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Strategic agility and supply chain agility: Potential antecedents of SMEs performance

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A B S T R A C T

SMEs always require dynamic capabilities for enhancing their performance, therefore, this research aimed to examine the influence of strategic agility and supply chain agility on SMEs' performance. Moreover, it investigated the moderation of innovation capability in the relationship between strategic agility and SMEs' performance. Furthermore, the moderating role of innovation capabilities was identified in the relationship between supply chain agility and SMEs' performance. The data for the research was gathered from 398 respondents, and Smart pls was used for analysis. The results highlighted that strategic agility and supply chain agility significantly influence SMEs' performance. In addition, innovation capability can moderate the relationship between strategic agility and SMEs' performance. Whereas innovation capability does not moderate the relationship between supply chain agility and SMEs' performance.

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1. Introduction

Small and Medium Enterprises (SMEs) are considered pillars that are holding and supporting businesses around the globe (Lutfi et al., 2022a). More than 90 % of businesses worldwide fall under the umbrella of SMEs, and they have the capability to achieve their goals by tackling social and economic uncertainties (Lutfi et al., 2022b). SMEs are playing an active role in decreasing unemployment by providing job opportunities (Savlovschi and Robu, 2011; Koirala, 2019) and thereby contributing significantly to national income, productivity (OECD, 2019), and GDP (Alshirah et al., 2021; Bani-Khalid et al., 2022). Similarly, SMEs in Jordan actively participate in the economic and social development of the country (Alhnity et al., 2016). They are contributing approximately 40% to the GDP of Jordan (Lutfi et al., 2022a) but previously this sector suffered a lot during the COVID-19 pandemic (Al-Hyari, 2020) as it disrupted the supply chain (Abdelfattah et al., 2022) and created logistic challenges (Juergensen et al., 2020).

SMEs in comparison to large-scale organizations are providing more employment opportunities, and it is expected that they should be more productive and competitive to improve the national economies (Ali et al., 2012; Kongolo, 2010) but it is only possible if they are able to increase their own performance. Prabhu and Srivastava (2022) indicated that the performance of manufacturing SMEs is linked to an agile supply chain because for many SMEs it is difficult to manage the supply chain. Supply chain agility and sustainability, both are critical for the continued success and survival of an industry (Rehman et al., 2020). In dynamic market conditions, agility is essentially required for the supply chain to survive. Thus, in the current turbulent business environment, an agile supply chain can help SMEs to compete with rivals and particularly large-scale enterprises (Braunscheidel & Suresh, 2009). Muafi and Sulisto (2022) explained supply chain agility as the organizational ability to be agile in the process of the supply chain. Alike, agility in supply chain management is the ability to actively and timely manage suppliers, customers, and internal companies (Dubey et al., 2018; Chen, 2019).

According to Wilujeng et al. (2022), supply chain agility is the most important among "Triple-A strategies" (i.e. supply chain alignment, supply chain adaptability, and Supply chain agility) and it can significantly influence supply chain performance.

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In addition, the existing literature has also conceptualized the notion of agility as an important concern for supply chain managers (Dubey et al., 2018). Many studies have highlighted the role of supply chain agility on operational performance (Eckstein et al., 2015), firm sales, firm profitability, market share, and customer satisfaction (DeGroote and Marx, 2013), supply chain resilience and supply chain performance sustainability (Pratondo et al., 2021), supply chain performance (Wilujeng et al., 2022) but there is a paucity of literature in the context of manufacturing SMEs. Besides supply chain agility, there is another organizational agility that can significantly lead to better SME performance, which is strategic agility. Gerald et al., (2020) mentioned that strategic agility is an organizational ability to foresight the turbulent conditions or the latest trends and forecast the future to respond accordingly. Therefore, it can enhance the performance of SMEs. Tallon and Pinsonneault (2011) defined strategic agility as the ability of an enterprise to respond promptly to a volatile business environment, adapt to it and develop necessary strategies to overcome uncertainty. In addition, Kumkale (2016) explained it as an important strategy and tool that can help organizations in developing a competitive advantage.

In current business studies, the notion of agility is a new-generation concept, and its semantical use differs based on research context or area (Yildiz & Aykanat, 2021). Studies based on agility can be classified into two categories or groups, in the first group, agility is conceptualized as a generic capability allowing enterprises to adapt their operations promptly to turbulent market conditions and sudden changes in the needs of customers (Braunscheidel & Suresh, 2009). Whereas in the second group, agility is not merely conceptualized as a capability but is considered as a strategy or an essential management practice based on multidimensional skills (Dyer & Shafer, 1998). Therefore, strategic agility being an important organizational agility and dynamic capability (Weber & Tarba, 2014) can enhance organizational performance (Djaje & Arief, 2015; Clauss et al., 2019; Arokodare et al., 2019).

Jordanian SMEs are helping a lot to expand the economy of the country, and innovation in SMEs is important to boost performance (Abdulaal & Nordin, 2020). Zhou et al., (2019) highlighted that innovation capability is an ordinary capability and it significantly influences financial performance. According to Lawson and Samson (2001), innovation capability is an organizational ability to launch new products, processes, and systems through the continuous transformation of ideas and knowledge. The literature has linked different organizational agilities with innovation capabilities, such as marketing agility (Zhou et al., (2019) and strategic agility (AlTaweel & Al-Hawary, 2021). Moreover, many studies have highlighted the role of innovation capability in achieving organizational performance (e.g., Raymond et al., 2013; Saunila et al., 2014) but currently, no research up to the author's knowledge has examined the moderating role of innovation capability between strategic agility and performance. Moreover, the moderating role of innovation capability has never been examined in the relationship between supply chain agility and SMEs' performance.

The organizations involved in manufacturing strongly need agilities (Sharma et al., (2022) for improving their performance (Wanasida et al., 2021), and these agilities can be strategic agility (Gerald et al., 2020) or supply chain agility (Tse et al., 2016). Therefore, the first and foremost important objective of this study is to emphasize Jordanian manufacturing SMEs and highlight how their performance is influenced by strategic agility and supply chain agility. The second objective of this research is to reveal the moderating role of innovation capability between strategic agility and SMEs' performance. Further, the third objective is to analyze the moderation of innovation capability between supply chain agility and SMEs' performance. Therefore, by using the theoretical lens of dynamic capability theory, this study has examined the influence of strategic agility and supply chain agility on SMEs' performance. Moreover, it has analyzed the moderation of innovation in the aforementioned relationships. The research objectives of this study are given above:

RQ1: To highlight the role of strategic agility on SMEs' performance.

RQ2: To highlight the role of supply chain agility on SMEs' performance.

RQ3: To reveal the moderating role of innovation capability between strategic agility and SMEs performance.

RQ4: To examine the moderating role of innovation capability between supply chain agility and SMEs performance.

2. Literature review

In an operational context, agility is considered an important dynamic capability (Gilgor et al., 2015). Dynamic capabilities can help organizations in improving their performance (Baía et al., 2019). The dynamic capability theory of Teece (2007) contends that dynamic capabilities entail the ability to sense and seize market opportunities for sustaining competitiveness by adjusting and reconfiguring business process implementation. Dynamic capabilities are different from ordinary capabilities (Zhou et al., 2019) as they extend, update, change or create ordinary capabilities (Teece, 2014). Whereas ordinary capabilities are static (Morgan, Katsikeas, & Vorhies, 2011) and they enable organizations to operate in the present (Winter, 2003). Moreover, such capabilities always need dynamic capabilities for their reconfiguration (Zhou et al., 2019). This research has focused on two dynamic capabilities (i.e. strategic agility and supply chain agility) and one ordinary capability (i.e. innovation capability) for examining the SMEs' performance.

The literature review section is based on four subsections; in the first sub-section, the literature on strategic agility and SMEs performance is provided. The second sub-section has discussed the literature on supply chain agility and SMEs' performance. The third subsection has provided the literature review on the moderating role of innovation capability.

2.1 Strategic agility and SMEs' Performance

Weber and Tarba (2014) explained strategic agility as the constant organizational ability to effectively modify the flow of action for maintaining a competitive advantage. Strategic agility is an important factor to determine organizational success in a dynamic, volatile, or chaotic environment (Yildiz & Aykanat, 2021). The literature has proved that agile enterprises can respond quickly to the utilization of work environment opportunities (AlTaweel & Al-Hawary, 2021). Therefore, strategic agility can help organizations in improving financial performance (Ojha, 2008; Clauss et al., 2019), international performance (Ahammad et al., 2021), and overall performance (Shin et al., 2015; Lungu, 2020; AlTaweel & Al-Hawary, 2021).

Strategic agility is a dynamic capability (Weber & Tarba, 2014; Vagnoni & Khoddami, 2016) that can be developed by any level of the enterprise, either large or small. Similarly, strategic agility can be beneficial for SMEs (Ogunleye et al., 2021). Shin et al., (2015) aimed to explore agility as a strategic intent and highlighted its influence on the performance of Korean SMEs. The results of their study revealed that strategic agility can lead to operational performance and enhance customer retention, but it does not influence financial performance. The studies highlighting the role of strategic agility on performance have mostly focused on large-scale enterprises, but only a few have emphasized SMEs. Furthermore, there is a paucity of literature highlighting the influence of strategic agility on the performance of manufacturing SMEs in Jordan. Therefore, the following hypothesis is developed:

H_1: *Strategic agility is positively related to SMEs' performance.*

2.2 Supply Chain Agility and SMEs' Performance

Teece et al. (1997) explained dynamic capability as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997). Dynamic capabilities have some important characteristics, first of all, they are dedicated to modifying operating routines (Zollo & Winter, 2002), second, they are higher-level organizational capabilities (Winter, 2003), and third, they enable the organizations to the reconfiguration of their resources (Teece, 2007). Supply chain agility also shows these characteristics and, therefore, can be considered a dynamic capability. According to Blome et al. (2013), supply chain agility is a complex capability, but it is the most important element of organizational competitive strategy during a turbulent environment.

The notion of supply chain agility is new in the literature on supply chain management (Braunscheidel & Suresh 2009) and it is important for business performance in different ways (Zhu & Gao, 2021). First, it can enable the organization to promptly sense the change in the market environment, rapidly meet the changing customer demand, and enhance the product delivery process (Yusuf et al., 2014), thus, SCA can lead to high-level customer satisfaction, which ultimately increases the sales, and sales enhance the overall revenue (Alkrait & Almaktoom, 2021). Second, SCA can help organizations in reducing their inventory cost (Mason et al., 2002) and enhance overall business performance (Yusuf et al., 2014). Therefore, to highlight the influence of supply chain agility on the performance of manufacturing SMEs in Jordan, the following hypothesis is developed:

H_2: *Supply chain agility is positively related to SMEs' performance.*

2.3 Innovation Capability as a moderator

Innovation capability is considered an important element for developing an innovative culture in an organization (Akman & Yilmaz, 2008) through continuous development in innovations as a response to a volatile environment (Olsson et al., 2010). It is defined by Lawson and Samson (2001) as "the ability to continuously transform knowledge and ideas into new products, processes, and systems for the benefit of the firm and its stakeholders". Zhou et al., (2019) mentioned innovation capability as an ordinary capability, and many studies have indicated that innovation capability leads to performance (Saunila, 2014; Saunila et al., 2014). Lee et al. (2019) concluded that innovation capability acts as a mediator between dynamic capabilities and performance.

Teece (2007) discussed that dynamic capabilities reconfigure and redevelop ordinary capabilities. This research has thus, considered the innovation capability as ordinary capability and strategic agility and supply chain agility as dynamic capabilities. Therefore, according to the assumption that dynamic capabilities lead to SMEs' performance (Hernández-Linares et al., 2021), thus, the study has proposed that the relationship between dynamic capabilities and SMEs performance can be strengthened by the moderation of ordinary capability (i.e. innovation capability). Therefore, the following hypotheses are developed:

H3: *Innovation capability moderates the relationship between strategic agility and SMEs' performance.*

H4: *Innovation capability moderates the relationship between supply chain agility and SMEs' performance.*

On basis of the literature on the hypotheses given above, the following framework is developed (See, Fig. 1):

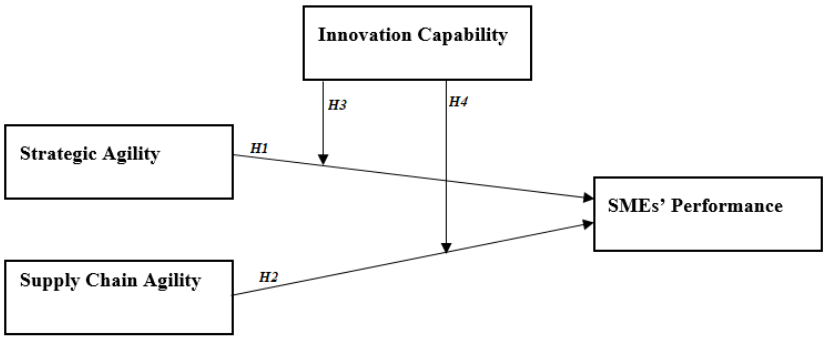

Fig. 1. Model for Research

3. Methodology

Over the last two decades, many researchers have focused on determining the factors influencing SMEs' performance. Moreover, many of them highlighted linked performance with different dynamic capabilities, as these abilities play a critical role in enhancing performance (Eikelenboom & De Jong, 2019; Hernández-Linares et al., 2021). This research has conceptualized strategic agility and supply chain agility as dynamic capabilities and linked them with SMEs' performance. Furthermore, it has highlighted the moderating role of innovation capability (i.e., ordinary capability) on the relationship between strategic agility and SMEs' performance, and supply chain agility and SMEs' performance.

In Jordan, 90 % of SMEs are called manufacturing SMEs, some are directly manufacturing the products, and others are indirectly involved in it (Amman Chamber of Industry, 2018). Therefore, this research has considered these SMEs as a population. Whereas managers of SMEs (i.e., individuals) were the unit of analysis, and data from them were gathered by developing a survey. To gather conveniently, the survey was designed on Google Forms and its online link was shared with managers. The purposive sampling technique was considered for data collection as it allows respondents to have equal chances of being selected as a sample for the collection of data (Hair et al., 2021).

The literature on strategic agility, supply chain agility, innovation capabilities, and SMEs performance was reviewed for searching the measures or items to develop the survey. To measure strategic agility, the scale based on 8 items was adapted from Haider and Kayani (2020) and Queiroz et al. (2018). Supply chain agility was measured by adopting the 5-item based scale of Blome et al., (2013). Similarly, the innovation capability was also examined with a 5-item based scale by Odoom and Mensah, (2019). A 5-item based scale of SMEs' performance was adapted from (Adomako & Ahsan, 2022).

The entire data collection process took more than 2 months, and during this period, the link to the online questionnaire was sent to managers of SMEs. In total, 407 responses were gathered, and only 9 were not considered as they were incomplete. The analysis of data, and particularly, testing of the model was done by Smart PLS. According to Roldán and Sánchez-Franco (2012), Partial Least Squares abbreviated as "PLS" is a variance-based structural equation modeling approach, and the method of Partial Least Square- structural equation modeling is mostly used to examine complex models showing multiple relations (Do Nascimento et al., 2016).

4. Results

This research has used SmartPLS 3.0 software and employed the technique of structural equation modeling (SEM) by using partial least squares (PLS). This second-generation software can text complex models along with the latent variables (Isnaini et al., 2020). In model assessment, the first step is to determine reliability and validity (Suradi et al., 2020), and the measurement model is used to evaluate the validity and internal consistency of every item of scale. To determine this consistency, composite reliability (CR), and Cronbach's alpha are used, composite reliability focuses on the valuation of construct reliability and evaluates the internal consistency of the construct. Cronbach's alpha shows the composite reliability

of the construct. The minimum value for Cronbach's alpha and factor loading is 0.7 (Hair et al., 2021), but loading more than 0.7 is considered a good indicator (Wijaya, 2023). The results of current research revealed that factor loadings of all indicators are more than a value (i.e., 0.7) except for two indicators of SME performance and one indicator of strategic agility. The indicators of SME performance were having loadings of 0.598 and 0.586. Whereas the loading of one indicator of strategic agility was 0.558. Therefore, these indicators were removed from the measurement model. Furthermore, AVE was examined, and its values were more than 0.5 which is the minimum criteria recommended by Hair et al., (2021). The values of CR, Cronbach's alpha, and AVE are given in Table 1 and Fig. 2 show the measurement model.

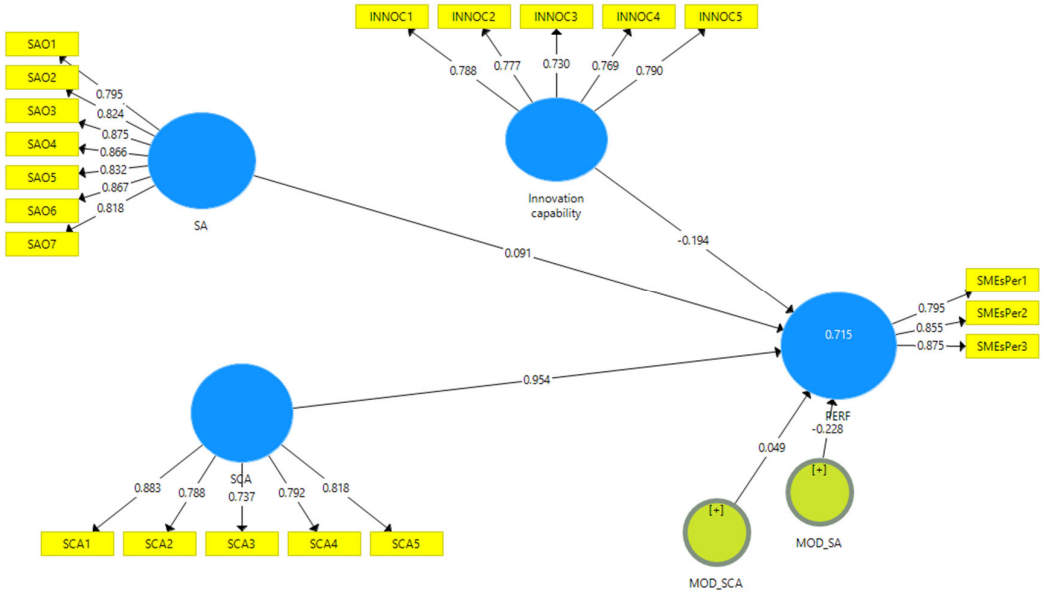

Fig. 2. Measurement Model

Table 1
Reliability and Validity of the Model

Construct	Items	Loadings	Alpha	CR	AVE
Innovation Capabilities	INNOC1	0.788			
	INNOC2	0.777			
	INNOC3	0.73			
	INNOC4	0.769			
	INNOC5	0.79	0.829	0.88	0.595
Strategic Agility	SAO1	0.795			
	SAO2	0.824			
	SAO3	0.875			
	SAO4	0.866			
	SAO5	0.832			
	SAO6	0.867			
	SAO7	0.818	0.93	0.944	0.705
Supply Chain Agility	SCA1	0.883			
	SCA2	0.788			
	SCA3	0.737			
	SCA4	0.792			
	SCA5	0.818	0.863	0.902	0.648
SMEs' Performance	SMEsPer1	0.795			
	SMEsPer2	0.855			
	SMEsPer3	0.875	0.795	0.88	0.71

In the second step of data analysis, discriminant validity was analyzed. Ramayah et al. (2013, p.142) explained discriminant validity as "the extent to which the measures are not a reflection of some other variables". In this research, the discriminant validity is shown by the values of the Fornell-Larcker Criterion given in Table 2.

Table 2
Discriminant Validity

	Innovation Capabilities	SMEs Performance	Strategic Agility	Supply Chain Agility
Innovation Capabilities	0.771			
SMEs Performance	0.770	0.842		
Strategic Agility	0.418	0.458	0.840	
Supply Chain Agility	0.769	0.809	0.452	0.805

In the third step, model fitness is examined by determining the value of the R-square. The value of the R-square for the current study is given in Table 3.

Table 3
R-Square Values

	R Square	R Square Adjusted
SMEs Performance	0.715	0.712

The results given in Table 3 show that the R square of SMEs' performance is 0.715 which highlights that 71.5 % of SMEs' performance can be explained by the independent variables including strategic agility and supply chain agility. In the fourth and last step, an empirical investigation of the hypotheses is done, and the results are presented in Table 4. Fig. 3, shows the structure model and presents the t-count results for every latent variable's parameter.

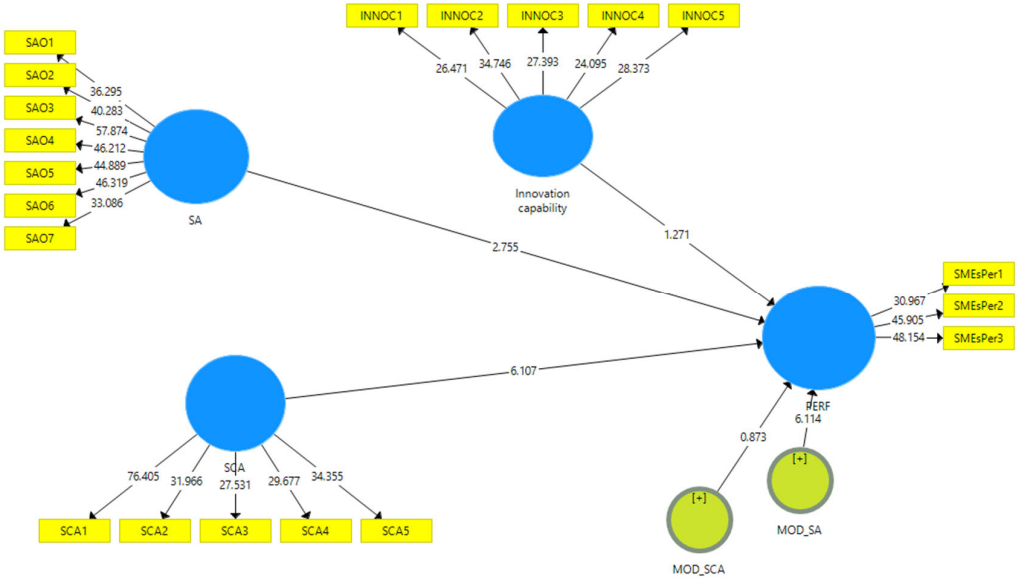

Fig. 3. Structural Model

Table 5
Results of Hypotheses testing

Hypothesis	Indication	T-Statistics	P-Values	Results
Strategic Agility → SMEs Performance	H1	2.755	0.006	Accepted
Supply Chain Agility → SMEs Performance	H2	6.107	0.000	Accepted
Strategic Agility*Innovation Capability → SMEs Performance	H3	6.114	0.000	Accepted
Supply Chain Agility*Innovation Capability → SMEs Performance	H4	0.873	0.383	Rejected

Tables 5 shows that strategic agility and supply chain agility, both influence performance, and thus, H1 (T-Statistics: 2.755, P-Value: 0.006) and H2 (T-Statistics: 6.107, P-Value: 0.000) are accepted. Moreover, H3 is accepted (T-Statistics: 6.114, P-Value: 0.000) by showing the moderating effect of innovation capability on the relationship between strategic agility and SMEs' performance. Furthermore, the findings revealed that H4 is rejected (T-Statistics: 0.873, P-Value: 0.383) by showing that innovation capability does not moderate the relationship of supply chain agility with SMEs performance.

5. Discussion

SMEs' performance in developing countries always remains a hot debate among researchers even though SMEs employ more than 50 % of the workforce (Ayyagari et al., 2014). Moreover, SMEs are facing several challenges (Al-Hyari, 2020) that are hindrances to performance. SMEs can improve their performance by focusing on organizational agility (Çallı et al., 2021),

particularly strategic agility (Shin et al., 2015), and supply chain agility. Therefore, this research has examined the influence of strategic agility and supply chain agility on SMEs' performance. Furthermore, it has investigated the moderating role of innovation capability in the relationship between strategic agility, supply chain agility, and SMEs' performance.

The first objective of this research is to examine the influence of strategic agility on SMEs' performance, and in order to highlight the results, H1 was developed. The results highlighted that SMEs can improve their performance by focusing on strategic agility. Yildiz and Aykanat (2021) highlighted that strategic agility can enable organizations to determine their success in a chaotic environment. Therefore, the findings of H1 are supported by Shin et al., (2015) who explained agility as a strategic intent and revealed that it can influence the performance of SMEs.

The second hypothesis (H2) is developed to highlight the influence of supply chain agility on SMEs' performance. The results highlighted the relevance of studying supply chain agility as it can influence SMEs' performance. The SMEs aiming to enhance their performance can focus on supply chain agility. These results are in line with the study of Nazempour et al., (2020) who explained that supply chain agility enables firms in enhancing their operational performance. Furthermore, the findings are against the research of Muafi and Sulistio, (2022) who claimed an insignificant relationship between supply chain agility and SMEs performance. The third hypothesis was developed to investigate the moderating role of innovation capability on the relationship between strategic agility and SMEs' performance. The findings suggested that innovation capability is considered to be a significant moderator in the relationship of strategic agility and SMEs' performance. This shows that a higher level of strategic agility in SMEs is considered to be more significant in the relationship of strategic agility and SMEs' performance in Jordan. The fourth hypothesis aimed to investigate the moderating role of innovation capability on the relationship between supply chain agility and SMEs' performance. The results rejected the hypothesis by explaining that innovation capability cannot strengthen or weaken the relationship between supply chain agility and SMEs' performance.

6. Implications

This research has provided several theoretical, methodological, and practical implications. In the context of theoretical implications, the study has contributed to the literature on supply chain agility, innovation capabilities, strategic agility, and performance of SMEs. This research is entirely different from prior studies as they have not extensively focused on manufacturing SMEs (Al-Madi, 2017) or focused only on a few dynamic capabilities. In terms of methodological implications, this research has not used the dimensions of any variable for analysis. The results of this research can help the managers of SMEs in enhancing their performance by focusing on supply chain agility, and strategic agility.

7. Limitations and recommendations

The study has provided a comprehensive framework for determining the performance of SMEs but still, it has some limitations that can be considered by future studies. First, the study has emphasized merely the Jordanian SMEs, and future researchers can consider the SMEs of any other developing or emerging country. Secondly, the research has only considered the moderation of innovation capabilities, but future studies can analyze the moderating role of any other ordinary capability.

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