measurement that could lead to inaccurate findings (Ng et al., 2019). It is crucial to examine whether there is a bias in common techniques. The natural inclination to answer survey questions in a socially acceptable way could lead to a common method bias, which may cause variables to show overlapping characteristics (Kock, 2015). A Variance Inflation Factor (VIF) score exceeding 5 is considered indicative of substantial collinearity and suggests that a model may be influenced by common technique bias (Kock, 2015). If all Variance Inflation Factors (VIFs) from a thorough collinearity assessment are 5 or lower, it suggests that the model is not impacted by shared method variance (Kock, 2015). In addition, thorough testing for multicollinearity was conducted, and the variance inflation factors (VIFs) were found to be below the acceptable threshold of 5 (Kock, 2015). Based on the findings of previous investigations, a widely used approach, Variance, was not a concern in this research conducted by surveys, and the model is devoid of any common technique bias. Table 4 presents the outcomes of the Variance Inflation Factor (VIF) calculation.

Table 3. Factor Loading

Items	Innovation Performance	MSMEs Performance	Moderating Factor	Organizational Agility	Supply Chain Risk Management
IP1	0.831				
IP2	0.841				
IP3	0.771				
Innovation Performance * SC Risk Management			1.224		
MS1		0.796			
MS2		0.884			
MS3		0.855			
OA1				0.916	
OA2				0.947	
OA3				0.946	
SR1					0.880
SR2					0.846
SR3					0.789

Table 4. Measurement Model

Construct	Item	Composite Reliability	Cronbach Alpha	AVE	VIF
Supply Chain Risk Management	SR1	0.877	0.790	0.704	1.986
	SR2				1.658
	SR3				1.565
Organizational Agility	OA1	0.955	0.800	0.877	3.337
	OA2				4.179
	OA3				4.018
Innovation Performance	IP1	0.855	0.752	0.664	1.383
	IP2				1.699
	IP3				1.570
MSMEs Performance	MS1	0.883	0.800	0.715	1.575
	MS2				2.126
	MS3				1.770
Moderating Effect		1.000	1.000	1.000	1.000

Table 5. Discriminant Validity

	Innovation Performance	MSMEs performance	Moderating Effect 1	Organizational Agility	SC Risk Management
Innovation Performance	0.815				
MSMEs performance	0.382	0.846			
Moderating Effect 1	-0.270	-0.156	1.000		
Organizational Agility	0.325	0.573	-0.153	0.937	
SC Risk Management	0.343	0.539	-0.228	0.645	0.839

4.1.2. Assessment of The Structural Model

The PLS-SEM method was used to calculate path coefficients, representing the relationships between different elements of the study. Path coefficients in PLS-SEM can vary from -1 to +1, with +1 suggesting a strong positive correlation and -1 indicating a significant negative correlation. In PLS-SEM, a coefficient must have a value of at least 0.05 to be considered significant. Figure 2 illustrates the structural model used in this investigation. Upon further inspection, the analysis of R2 values for internal latent variables reveals that the internal variables related to Business Performance displayed a combination of moderate and weak levels of strength, aligning with the criteria set forth by Hair et al. (2013). This guideline proposes that predictive accuracy levels can be categorized as substantial, moderate, and weak based on values of 0.75, 0.50, and 0.25.

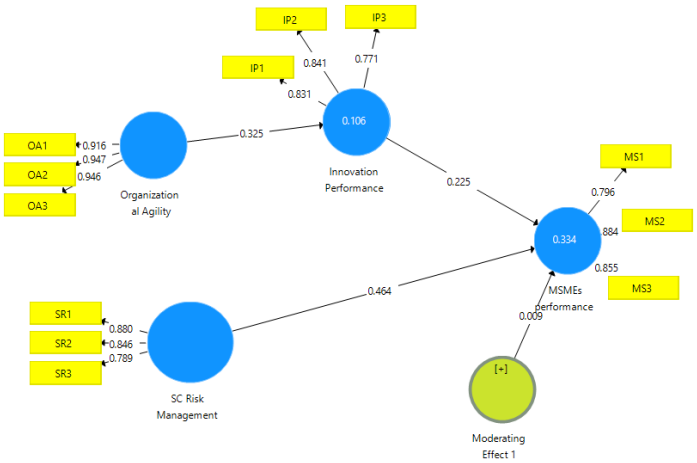

Figure 2. SEM-PLS Model

Stone Geisser's Q^2 is frequently employed as a measurement because R2 only provides information on predictions made within the sample (Geisser, 1974; Stone, 1974). A higher Q^2 value (Q2>0) indicates a lower discrepancy between the predicted and actual values, ensuring the accuracy and relevance of the model's predictions (Chin, 1998). In addition, Hair et al. (2013) suggested a supplementary guideline: a Q2 value greater than 0.00, 0.25, and 0.50 indicates the PLS path model's low, moderate, and high predictive significance, respectively. According to the PLS-SEM results, the endogenous variables had an R^2 square value that was greater than 0.25 but less than 0.50, indicating that it falls into the weak category. The Q^2 results indicated that the MSME's Performance (Q square = 0.232) had a limited ability to predict the path model. The results are displayed in Table 6.

Table 6. Predictive relevance based on R^2 and Q^2

	R Square	R Square Adjusted	Q^2 = (1-SSE/SSO)	Predictive Relevance
MSMEs Performance	0.334	0.330	0.207	Yes
Innovation Performance	0.106	0.104	0.064	Yes

Moreover, the researchers utilized the bootstrapping method to evaluate the importance of the path coefficients through 5000 sub-samples. As previously stated, this research delves into four different theories. The results of hypothesis testing have confirmed three out of the four hypotheses, with a significance level set at 0.05. The results from hypothesis testing are illustrated in Table 7.

Table 7. Hypothesis Testing

	Hypotheses	Original Sample/β	p-Value	Decision
H1	Innovation Performance → MSMEs' Performance	0.225	0.001*	Accepted
H2	Supply Chain Risk Management → MSMEs Performance	0.464	0.001*	Accepted
H3	Organizational Agility → Innovation Performance	0.325	0.001*	Accepted
H4	Supply Chain Risk Management → Moderating between Innovation Performance and MSME Performance	0.009	0.794	Rejected
Note(s): *significant p < 0.05				

4.2. Discussion

Several important findings emerge from examining how organizational adaptability, the ability to innovate, and effective management of supply chain risks impact the performance of MSMEs. Firstly, the findings highlight that innovation performance significantly enhances MSMEs' performance, as evidenced by a positive and significant path coefficient ($\beta = 0.225$, $p < 0.001$). Emphasizing the importance of innovation in promoting the development and longevity of MSMEs, this outcome supports the notion that innovation plays a crucial role in gaining a competitive edge and achieving success in the market, as highlighted in various studies. In the post-pandemic COVID-19 era, the effects of innovative performance on MSMEs are complex, presenting advantages that can be both direct and indirect. Innovation performance encompasses the ability of MSMEs to develop new products, services, or processes that provide a competitive edge. In the aftermath of the pandemic, MSMEs that have successfully harnessed innovation have shown a marked improvement in their operational efficiency and market reach. The adoption of digital technologies, such as e-commerce

platforms, digital payments, and remote work solutions, has enabled these enterprises to navigate disruptions and maintain continuity. This shift towards digitalization not only mitigated immediate impacts but also set the stage for more resilient and adaptable business models.

The analysis indicates that organizational agility significantly influences innovation performance among MSMEs in the post-pandemic era ($\beta = 0.464$, $p < 0.001$). Organizational flexibility, described as the ability of a company to quickly adjust to market changes and overcome new obstacles, is essential for encouraging creativity. Agile organizations are characterized by flexible decision-making processes, the ability to innovate quickly, and a culture that encourages continuous learning and adaptation. MSMEs benefit from their flexibility in adapting to changes in the market, customer demands, and technology, giving them an advantage in a fast-paced and unpredictable business landscape. Organizational agility plays a crucial role in every aspect of business activities, including creating new products, promoting them, managing the supply chain, and catering to customer needs. Agile organizations can respond more effectively to customer demands and bring new products to market faster, enhancing their operational efficiency and overall performance. This responsiveness not only improves customer satisfaction but also fosters a culture of innovation where new ideas are constantly being tested and refined. For MSMEs, this can mean the difference between thriving and merely surviving in a competitive market.

Moreover, supply chain risk management directly impacts MSMEs' performance positively, with a significant path coefficient ($\beta = 0.325$, $p < 0.001$). This strong influence can be attributed to several key factors. Firstly, effective SCRM practices help MSMEs to anticipate and mitigate potential disruptions in their supply chains, which is critical in maintaining operational continuity. Small and medium-sized enterprises have the ability to prevent or reduce the adverse effects of supply chain interruptions, which in turn will lead to more efficient and dependable business operations through early risk detection and the creation of backup strategies. This proactive strategy helps companies maintain the stability of their supply chains, while also improving their capabilities to consistently meet customer needs.

Therefore, the implementation of robust SCRM practices contributes to the overall resilience of MSMEs. In the aftermath of a pandemic, when there is a lot of uncertainty, a properly managed supply chain can help small and medium-sized enterprises respond swiftly to shifting circumstances and bounce back from interruptions with greater effectiveness. Having this ability to bounce back is essential for staying ahead in a market prone to fluctuation. MSMEs can better manage risks such as supplier failures, logistical delays, and market fluctuations by diversifying their supplier base, maintaining adequate inventory levels, and employing technology to enhance supply chain visibility.

Another reason for the positive impact of SCRM on MSMEs' performance is the improvement in operational efficiency. Effective risk management practices streamline operations by reducing uncertainties and avoiding disruptions that could lead to delays and increased costs. This efficiency is significant for MSMEs, which often operate with limited resources and tight margins. MSMEs can reduce waste, lower costs, and improve their overall productivity, leading to better financial performance and sustainability in the long term by optimizing their supply chain processes.

Furthermore, SCRM promotes teamwork and confidence within supply chain allies, which is crucial for establishing strong and adaptable supply systems. MSMEs can create a more resilient supply chain ecosystem by working closely with suppliers, logistics providers, and other stakeholders (Nozari & Szmelter-Jarosz, 2023). This collaborative approach not only helps in managing risks more effectively but also opens up opportunities for innovation

and continuous improvement in supply chain processes. Improved cooperation and communication result in enhanced coordination, faster resolution of issues, and more efficient reactions to unexpected obstacles (Ferdiyanti & Safrin, 2023).

The research delves into how supply chain risk management affects the connection between innovation performance and the performance of small and medium-sized enterprises. According to the findings, the impact of innovation performance on MSMEs' performance remains unchanged regardless of supply chain risk management. This may be due to the distinct nature of these constructs: innovation performance directly drives growth and market competitiveness through new products and processes, while supply chain risk management focuses on maintaining operational stability by mitigating disruptions. The lack of a significant moderating effect suggests that MSMEs might need to develop these capabilities independently rather than relying on an interplay between them to enhance performance. Another possible explanation is that the benefits of supply chain risk management may be more visible in contexts where there is high supply chain volatility or frequent disruptions. If the MSMEs studied operate in relatively stable environments, the added value of risk management in enhancing innovation outcomes may be less pronounced (Oktalia et al., 2022). This context-dependent nature of supply chain risk management's impact might explain the lack of a significant moderating effect in the overall analysis.

Additionally, the study's findings might suggest that innovation performance in MSMEs is robust enough to drive performance improvements on its own without the need for enhanced risk management. Innovative strategies can give businesses a competitive advantage, leading to improved outcomes and diminishing the need for supply chain risk management to intervene. This underscores the significance of innovation in driving success for small and medium-sized enterprises (MSMEs), underscoring the need to cultivate a culture of innovation and build innovative capacities within these organizations (Alfarizi & Kurnia Sari, 2023).

Finally, the results could also reflect limitations in how supply chain risk management and innovation performance are integrated within MSMEs. If these functions are siloed or not strategically aligned, the potential benefits of their interaction may not be fully realized. This underscores the importance of strategic coherence and integration in leveraging different capabilities to enhance overall performance. Ensuring that risk management practices support and align with innovation goals could be a key area for future improvement and research in MSMEs.

5. Conclusion

The results of the research offer important perspectives on the factors affecting the success of MSMEs in the aftermath of the pandemic. The research reveals that innovation performance significantly enhances MSMEs' performance, emphasizing the importance of adopting new technologies and innovative practices. Organizational agility, while not independently significant in boosting performance, plays a critical role in fostering an environment conducive to continuous improvement and rapid adaptation, which are essential for innovation. Moreover, supply chain risk management (SCRM) directly impacts MSMEs' performance positively, highlighting the need for robust risk management practices to mitigate disruptions and ensure operational continuity. The study also explores the moderating effect of SCRM on the relationship between innovation performance and MSMEs' performance, finding it non-significant, suggesting that these capabilities should be developed independently for maximum effectiveness.

This study has various implications. It highlights the significance of focusing on innovation and supply chain risk management for MSME managers to improve their performance. Managers should focus on integrating innovative technologies and practices into their operations while simultaneously strengthening their supply chain risk management strategies. Organizational agility should be fostered to support these initiatives, although it may not directly drive performance improvements on its own. Policymakers can draw from these insights to design support programs that encourage innovation and provide resources for effective risk management. Additionally, training and development programs that build organizational agility and foster a culture of continuous learning and adaptation will be beneficial.

Future research should explore the context-dependent nature of SCRM's impact on innovation performance. Investigating how supply chain volatility and market conditions influence the relationship between these variables could provide deeper insights. Researchers should also examine the integration of SCRM and innovation strategies within MSMEs to identify best practices for strategic alignment. Long-term studies have the potential to provide a more in-depth insight into the development of these factors and the lasting impact they have on the performance of MSMEs. Additionally, expanding the research to include a diverse range of industries and geographic regions could enhance the generalizability of the findings. Understanding the specific challenges and opportunities faced by different types of MSMEs will provide more tailored and actionable recommendations.

6. References

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