

DO ENTREPRENEURIAL AND SUSTAINABLE ORIENTATIONS CONTRIBUTE TO JORDANIAN MANUFACTURING SMALL AND MEDIUM ENTERPRISES (SMES) PERFORMANCE?

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Abstract.

Purpose – This study aims to investigate the impact of entrepreneurial and sustainable orientations and their dimensions on the performance of Jordanian manufacturing SMEs. The study is essential due to the lack of and inconsistent past findings on the study scope.

Research methodology – The data was collected using the stratified random sampling technique method. The respondents in Jordanian manufacturing SMEs were approached using an online questionnaire, and this study obtained 287 completed questionnaires for further analysis. Data was analysed using measurement and structural models by means of Partial Least Square-Structural Equation Modelling.

Findings – The results indicate that risk-taking, social sustainability, environmental sustainability, entrepreneurial orientation, and sustainable orientation have positively influenced the performance of Jordanian manufacturing SMEs. In addition, two entrepreneurial orientation constructs, namely, innovativeness and proactiveness, clearly show an inability to link with SMEs' performance.

Research limitations – Future studies should include non-manufacturing SMEs in Jordan and apply longitudinal and qualitative study approaches to measure the SME's performance comprehensively.

Practical implications – The results of this study could help manufacturing SMEs in Jordan identify the impact of entrepreneurial and sustainable orientations on their SMEs' performance.

Originality/Value – This study deliberates the roles of entrepreneurial and sustainable orientations on Jordanian manufacturing SME performance.

Keywords (3–5): Entrepreneurial Orientation; Sustainable Orientations; Manufacturing Small and Medium Enterprises; Performance; Jordan

Introduction

Many countries worldwide have relied on SMEs to foster economic development and growth, creating innovation, competitiveness, human and societal well-being, and environmental protection. Therefore, to consistently deliver such benefits to a country, the performance of SMEs is critical to be regularly assessed for long-term success. A study conducted by Zaato et al. (2021) has delineated the significant and positive role of entrepreneurial orientation played by entrepreneurial individuals or SMEs in identifying and exploiting business opportunities through proactiveness, calculated risk-taking, innovativeness, competitiveness, and acting independently, which leads to SMEs survival and performance. On top of that, with mounting pressure from the government, rules and regulations, green supporters, and others, SMEs must also focus on incorporating sustainability orientation measures in their daily activities. According to Roxas and Coetzer (2012), sustainability orientation is the overall proactive approach firms take to incorporate environmental issues and practices into

their operational, tactical, and strategic actions. Sustainable orientation is a long-term internal commitment of firms toward the combination of environmental and social issues in their practices, actions, and decision-making (Khizar et al., 2021; Shou et al., 2019). Firms that show a commitment to sustainable orientation are getting more attention from consumers, and they consider purchasing goods and services offered by these firms, thus contributing to the firm's financial performance (Parente et al., 2018). These two orientations are considered fundamental to measure a firm's performance and have been used by many scholars in developed and developing countries (e.g., Gomes et al., 2022; Kusa et al., 2024; Susanto et al., 2023).

About Jordan, 99.5% of the Jordanian economy is constituted by SMEs. Furthermore, SMEs in Jordan have employed over 60% of the workforce and contributed 30% of Jordan's nominal gross domestic product (Jordan Chamber of Industry, 2023). Additionally, Jordan Strategy Forum (2021) has indicated that the manufacturing sector plays a crucial role in the Jordanian economy, employing approximately 20% of the total workforce and fostering job creation in the country. The future of the Jordanian economy lies in SMEs, thus, continuous support from both the government and SME stakeholders to ensure ongoing benefits to economic growth and social welfare are very essential. Despite the positive impact of Jordan's SMEs on the economy and society, various studies have pointed out the challenges that hinder their performance (Al-Hanakta et al., 2023; Al-Hyari, 2021; Al-sous et al., 2023). Jordan, in fact, faces challenges such as a lack of natural resources, regional instability, conflicts, and civil war that may affecting water and energy security (Al-Hyari, 2021; Al-Qteishat, 2022; Alrwashdeh, 2022). All these barriers have contributed to a decline in SME performance in Jordan (Jum'a et al., 2021; Saif, 2023). To overcome these issues, the government has introduced National Green Growth Plan in 2017 and Economic Modernisation Vision 2022-2033 (Alawneh et al., 2018; Albatayneh et al., 2022; Sandri et al., 2020). These two plans emphasize the importance of Jordanian SMEs exploring high impact business activities and adopting sustainable practices to promote efficient utilization of natural resources, particularly energy and water efficiency (Abu Hajar et al., 2020). Given the limited resources, incorporating entrepreneurial and sustainability orientations in SMEs is vital for exploring new opportunities, fostering innovation, and generating value that can enhance SME performance (Gonthier & Chirita, 2019).

This study aims to examine the impact of entrepreneurial and sustainable orientations on the performance of Jordanian manufacturing SMEs, considering that such SMEs carry out most business activities in Jordan. Specifically, the study intends to assess the impact of entrepreneurial and sustainable orientation dimensions, such as innovativeness, proactiveness, risk-taking, social sustainability, and environmental sustainability, on the performance of these SMEs. Through this investigation, the study addresses two main research questions: (1) What is the impact of various factors on the performance of Jordanian manufacturing SMEs? and (2) How do entrepreneurial and sustainable orientations collectively affect the performance of these SMEs? The results of this study will contribute to the existing literature on entrepreneurial and sustainable orientations in the context of Jordanian SMEs' manufacturing performance. Moreover, it is expected that managers, owners, and decision-makers of Jordanian SMEs in the manufacturing sector can enhance performance by incorporating entrepreneurial and sustainable practices. This paper is structured as follows: Section 2 reviews pertinent literature, Section 3 outlines the methodology employed, the fourth section discusses the findings, and the final section presents the conclusion.

Literature review

Theoretical background

This study has integrated two theories, namely, entrepreneurial orientation theory and triple-bottom-line sustainability theory. Initially formulated by Miller (1983), many scholars have widely utilized the entrepreneurial orientation theory in assessing the firm's performance (e.g., Alshahrani & Salam, 2024; Asad et al., 2023; Susanto et al., 2023). This theory underscores the significance of

innovativeness, proactiveness, and risk-taking strategically employed by entrepreneurs or firms to outperform their competitors by introducing novel goods or services. Research by Lumpkin and Dess (1996) and Covin and Wales (2019) further elaborated that entrepreneurial orientation involves procedures, approaches, and decision-making processes leading to new market entry by introducing unprecedented products, services, technological advancements, markets, or business model innovations. Moreover, the triple bottom-line theory of sustainability posits that a company must address three distinct dimensions - profit, people, and the planet - to ensure long-term financial viability. Consequently, sustainable development encompasses the pursuit of economic progress, environmental preservation, and social equality, all integral components of sustainable development (Elkington, 1994). This definition underscores organizations' need to shift their focus from short-term financial objectives toward long-term social, environmental, and economic advantages (Shim et al., 2021; Arowoshegbe & Emmanuel, 2016). According to Parente et al. (2021), the triple-bottom-line theory introduces a performance concept that transcends mere profit motives. Numerous past and contemporary studies affirm that this theory forms the fundamental basis for exploring organizational sustainability and performance (e.g., Mokbel Al Koliby et al., 2024; Owusu et al., 2024; Yadegaridehkordi et al., 2023).

Small and medium enterprises performance

Performance of an organization is defined as its capacity to use its resources effectively and efficiently to accomplish both operational and strategic goals (Daft, 2020; Tseng & Lee, 2014) and to determine if the company is successful or not (Abdul Rahman et al., 2018; Nuvriasari et al., 2020). Performance in any organization depends on the concept that it needs to apply relevant management styles to foster growth, integrate essential processes to guarantee sustainability and make efficient use of resources (Ali et al., 2021). In the modern global economy, performance has become a crucial issue for an organization to remain successful and competitive, and determined by the real financial and non-financial outcomes (Abdul Rahman et al., 2018; Bature & Hin, 2017; Masa'deh et al., 2018). Singh et al. (2016) have defined financial indicators as an objective assessment of an organization's performance, and the data utilized to compute them can often be obtained from financial reports and public reports that have been available for a while. In contrast, subjective measurements assess an organization's performance based on respondents' judgments of the organization's profit over time, the positions of competitors, the level of customer satisfaction, creativity, staff engagement, the organization's reputation, and other variables (Isichei et al., 2020). Many past studies used the subjective measurements to assess businesses performance (e.g., Arshad et al., 2014; Bénet et al., 2022; Masocha, 2019). In order to align with past studies, the current study has selected the subjective measures for SME performance.

Hypotheses development and conceptual framework

The relationship between innovativeness, proactiveness, and risk-taking on manufacturing SME's performance

Innovation can refer to the implementation of a new or significantly improved product (good or service), a process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations (Manual, 2005; Schumpeter, 2017). Innovativeness is also considered a fundamental aspect of an organization's operations and administration (Lumpkin & Dess, 1996). Moreover, many past scholars have revealed that innovation has a major impact on a firm's performance (Al Naqbia et al., 2020; Basco et al., 2020; Vila-Lopez & White, 2018). For instance, Basco et al. (2020) have revealed that the performance of SMEs in China, Spain, and Mexico is influenced by innovation. Recent studies by Sarfo et al. (2024) and Barber III et al. (2024) have

also claimed the positive impact of innovation on SME performance. In contrast, a few past works have demonstrated a negative relationship between innovativeness and SME performance (e.g., Chin et al., 2016; Dai et al., 2014; Shah & Ahmad, 2019; Sahut & Peris-Ortiz, 2014).

The second dimension of entrepreneurial orientation used in this study is called proactiveness. Proactiveness can be referred to the firm's ability to identify, predict, and proactively act on future customer demands by providing novelty goods and services in the marketplace (Kallmuenzer & Pefactor, 2018) and may contribute to the firm success (Isichei et al., 2020; Lumpkin & Dess, 1996). Due to this, many scholars have conducted studies to link the role of proactiveness to firm performance. For instance, past works from Benneth Uchenna et al. (2019) and Oni et al. (2019) proved the positive impact of proactiveness on SME performance. Moreover, more recent studies by Jalali et al. (2024), Sorama and Joensuu-Salo (2023), and Rafiki et al. (2023) also recorded the same findings, which indicates a significant positive role of proactiveness on SME performance. However, several past studies have postulated a negative impact of proactiveness on SME performance (e.g., Filser & Eggers, 2014; Okangi, 2019). For instance, Filser and Eggers (2014) revealed a negative relationship between proactiveness and SME performance in Austria, Liechtenstein, and Switzerland.

Risk-taking can be associated with the firm's willingness to commit resources, perform activities, and take initiatives, whereas the results are uncertain (Jiang et al., 2018; Kallmuenzer & Peters, 2018). Although many firms engage in risky activities to make high returns, SMEs are often considered underperforming due to their shortage of resources and weak managerial skills (Covin & Slevin, 1989). This has resulted in the SME's owner or managers seeking less risky activities and projects (Khan et al., 2021), which impacted their firm's performance (Khan et al., 2024). To increase performance, SMEs must manage and control the risks (business, financial, and personal) because corroborative studies have proved the positive impact of risk-taking on SME performance (e.g., Henschel & Lantzsch, 2022; Hurtado-Palomino et al., 2024; Khan et al., 2024; Rafiki et al., 2023). Nevertheless, several past studies have reported the negative role of risk-taking on SME performance (Rezaei & Ortt, 2018; Le Roux & Bengesi, 2014). For example, a past work (Saif, 2023) highlighted a negative relationship between risk-taking and SME performance. Based on the prior literature, the current study postulates the following hypotheses.

H1: Innovativeness has a positive impact on manufacturing SMEs' performance.

H2: Proactiveness has a positive impact on manufacturing SMEs' performance.

H3: Risk-taking has a positive impact on manufacturing SMEs' performance.

The relationship between entrepreneurial orientation and SME's performance

Nowadays, the establishment of an entrepreneurial orientation is considered essential in all business enterprises due to numerous previous findings indicating a strong correlation between entrepreneurial orientation, innovation, and firm performance (Gomes et al., 2022; Hassen & Singh, 2021; Semrau et al., 2016). The significance of entrepreneurial orientation in the growth and survival of SMEs lies in its focus on fostering innovative and creative capabilities and identifying opportunities for business success (Herlinawati et al., 2019; Khizar & Iqbal, 2020). Recent research studies have highlighted various aspects of entrepreneurial orientation, such as proactiveness and risk-taking, which have been shown to have a positive impact on a company's performance (Kusa et al., 2024; Khan et al., 2021; Kim et al., 2021; Rafiki et al., 2023). Conversely, some earlier studies have indicated a negative association between entrepreneurial orientation and SME performance. For instance, investigations by Oktavio et al. (2019) and Sahi et al. (2024) did not find evidence supporting a positive relationship between entrepreneurial orientation and SME performance. Drawing from the abovementioned literature, this research puts forward the following hypothesis.

H4: Entrepreneurial orientation has a positive influence on the performance of manufacturing SMEs.

The relationship between social and environmental sustainability and manufacturing SME's performance

In today's world, most businesses have obligations toward their employees and society's well-being that go beyond their financial interests and legal requirements (Haleem et al., 2017; Zhang et al., 2014). Furthermore, interestingly, these requirements apply to all types of businesses, including SMEs. Thus, to secure the well-being of SME employees and accomplish sustainable development goals, SMEs must make themselves socially sustainable (Chowdhury & Shumon, 2020). Wolf (2014) has stated nine indicators of social sustainability, namely, a workplace that is safe and healthy for work, a suitable minimum salary, the limits of the maximum total work hours, the right to join a labor union, a regulation of child labor, non-discrimination, comfortable living conditions, an unambiguous policy for corporate penalties, and a system of compulsory labor. Many past studies have revealed that a firm's performance is increased due to social sustainability practices (e.g., Chowdhury & Shumon (2020); Masocha, 2019). Nevertheless, some studies conducted in the least developed or developing nations found a negative relationship between social sustainability and SME performance due to a lack of funding and capital investment, knowledge, skills, and awareness, as well as misperceptions held by SME owners and managers regarding their roles (Johnson & Schaltegger, 2016; Kot, 2018; Oduro et al., 2022).

On another note, many studies assert that even though industrialization and the advancement of production are regarded as indicators of development and economic growth, their effects are irreversibly destructive to nature and cause environmental pollution, which contributes to several major disasters like earthquakes, floods, and tsunamis and also creates of slow deaths and health risks like cancer, heart problems and strokes (Behjati, 2017). A report by Behjati (2017) and Shashi et al. (2018) mentioned that SMEs are responsible for roughly 64% to 70% of worldwide industrial pollution. Necessitating immediate attention to improve overall competitiveness is critical because just 0.4% of SMEs adhere to an environmental management system (Ndubisi et al., 2021; de Sousa Jabbour et al., 2020). Compromising the environment and societal well-being in the name of economic progress would have devastating effects on future generations (Ndubisi et al., 2021). With these concerns, the overall proactive strategy toward integrating environmental concerns and practices into a firm's strategic, tactical, and operational actions, known as an environmental sustainability orientation, should be fully implemented (Roxas & Coetzer, 2012). Thus, companies, including SMEs, were urged to uphold an environmental commitment, which includes eco-friendly packaging, energy efficiency, waste management, and water conservation (Sendawula et al., 2020).

Past research has shown that companies that embrace environmental sustainability practices often outperform their competitors and gain a competitive edge (Adomako et al., 2019; Jum'a et al., 2021; Khizar & Iqbal, 2020). This trend is further supported by recent studies conducted by Khizar et al. (2024), Qamruzzaman and Kler (2023), Sohu et al. (2024), and Yadegaridehkordi et al. (2023). However, a study by Ali et al. (2021) has presented a different perspective, suggesting a negative relationship between environmental sustainability and SME performance. According to the evidence in the literature, this study postulates the following hypotheses.

H5: Social sustainability has a positive effect on the performance of manufacturing SMEs.

H6: Environmental sustainability has a positive effect on the performance of manufacturing SMEs.

The relationship between sustainable orientation and SME's performance

According to Parente et al. (2018), a firm shows a sustainable orientation when it demonstrates a high commitment to conserving the natural environment to ensure its viability for future generations (Hall et al., 2010). Additionally, Jahanshahi et al. (2017) mentioned that sustainable orientation as the

underlying beliefs and attitudes towards social responsibility and environmental protection. Sustainability orientation is crucial for SMEs to perform better (Khizar & Iqbal, 2020). For instance, studies from Khizar et al. (2021) and D'agostini et al. (2017) have emphasized the positive impacts of sustainable orientation on firms' performance. Moreover, many other studies assert a positive relationship between sustainability practices and financial performance (Alshehhi et al., 2018; Masocha, 2019; Shashi et al., 2018; Sy, 2016). However, Abdulaziz-al-humaidan et al. (2021) mentioned that sustainable orientation has a negative effect on SME performance. Based on the abovementioned literature, this study postulates the following hypothesis.

H7: Sustainable orientation has a positive influence on the performance of manufacturing SMEs.

Figure 1 illustrates the conceptual framework developed for the present study. This framework comprises seven hypotheses. It suggests that innovativeness, proactiveness, and risk-taking (dimensions of entrepreneurial orientation), social and environmental sustainability (dimensions of sustainable orientation), were conceptualized as the first-order model. In contrast, entrepreneurial and sustainable orientations were denoted as the second-order model. All these variables represent independent constructs, while the performance of manufacturing SMEs serves as the dependent variable.

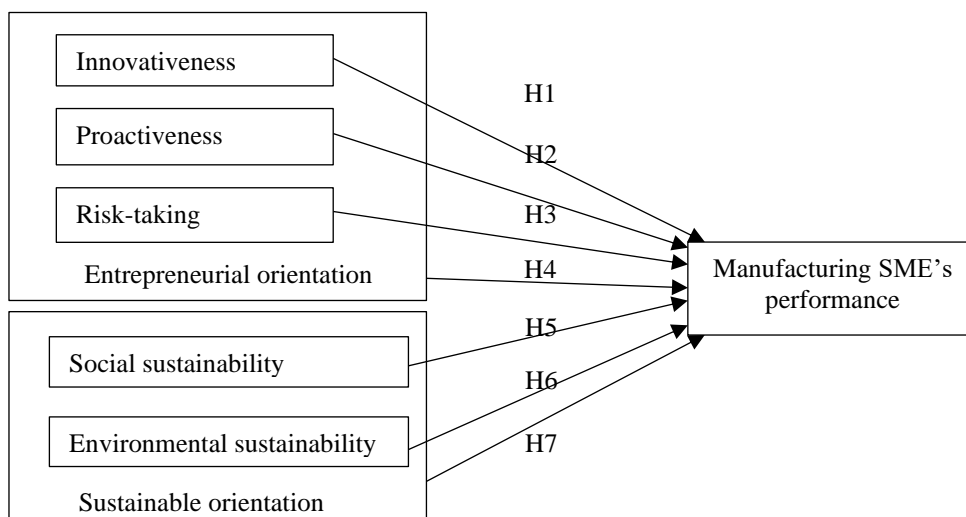


Figure 1. Conceptual framework

Research methodology

This study adopted a quantitative method and employed a stratified random sampling technique to select the respondents (middle manager, senior manager, and chief executive officer) from Jordan manufacturing SMEs in Abdullah II IBN Al-Hussein Industrial Estate / Sahab. A total of 409 respondents were approached via email to answer the survey question between September and October 2023. Twenty-seven emails failed to be delivered due to invalid email addresses, and in turn, this study obtained 287 completed questionnaires, yielding a 70.2% response rate. The results are above a proposed sample size 271 determined by Krejcie and Morgan (1970). To improve the validity and reliability of the questionnaire, this study used four expert opinions and 20 participants in pre-

test procedures. The suggestions obtained from the two procedures were used to refine the questionnaire.

The questionnaire used in this study consists of three sections. Sections One and Two outlined information about the SME entrepreneurial and sustainable orientations and manufacturing SME performance, and the Third Section asked for details about respondent characteristics. A five-point Likert scale was used from 1 (strongly disagree) to 5 (strongly agree). All items related to entrepreneurial and sustainable orientations were adapted from Zhang et al. (2014) and Martinez-Conesa et al. (2017), respectively. Additionally, firms' performance items were adapted from Santos and Brito (2012), Masocha (2019), Anwar and Shah (2020), Le and Ikram (2022), Khan et al. (2019), and Mansi (2021). The data was then analyzed using Partial Least Square (PLS), SmartPLS 4, version 4.0.9.8 (Ringle et al., 2022). The analyses were conducted in two stages. First, the measurement model was tested to ensure that the constructs had sufficient psychometric validity. Then, it was followed by an assessment of the structural model in which the hypotheses were tested. A bootstrap resampling procedure was also conducted to estimate the coefficients. Additionally, the measurement of the study constructs is only based on the judgment of single party in manufacturing industry which could result in common method bias. Thus, this study applied Harman's single-factor test to check the common method bias. This approach is recommended by Podsakoff et al. (2003) and Podsakoff et al. (2013). For this study, the percentage variance of a single factor was 43.70%, less than the threshold value. Hence, there is no common method bias that will affect the data or the results.

Findings and discussion

Findings

Table 1 displays the respondent's characteristics. The characteristics were assessed in the form of job positions, gender, age, level of education, year of experience, type of SME manufacturing, number of employees, and sales value they achieved. Most respondents are middle managers, with 46.7% of the total respondents. Meanwhile, most of the respondents are male (87.5%). The majority of respondents are from the age range of 30 to 49 years old. They accounted for 120 respondents from 30 to 39 years old and 119 respondents from 40 to 49 years old, accounting for 41.8% and 41.5% of the respondents, respectively. The majority possessed a bachelor's degree, accounting for 66.6% of the respondents. Most respondents have 6 to 10 years of experience in the companies. Moreover, most respondents are from the metal and electrical sectors, accounting for 23.3%, followed by rubber and plastic products at 19.9% and chemical products at 18.5%, respectively. Most SMEs have 5 -19 employees, followed by 105 companies having 20-99 total number of employees. Finally, most respondents have mentioned an annual sales value of 100,000 to less than 1 million JD.

Table 1. Respondent's characteristics.

Item	Sub-item	Frequency (N=287)	Percentage (%)
Job	Chief Executive Officer	78	27.2
	Senior Manager	75	26.1
	Middle Manager	134	46.7
Gender	Male	251	87.5
	Female	36	12.5
Age	18 - less than 29	11	3.8
	30 - less than 39	120	41.8
	40 - less than 49	119	41.5
	50 and above	37	12.9
Education	Secondary	3	1.0

	Bachelor's	191	66.6
	Master	84	29.3
	Doctoral	9	3.1
Experience	Less than 1 year	4	1.4
	1-5 year	62	21.6
	6-10 year	161	56.1
	More than 10 years	60	20.9
Manufacturing Type	Food products	26	9.1
	Pharmaceutical products	31	10.8
	Rubber and plastic products	57	19.9
	Metal and electrical products	67	23.3
	Garments and textile products	19	6.6
	Chemical products	53	18.5
	Paper and packaging	20	7.0
	Wood and furniture	9	3.1
	Construction	5	1.7
Number of Employees	1- 4 employees	1	0.3
	5 -19 employees	179	62.4
	20-99 employees	105	36.6
	100 and above	2	0.7
Sales Value	Less than 100,000 JD	102	35.5
	100,000 to less than 1 million JD	182	63.4
	1million to less than 3 million JD	1	0.3
	More than 3 million JD	2	0.7

Next, the descriptive analysis was used to measure central tendency between variables. These include the mean and standard deviation of those variables as shown in the Table 2. It shows that the mean value for SME performance is $M=4.535$; $SD=.354$. Moreover, the mean scores and standard deviation values of entrepreneurial orientation, innovativeness, proactiveness, risk taking, sustainable orientation, social sustainability, and environmental sustainability are ($M=4.431$; $SD=.450$), ($M=4.433$; $SD=.562$), ($M=4.484$; $SD=.400$), ($M=4.392$; $SD=.607$), ($M=4.463$; $SD=.438$), ($M=4.531$; $SD=.470$), and ($M=4.362$; $SD=.494$), respectively. The current findings are align with past studies (Khan et al., 2021; Uddin et al., 2022).

Table 2. Descriptive analysis of dependent and independent variables

Variables	Mean (M)	Standard deviation (SD)
Manufacturing SME performance	4.535	.354
Entrepreneurial orientation	4.431	.450
Innovativeness	4.433	.562
Proactiveness	4.484	.400
Risk-taking	4.392	.607
Sustainable orientation	4.463	.438
Social sustainability	4.531	.470
Environmental sustainability	4.362	.494

The following analysis is related to the test of the measurement model. The first test under the measurement model assesses the loading factors for individual items used in this study. In the present study, individual reflective indicator reliability is considered adequate when it has a factor loading of higher than .70 on its respective construct (Chin, 1998; Henseler et al., 2009). Generally speaking,

the higher the average loadings, the higher the reliability (Gerbing & Anderson, 1988). Generally, two separate analyses were carried out: the initial PLS run of the measurement model to determine indicator factor loadings and the second PLS run with the bootstrapping procedure of 5000 resamples to generate standard error and t-values for each indicator. Table 3 shows the loading of the indicator. It was discovered that the loading factor values for all items in the first-order model were above .70, ranging from .726 (PR1) to .981 (RT3). On top of that, the loading factor values for all items in the second-order model were recorded from .750 (ES5) to .885 (RT2). Based on the findings, this model explained that all items were retained because they had loading values greater than .70 and were considered significant (Hair et al., 2017; Ramayah et al., 2016).

Moreover, the reliability and convergent validity of the constructs measured in this study were assessed using the guidelines recommended by Henseler et al. (2009) by investigating Cronbach's alpha and composite reliability values. According to Nunnally and Berstein (1994), Cronbach's alpha coefficient value equal to .60 or above is adequate for constructing reliability. Results in Table 3 show that all constructs' alpha values were above .700. For instance, Cronbach's alpha values for independent variables in the first-order model are recorded at .958 (innovativeness), .791 (proactiveness), .984 (risk taking), .956 (social sustainability), .966 (environmental sustainability), entrepreneurial orientation, and sustainable orientation (second order) is at .941 and .961, respectively. At the same time, the Cronbach's alpha value of SME performance was .951. In short, all Cronbach's alpha values are above .70. Thus, no reliability issue was associated with this current study. This study also used composite reliability to check the reliability of the constructs. The results shown in Table 3 demonstrated that composite reliability values ranged from .866 (proactiveness) to .988 (risk-taking). According to Fornell and Larcker (1981), a composite reliability of .70 or greater is considered acceptable. Therefore, based on the results of composite reliability, as shown in Table 3, the constructs were considered reliable.

On another note, this study has measured the convergent validity using Average Variance Extracted (AVE) as suggested by Fornell and Larcker (1981) and Hair et al. (2017). The AVE measures the variance captured by the indicators relative to measurement error, and to be accepted, the value of AVE should be above .50 (Chin, 2010; Fornell & Larcker, 1981; Henseler et al., 2009). Table 3 parades AVE values for each construct used in this study. The results ranged from .515 (SME performance) to .942 (risk-taking), above the accepted AVE value. Thus, the results indicate that these indicators satisfied the requirement for the convergent validity of their respective constructs (Chin, 2010; Fornell & Larcker, 1981; Henseler et al., 2009). On top of that, the present study tested the variance inflation factors (VIF) to check the multicollinearity issue. Also, as illustrated in Table 3, the VIF values for all constructs were below 5, showing no multicollinearity issue in this study (Hair et al., 2021). The VIF values shown in Table 3 ranged from 1.598 (proactiveness) to 2.253 (innovativeness).

Table 3. Summary of loading factors, reliability, convergent validity, and variance inflation factor (First and second order)

Constructs/Items	Loading1	Loading2	CA	CR	AVE	VIF1	VIF2
Innovativeness			.958	.970	.889	2.253	
IN1	.929	.823					
IN2	.954	.843					
IN3	.942	.825					
IN4	.946	.843					
Proactiveness			.791	.866	.622	1.598	
PR1	.726	.760					
PR2	.858	.754					
PR3	.872	.770					
PR4	.775	.754					

Risk-taking			.984	.988	.942	1.938	
RT1	.957	.879					
RT2	.977	.885					
RT3	.981	.878					
RT4	.975	.884					
RT5	.961	.872					
Social sustainability			.956	.973	.879	2.221	
SS1	.804	.844					
SS2	.803	.847					
SS3	.865	.831					
SS4	.944	.813					
SS5	.935	.874					
SS6	.935	.858					
SS7	.936	.858					
SS8	.865	.857					
Environmental sustainability			.966	.964	.794	1.703	
ES1	.932	.814					
ES2	.927	.798					
ES3	.951	.786					
ES4	.963	.786					
ES5	.923	.750					
EO (Second order)			.941	.950	.602		1.522
SO (Second order)			.961	.965	.681		1.522
SME performance			.951	.956	.515		
SP1	.802						
SP2	.796						
SP3	.799						
SP4	.847						
SP5	.861						
SP6	.751						
SP7	.797						
SP8	.780						
SP9	.745						
SP10	.777						
SP11	.788						
SP12	.768						
SP13	.774						
SP14	.737						
SP15	.772						
SP16	.749						
SP17	.759						
SP18	.769						
SP19	.765						
SP20	.728						
SP21	.734						

Notes: IN = Innovativeness; PR = Proactiveness; RT = Risk-Taking; SP = SME Performance; SS = Social Sustainability; ES = Environmental Sustainability; EO = Entrepreneurial Orientation; SO = Sustainable Orientation; Loading1 = First order; Loading2 = Second order; CA = Cronbach's Alpha;

(CR) = Composite Reliability; AVE = Average Variance Extracted; VIF1 = Variance Inflation Factor First order; VIF2 = Variance Inflation Factor Second order

Additionally, this study used two approaches to measure discriminant validity, namely, the Fornell and Larcker criterion and the Heterotrait-Heteromethod Ratio Correlations (HTMT) criterion. These methods were suggested by Fornell and Larcker (1981) and Henseler et al. (2015), respectively. In the Fornell and Larcker criterion, this approach compares the square root of the AVE with the correlation of latent constructs (Hair et al., 2017). The square roots of AVE coefficients are presented in the correlation matrix along the diagonal, and the square root of each construct's AVE should have a greater value than the correlations with other latent constructs (Hair et al., 2017). The results of the Fornell-Larcker approach of this study are shown in Table 4 (first-order) and Table 5 (second-order). In brief, the square root of AVE values of each latent construct in different groups shown in Tables 4 and 5 at the diagonal matrix is larger than its correlation values, thus indicating that the measurement model is validated statistically. In addition, Table 6 and Table 7 show that the HTMT values for the two models have been recorded below .085. Therefore, it passed the HTMT.85 measures, as suggested by Clark and Watson (1995) and Kline (2011). Thus, it indicates that the discriminant validity has been established for the research constructs (Henseler et al., 2015). These results confirm that discriminant validity exists in this study.

Table 4. Fornell-Larcker criterion (first-order)

Constructs	ES	IN	PR	RT	SP	SS
Environmental Sustainability (ES)	.938					
Innovativeness (IN)	.361	.943				
Proactiveness (PR)	.359	.587	.789			
Risk-Taking (RT)	.345	.654	.448	.970		
Manufacturing SME Performance (SP)	.518	.530	.398	.562	.718	
Social Sustainability (SS)	.634	.541	.424	.550	.698	.891

Table 5. Fornell-Larcker criterion (second-order)

Constructs	EO	SP	SO
Entrepreneurial Orientation (EO)	.776		
Manufacturing SME Performance (SP)	.605	.718	
Sustainable Orientation (SO)	.586	.694	.825

Table 6. Heterotrait-Heteromethod Ratio Correlations (HTMT) (first-order)

Constructs	ES	IN	PR	RT	SP	SS
Environmental Sustainability (ES)						
Innovativeness (IN)	.376					
Proactiveness (PR)	.408	.672				
Risk-Taking (RT)	.354	.673	.502			
Manufacturing SME Performance (SP)	.543	.549	.453	.575		
Social Sustainability (SS)	.665	.562	.477	.562	.725	

Table 7. Heterotrait-Heteromethod Ratio Correlations (HTMT) (second-order)

Constructs	EO	SP	SO
Entrepreneurial Orientation (EO)			
Manufacturing SME Performance (SP)	.628		
Sustainable Orientation (SO)	.605	.710	

Moreover, structural model analyses consist of four main criteria, such as structural model path coefficients (β), coefficient of determination (R^2), effect size (f^2), and global fit (GoF) index were run to the data. As shown in Table 8, it was revealed that the coefficient values of three hypotheses were supported in the first-order model. Specifically, risk-taking, social responsibility, and environmental responsibility ($\beta = .198, t = 3.683, p = .000$; $\beta = .448, t = 6.935, p = .000$; $\beta = .122, t = 2.232, p = .026$) were found positive significant on SME performance. Therefore, Hypothesis 3, Hypothesis 5, and Hypothesis 6 are supported. However, two dimensions in entrepreneurial orientation, namely innovativeness, and proactiveness, were unable to positively impact the Jordanian manufacturing SME performance, with the results of ($\beta = .107, t = 1.787, p = .074$; $\beta = .012, t = .242, p = .809$). Thus, Hypothesis 1 and Hypothesis 2 are not supported. In the second-order model, the entrepreneurial and sustainable orientations constructs have a significant positive impact on SME performance ($\beta = .303, t = 5.187, p = .000$; $\beta = .516, t = 8.199, p = .000$). Hence, Hypothesis 4 and Hypothesis 7 are supported.

On top of that, model explanatory power in this study is assessed through the R^2 value. Table 8 parades the adjusted R^2 value for the endogenous variables in the first-order model as .541. Moreover, the adjusted R^2 in the second order model is recorded at .538, showing a small difference of adjusted R^2 with the first order model. Chin (1998) has outlined R^2 values for dependent variables based on a few cut-offs: .67(substantial), .33 (moderate) and .19 (weak). Thus, the adjusted R^2 values displayed in Table 8 can be described as moderate (Chin, 1998). In brief, the conceptual model of this study describes 54.1% (first model) and 53.8% (second model) variation in SME performance. The model also explains that by its antecedent constructs accounted for the 45.9% and 46.2% variation in manufacturing SME performance construct.

Furthermore, the effect on the path model can be assessed using the effect size (f^2). According to Cohen (1988), an f^2 of .02 is pondered as a small effect, .15 as a medium effect, and .35 as a large effect. The f^2 values shown in Table 7 indicate a small effect for the three constructs, namely, risk-taking, environmental sustainability, and entrepreneurial orientation, with the values of .045, .020, and .131, respectively. Moreover, f^2 value of social sustainability shows a moderate effect size (.201), and sustainable orientation has a large effect size (.382). Finally, the GoF index was calculated using the formula suggested by Wetzels et al. (2009). According to Wetzels et al. (2009), a GoF index of .10 is a small effect, .25 is a medium effect, and .36 is a large effect. In this study, the GoF index is .594 and exceeds the cut-off value of .36 in effect size. Thus, the study concludes that the research model has a better predictive power, and the findings of the study adequately validated the PLS model globally (Wetzels et al., 2009).

Table 8. Path coefficient and hypothesis testing

First-order							
Hypothesis	Relationship	Beta	t-value	P values	Results	Adjusted R ²	f ²
H1	IN -> SP	.107	1.787	.074	Not supported	.541	.011
H2	PR -> SP	.012	.242	.809	Not supported		.000
H3	RT -> SP	.198	3.683	.000	Supported		.045
H5	SS -> SP	.448	6.935	.000	Supported		.201
H6	ES -> SP	.122	2.232	.026	Supported		.020
Second-order							
Hypothesis	Relationship	Beta	t-value	P	Results	Adjusted R ²	f ²
H4	EO -> SP	.303	5.187	.000	Supported	.538	.131
H7	SO -> SP	.516	8.199	.000	Supported		.382

Notes: IN = Innovativeness; PR = Proactiveness; RT = Risk-Taking; SS = Social Sustainability; ES = Environmental sustainability; SP = SME Performance; EO = Entrepreneurial Orientation; SO = Sustainable Orientation

Discussion

The results illustrated in Table 8 have indicated that one aspect of entrepreneurial orientation, specifically risk-taking (Hypothesis 3), has been identified as positively and significantly associated with SME performance. This discovery, in line with prior research (Henschel & Lantzs, 2022; Hurtado-Palomino et al., 2024; Khan et al., 2024; Rafiki et al., 2023), suggests that managers in Jordanian manufacturing SMEs exhibit a propensity for risk-taking in their operational endeavors. This positive association with SME performance should reassure SME managers in Jordan about the potential benefits of risk-taking. Conversely, the dimensions of innovativeness and proactiveness within entrepreneurial orientation have failed to positively impact Jordanian manufacturing SME performance, leading to the rejection of Hypotheses 1 and 2. These findings are consistent with earlier studies that have highlighted the adverse effects of innovativeness and proactiveness on SME performance (Chin et al., 2016; Dai et al., 2014; Filser & Eggers, 2014; Shah & Ahmad, 2019; Okangi, 2019). The results emphasize the necessity for manufacturing SME managers in Jordan to develop proficiency in these skill sets to enhance their SME performance. Despite only one dimension of entrepreneurial orientation exhibiting a positive influence on SME performance, the overall construct of entrepreneurial orientation strongly links with the performance of Jordanian manufacturing SMEs, thereby supporting Hypothesis 4. These findings are consistent with prior research by Kusa et al. (2024), Khan et al. (2021), Kim et al. (2021), and Rafiki et al. (2023).

Furthermore, all dimensions of sustainable orientation have been shown to impact Jordanian manufacturing SMEs' performance positively. This finding supports Hypotheses 5 and 6 and is in line with previous studies (Chowdhury & Shumon, 2020; Khizar et al., 2024; Masocha, 2019; Qamruzzaman & Kler, 2023; Sohu et al., 2024; Yadegaridehkordi et al., 2023), indicating a strong commitment among most manufacturing SMEs in Jordan to uphold the principles of social and environmental sustainability in their daily business operations. Moreover, a significant positive relationship between sustainable orientation and SME performance was identified, thus supporting Hypothesis 7. These findings align with earlier studies by Khizar et al. (2021) and Khizar and Iqbal (2020). Regarding the theoretical framework employed in this study, it can be concluded that the triple bottom line concept is fully substantiated, a finding consistent with studies by Mokbel Al Koliby et al. (2024) and Yadegaridehkordi et al. (2023). On top of that, the entrepreneurial orientation theory is corroborated, aligning with previous works by Asad et al. (2023) and Susanto et al. (2023). Despite only one dimension of entrepreneurial orientation positively impacting SME performance, the overall construct of entrepreneurial orientation demonstrates a robust association with manufacturing SME performance. Importantly, these findings offer valuable insights into applying entrepreneurial orientation and triple-bottom-line theories within the proposed conceptual framework.

Conclusions

This research aimed to evaluate the effects of entrepreneurial and sustainable orientations and their respective dimensions on the performance of manufacturing SMEs in Jordan. The results validated that both entrepreneurial and sustainable orientations have a positive influence on the performance of these enterprises. Even though the sustainable orientation construct exhibits positive associations with the performance of manufacturing SMEs in Jordan, it is important to note that two dimensions of entrepreneurial orientation (innovativeness and proactiveness) are unable to demonstrate a positive influence on the performance of SMEs. These findings show the need for Jordanian manufacturing SME managers and decision-makers to fully implement entrepreneurial and sustainable orientations

as integral components of their operations. This could contribute to the acceleration of economic growth, enhancement of competitiveness, and improvement in growth and SME business performance in Jordan. Furthermore, it enhances environmental performance, elevates the organizational reputation, reduces waste and emissions, mitigates pollution, and conserves natural non-renewable resources. Importantly, adopting entrepreneurial and sustainable orientation practices fosters and reinforces the connections that SMEs maintain with their stakeholders, with this positive rapport subsequently enhancing the performance of these enterprises.

It is important to acknowledge that this study has its limitations. The study was conducted within the SME manufacturing sectors in Jordan, which may limit the generalizability of the results. Therefore, future research should replicate this study across various industries, strengthening the research framework. Additionally, the data collection process used a cross-sectional design and was limited to a single time point. Thus, future studies could employ longitudinal and qualitative methodologies to understand the study scope comprehensively. Finally, this study has only concentrated on identifying the roles of entrepreneurial and sustainable orientations and their dimensions. Therefore, other relevant constructs, like human resource orientation and mediating and moderating roles of firm performance, should be explored further.

References (use style Heading 1, or Alt + Ctrl + 1)

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