The Impact of SC Ambidexterity on the Environmental, Economic and Social Performance: Mediating Role of SC Sustainability in the Retail Market in the Kingdom of Saudi Arabia

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Abstract:

The food retail market in Saudi Arabia regarded as key pillar of the economy, this sector expected to grow rapidly by the increasing urbanization, increasing disposable income. The performance of these two fundamental factors might have a considerable impact in the development of international relations due to their strategic importance in global economic and political situations. Hence, this research designs a model to enhance the environmental, economic, and social performance in the food retail companies in the Saudi Arabia (KSA). The recent study aimed to examine the impact of the SC ambidexterity on the social, economic, and environmental performance with the mediating effect of the SC sustainability conceptualized as (social responsibility, environmental management, health, customer management and safety and risk management) in the food retail firms in KSA. The population of the recent study is the branches of the most important five food retail companies in KSA with 1821 branches. A total of 317 questionnaires selected of the food retail companies' branches using stratified random sampling method. The study used SEM with SMART-PLS 4 to analyze the data collected. The measurement model applied to analyze the reliability and reliability of the model, the path coefficient in the structural equation model used to test the study hypotheses. The results of this study supported most of the study's hypotheses, as it supported the positive impact of SC ambidexterity on social performance and the SC sustainability. It also supported the impact of SC sustainability on social, environmental, and economic performance, while the results of the study did not support the hypotheses related to the impact of SC ambidexterity on both environmental and economic performance. The study provides important implications to the managers of the KSA to enhance their environmental, economic and social performance by applying model of SC ambidexterity on the three types of pf performance with the important role of the SC sustainability as mediator in the study model.

Keywords:

SC ambidexterity, Environmental Performance, Economic Performance, Social Performance, SC sustainability, Food Retail Companies.

1. Introduction:

The retail sector in Saudi Arabia is experiencing a growing level of competition. Conventional stores are facing difficulties, particularly as online shopping becomes more prevalent and consumer habits and expectations gradually shift towards the internet. Retailers are being compelled to quickly extend their digital services and redirect their attention towards experience shopping. Consumers desire to combine the enjoyments of traditional shopping with the ease of modern technologies, and only those governments and businesses that are open to this transformation will succeed. Vision 2030 is significantly transforming the retail sector of the Kingdom. Saudi Arabia provides a youthful and dynamic demography, with 56% of the people being under the age of 35. They have gained knowledge about worldwide brands and fashion labels, as well as experienced dining and educational entertainment abroad. As several multinational retailers are arriving, they are being gratefully received and integrated into the retail industry (Rahman, 2022).

The market of the food retail in KSA is characterized by its dynamism and the significant number of participants. In the new era retail chains, as supermarkets and hypermarkets, have a dominant presence in the market. The most important hypermarket and supermarket chains in the country purchase goods from international sources and distribute it under their proprietary brand labels. Retailers in Saudi Arabia actively seek out novel products and frequently seek support from suppliers for the development and advertising of these products. Product marketing are essential to attract Saudi Arabian consumers. Rahman (2022) found that the retail industry in Saudi Arabia is projected to expand at a compound yearly growth rate of 4.5% from 2020 to 2025, reaching SAR 331.6 billion. The food retail sub-sector continues to hold the position of being the largest retail industry in the kingdom. The food and grocery retail market encompasses the retail sales of all food goods, including both packaged and unpackaged items, as well as beverages. In 2020, the food and grocery retail market in Saudi Arabia generated a total revenue of $54.0 billion. This represents a compound yearly growth rate of 2.9% between 2016 and 2020.In 2020, the food sector generated the highest profits in the market, amounting to $40.6 billion, which accounted for 75.2% of the

market's total worth. The researcher selects the Saudi Arabian food and grocery retail market as the topic of this study due to its significant relevance.

According to Malik and Bustami (2023), the performance of Saudi Arabia's food retail business is a crucial economic indicator. The most recent research will differentiate the Saudi Arabian food retail market's performance in three dimensions; environmental, economic and social. According to the triple bottom line (TBL) approach, a recent study will examine the performance of the Saudi Arabian retail market (Neri et al., 2021). Companies can evaluate their performance and success according to the triple bottom line paradigm, which takes into account economic, social, and environmental factors. According to Kaur, Azmi, and Majid (2022), when a corporation uses TBL for its reporting, it sets standards by which it should run its operations with an eye toward the big picture. While a company's annual financial report covers economic performance, environmental performance includes things like energy consumption, where that energy comes from, how it is used, and any pollutants that may be released. While considering social performance, it is important to think about how the company engages with the surrounding community. In order to achieve social sustainability, a business must promote diversity and non-discrimination, protect indigenous peoples' rights and quality of life, foster community involvement and good employee relations, pay employees a fair wage, and take care of their health and safety. Transparency, accountability, commitment to stakeholder involvement, integrated planning and operations, and multi-dimensional measurement and reporting are the features of TBL (Li, Fang & Song, 2019).

Ambidexterity is one of the dynamic capabilities that organizations can use to boost performance and gain a competitive advantage, according to the dynamic capability theory (van Lieshout et al., 2021). Research by Partanen et al. (2020) in the supply chain setting claims that SC ambidexterity boosts performance in all types of business organizations by ensuring the continued existence and expansion of the firm and enhancing its environmental, economic and social performance. The concept of "SC ambidexterity," defined as the organization's capacity to take advantage of its current strengths while simultaneously seeking out chances in the

social, environmental, and economic spheres (Li et al., 2023). SC ambidexterity is the SC's capacity to enter current markets by exploiting market opportunities and avoiding threats in an approach that strikes a balance between the organization's resources and market demands (socially, economically, and environmentally) (Khan et al., 2021).

Sustainability in the retail supply chain is a good predictor of performance in the retail supply chain (Sharma et al., 2021). Compared to Western nations, Arab nations have given less attention to supply chain sustainability (Hussain et al., 2016). Research on this topic is limited, especially in the retail business, and sustainability practices are still in their early stages compared to other sectors, such as manufacturing. In this area, the usual difficulty for retail businesses is making a profit while also being socially and environmentally responsible (Sharma et al., 2021). This study investigates the food retail sector in KSA and if the SC ambidexterity has any impact on the social, environmental and economic performance through the mediating role of SC sustainability. SC sustainability conceptualized in this study as (social responsibility, environmental management, customer management and health, safety and risk management) based on the study of (Hussain et al.,2016).

One of the most important capabilities suggested by dynamic capability theory to enhance a firm's social, environmental and economic performance is ambidexterity. The capacity of ambidexterity to mediate the impact of sustainability on social, environmental and economic performance in the retail market is enhanced by sustainability in SCs (social responsibility, environmental management, customer management and health, safety and risk management). To enhance efficiency, reduce waste and expenses, and demonstrate commitment to the environment, SC sustainability attempts to provide high-quality services and products throughout the supply chain. In service supply chains in particular, efficient management of suppliers and customers is crucial to the smooth flow of goods and services (Jamkhaneh et al., 2023).

In addition, there have been attempts to specifically implement the resource-based view theory (RBT) in the field of supply chain sustainability, supply chain

ambidexterity, and the firm's economic, environmental, and social performance. The knowledge, processes, and capabilities that enable a supply chain to accomplish environmental and social sustainability can be seen as organizational resources according to the RBT perspective (Lee & Rha, 2016; Gomes et al., 2020). SC sustainability improves the organization's reputation and image, which is a significant resource in the supply chain, and further improve the marketability of products and services (Chowdhury & Quaddus, 2021).

Based on the above the recent study will empirically examine the impact of the SC ambidexterity as one of the most important resources of the performance, and one of the most important dynamic capabilities based on the RBT and DCT theories on the social, environmental and economic performance based on the tribble bottom line approach, with the mediating role of the SC sustainability measured by (social responsibility, environmental management, customer management and health, safety and risk management) in the context of the food market retail in Saud Arabia. Based on the researcher knowledge there are no study yet examine this model in the context of the Saudi Arabia, this study will bridge this gap and enrich the literature of the supply chain management.

2. Literature Review:

2.1 SC Ambidexterity:

A dynamic capability of the firm, ambidexterity has added to the discussion in strategic management on how companies can improve their performance to gain and keep a competitive edge (Ferreira et al., 2022). At the organizational level, ambidexterity is defined as the capacity of the organization to handle contradictions and numerous conflicts when talking about the exploration of the firm's pursuit of experimentation, new alternatives, variability, flexibility, discovery, and innovation. When a company exploits its resources, it improves and uses its processes, competences, knowledge, paradigms, and technology to its advantage so that it can implement its strategies more effectively (March, 1991). An organization's capacity to be ambidextrous is fundamentally constrained by its asset positions and path

dependency (van Lieshout et al., 2021), which in turn cause separate company processes, such as the dynamic capability approach.

Ambidexterity is described in the context of the supply chain as the ability to both discover and capitalize on opportunities. To adapt to a changing environment, businesses need exploitation tactics like exploration, experimentation, and risk-taking in addition to their present strategy and operations. Finding an appropriate balance between the exploiting of the resources and exploring new ones is a common theme among researchers (Aslam et al., 2020). New studies show that companies can boost their performance by running exploration and exploitation simultaneously in the supply chain (Pertheban & Arokiasamy, 2019).

2.2 SC Sustainability:

Supply chains must be more efficient and lean in order to adapt to the new global reality that has evolved as a result of the recent economic crisis. Companies also need to successfully incorporate sustainability programs and efforts into their normal supply chain and logistics operations in response to tougher laws and rising community, legislative, and consumer pressures. So, practically every industry is placing a greater emphasis on sustainability in supply chain management (SC sustainability) by developing relationships with regulators, suppliers, and customers. The primary objective of SC sustainability is to increase efficiency, decrease costs and waste, and be considerate of the environment all along the supply chain so that customers receive high-quality goods and services. In service supply chains in particular, the uninterrupted flow of supplies and services depends on effective customer and supplier management.

The recent study conceptualized the SC sustainability based on Hussain et al. (2016) to four sustainability dimensions of the supply chain (social responsibility, environmental management health, customer management and safety and risk management). Previous literature supports these dimensions of supply chain sustainability as (Srivastava, 2007; Seuring & Müller, 2008; Mollenkopf et al., 2010; Gold et al., 2010; Jamkhaneh et al.,2023). Environmental management has been highlighted as an important metric in numerous of these analyses of sustainable

supply chain activities. Social responsibility is the second crucial variable for SC sustainability. Improving supply chain social standards is becoming increasingly common in recent years (Carter & Jennings, 2002; Jedynak, 2023). A rising amount of focus is being directed into the areas of risk, health, and safety management in SC sustainability research (e.g., Kleindorfer & Saad, 2005; Mardani et al., 2020). A well-planned risk-oriented supply chain management can position firms to provide long-term advantages to all value chain stakeholders that are both sustainable and reliable, according to the literature. Lastly, according to Chan et al. (2012), supply chains must emphasize customer service in order to attract in prospective customers and make the most of chances to satisfy current consumers.

2.3 Environmental, Economic and Social Performance:

Companies' fundamental objective is to improve the profitability and wealth of their shareholders, so traditionally, financial indicators have been utilized for assessing their performance. However, based in triple-bottom-line approaches TBL the recent study measures the performance with environmental, economic and social Performance (Nadae et al.,2019; Taliento et al.,2019).

Zhu et al. (2007) define environmental performance as an organization's capacity for reducing the negative effects on the environment, including pollution, solid waste, the use of hazardous products, and accidents. Environmental performance measures how well companies use their financial and non-financial resources to reduce the negative effects of their operations on the environment. This includes lowering emissions, consumption of harmful materials, and environmental accidents, as well as conserving energy and other resources. This, in turn, ensures environmental sustainability. According to Çankaya and Sezen (2019), environmental performance is typically evaluated by eliminating down on material consumption and energy, lowering pollution levels in the air and water, reducing waste and the use of hazardous and polluting materials, increasing the rate of renewable energy consumption, and decreasing the risk of environmental accidents.

An organization's social performance can be defined as its public image improved via the implementation of policies and procedures that protect both society and its

workers from harm, particularly in the areas of the environment. Also included in social performance are the following areas of pay and benefits, management quality, equal opportunity policy, child health and safety freedom of association, forced labor, human rights and services and training and education (Kitsis & Chen, 2020; Sharma et al., 2021). A company's economic performance can be defined as the degree to which its financial and non-financial resources, both tangible and intangible, contribute to the achievement of its financial objectives. Since making a profit is the primary motivation for starting a business, measuring economic performance is critical.

2.6. Hypothesis Development:

The linkages between SC ambidexterity, SC sustainability, environmental performance, social performance and economic performance is discussed in this section. Furthermore, the hypotheses to be tested in the context of food retail market in KSA will be formulated next. The model of the study shown in Figure 1.

2.7.1 SC Ambidexterity and (Environmental, Economic and Social) Performance:

SC Ambidexterity is defined as the ability to explore new possibilities and develop novel solutions; exploitation in this context refers to the processes that enhance existing resources and skills in order to boost supply chain performance, while exploration in this context denotes the practices that generate new ideas for supply chain solutions. Supply chain exploitation entails taking risks, coming up with novel solutions, and capitalizing on supply chain opportunities, whereas supply chain exploration entails cutting operational redundancies (Khan et al., 2021).

Researchers have now looked at the importance of SC ambidexterity in relation to the supply chain setting. Their research shows that ambidextrous supply chains allow members to adapt to changing market conditions by investigating unanticipated consumer demands. This has the potential to improve the company's performance while decreasing supply chain problems (Bui et al., 2021).

Based on the study of Aslam et al. (2020) the SC ambidexterity is one of the firms' sources of the competitive advantage and essential organization's dynamic capability. The DCT approach linked the SC ambidexterity with the organizational

performance. The exploitation and exploration aspects of the SC ambidexterity can enhance the economic performance by innovation of the new products and services, reduce the cost and enhance the market share of the organization's (Alamayreh et al., 2019). Moreover, study of Partanen et al. (2020) asserted that the SC ambidexterity can provide solutions to the environmental issues and provide social corporate responsibility, which I regard enhance the environmental and social performance. Based on the above discussion the study formulates the following hypotheses in the context of the food retail in KSA.

H1: There is direct and positive impact of the SC Ambidexterity on the Environmental Performance

H2: There is direct and positive impact of the SC Ambidexterity on the Economic Performance

H3: There is direct and positive impact of the SC Ambidexterity on the Social Performance

2.7.2 SC Ambidexterity and SC sustainability:

There has been a lot of interest in SC ambidexterity from the organizational theory field (Wamba et al., 2020). The idea is that firms can improve their performance by making use of their current resources more effectively and by creating new SC competencies and sustainability (Partanen et al., al., 2020; Aoki & Wilhelm, 2017). For example, according to Kristal et al. (2010), SC ambidexterity should revolve around techniques that utilize current or new knowledge in implementation. The idea aids businesses in becoming more sustainable and productive, according to Baliga et al. (2019). According to Aslam et al. (2018), companies that exhibit SC ambidexterity are nimble enough to adapt to sudden shifts in the market and incredibly efficient when looking at the big picture. Partanen et al. (2020) state that organizations with ambidexterity use their current skills and strategic information flow to find new opportunities in all areas of society, economy, and the environment. Research has shown that ambidexterity is associated with long-term viability and competitive advantage for businesses. The following hypothesis was developed in a

recent study to investigate the effect of SC ambidexterity on SC sustainability in KSA, based on this justification.

H4: There is direct and positive impact of the SC Ambidexterity on the SC sustainability.

2.7.3 SC sustainability and (Environmental, Economic and Social) Performance:

This is a new field of sustainability studies, hence there isn't an enormous amount of literature or studies on the subject just yet. Sustainable supply chain approaches and their impact on operational and environmental performance were one area studied by Hasan (2013). Case studies in various manufacturing and service companies helped him validate the study's structure. Both service and manufacturing companies' environmental performance can be greatly improved by the implementation of sustainable supply chain methods, according to the study.

Although there have been advancements in understanding the link between supply chain sustainability and economic performance, only a limited number of studies have focused on measuring social and environmental performance. Enhancing social and environmental performance can potentially provide an advantage in attaining economic performance. Social institutions and environmental resources have a crucial role in shaping and regulating the internal and external supply chains inside organizations, which are integral components of economic systems. The literature has placed particular emphasis on social performance, which refers to the attainment of environmental and economic sustainability goals (Beske-Janssen et al., 2015; da Silva et al., 2023).

According to Gölgeci and Kuivalainen (2020), one of the most crucial components of SC sustainability is the relational component of the social responsibility. This aspect encourages the sharing and exchanging of external resources derived from social relationships under the alignment contingency, which can help the firm recover faster from shocks in the event of unexpected events or disruptions. The purpose of this current study is to address a knowledge vacuum by investigating the

impact of social sustainability on environmental, economic, and social performance, all of which are important metrics for measuring a company's success.

The reduction of pollutants leads to enhanced reliability, quality, and cost performance, which is connected to the environmental aspect of SC sustainability. The cost savings that a corporation achieves through environmental performance are directly proportional to its level of innovation (Yusuf et al., 2019). Specifically, in order to minimize the environmental implications of SC while still achieving the triple-bottom line objectives, it is recommended that effective green and product development be pursued (Sharma et al., 2021). In the long run, this should help the environment and the bottom line (Singh & Srivastava, 2022).

The application of sustainability practices, on the other hand, has a beneficial effect on businesses' profitability and performance (Esfahbodi & Zhang, 2020). The difficulty comes from understanding out the best way to combine these TBL in order to create special skills that boost performance and provide a lasting advantage over the competition (Yusuf et al., 2019). The integration's claimed economic and competitive benefits raise the question: are they truly worth the many unidentified risks that come with the alternating processes that cause varying outcomes among SC (Munir et al., 2020). Based on this discussion the recent study formulates the following hypotheses to examine the impact of the SC sustainability on the TBL approach of performance.

H5: There is direct and positive impact of the SC sustainability on the Environmental Performance

H6: There is direct and positive impact of the SC sustainability on the Economic Performance

H7: There is direct and positive impact of the SC sustainability on the Social Performance.

2.7.4 Mediating Role of the SC Sustainability:

Organizations today try to improve their business environments while also becoming more competitive by implementing new management concepts such as

ambidexterity, social responsibility, environmental management, control and evaluation of sustainability, and legal obligations (Khan et al., 2021). These concepts also balance performance with environmental and social concerns. Organizations in the supply chain face the dual challenge of improving their performance through the exploration and exploitation of environmental resources and social elements, as well as by seizing new opportunities (Bui et al., 2021).

The research conducted by Kristal et al. (2010) examined 174 American companies. Researchers looked at their ambidexterity in the supply chain from an exploratory and exploitative perspective. The study found that ambidexterity is positively correlated with competitive abilities and that sustainability is an indicator of performance evaluations. In the field of supply chain management, research by Sofiyabadi et al. (2020) states that the links between ambidexterity, open innovation, knowledge management, and sustainable balanced performance have not been thoroughly examined. The most current research will investigate this claim by looking at how SC sustainability moderates the effect of SC ambidexterity on societal, economic, and environmental outcomes. The following four theories are being tested in this investigation:

H8: SC sustainability mediate SC Ambidexterity and the Environmental performance relationship.

H9: SC sustainability mediate SC Ambidexterity and the Economic performance relationship

H10: SC sustainability mediate SC Ambidexterity and the Social performance relationship

2.6 Theoretical Framework:

The theoretical model of the recent study drawn based on three theories; The Resource-Based View (RBT) suggests that SC ambidexterity can enhance organization performance environmentally socially and economically, also the dynamic capability theory support this relationship as SC Ambidexterity can be dynamic capability in order to achieve performance as discussed in many studies as (Lee & Rha, 2016; Khan et al.,2021). The TBL applied in this study performance

(Singh & Srivastava, 2022). The model of the study examines the SC Ambidexterity as independent variable, the dependent variables are the environmental performance, economic performance and social performance, also SC sustainability measured by (social responsibility, environmental management, customer management and health, safety and risk management) will examine as mediator in the impact of the SC ambidexterity on the environmental performance, economic performance and social performance   The suggested model, based on (Hussain et al., 2016; Neri et al.,2021; van Lieshout et al.,2021; Li et al.,2023; Kitsis & Chen, 2020) will be empirically evaluated in Saudi Arabian food retail market Figure 1 theoretical framework
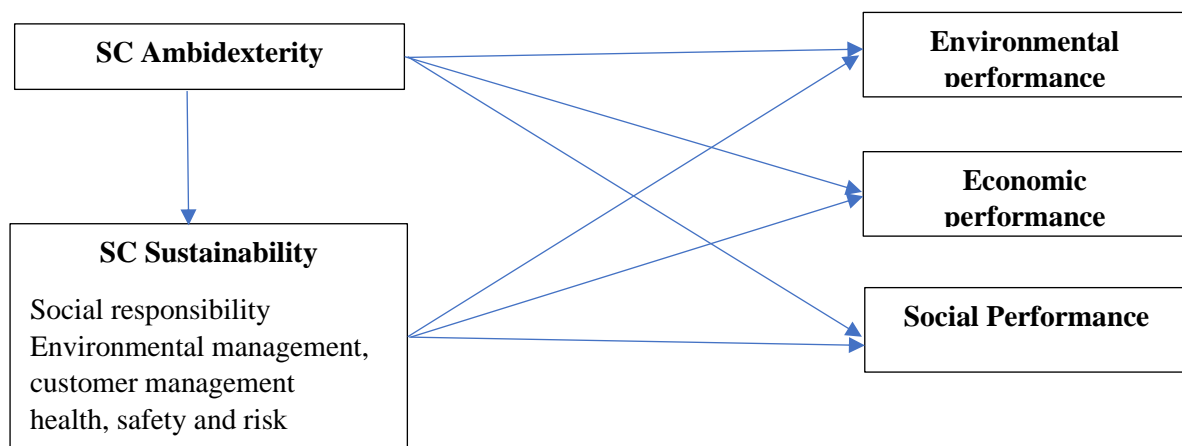
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┌─────────────────────┐                          ┌─────────────────────┐
│  SC Ambidexterity   │─────────────────────────▶│   Environmental     │
└─────────────────────┘                          │   performance       │
          │                                       └─────────────────────┘
          │
          ▼                                       ┌─────────────────────┐
┌─────────────────────┐                          │     Economic        │
│  SC Sustainability  │                          │   performance       │
│                     │                          └─────────────────────┘
│ Social responsibility                          
│ Environmental management,                      ┌─────────────────────┐
│ customer management                            │ Social Performance  │
│ health, safety and risk                        └─────────────────────┘
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Figure 1: Theoretical model of the study

3. Research Methodology:

3.1 Design and Procedures:

The research design in the recent study is quantitative approach, the hypotheses formulated to examine the impact of the SC ambidexterity on the environmental performance, social performance and economic performance and the mediating role of the SC sustainability in this relationship. The data collection process from the managers in food retail market in KSA managers started at September 27, 2023, to November 15, 2023. Secondary data from previous studies that had already explored the same topics. The programmes used for data analysis were SPSS and SMART-PLS for the purposes of descriptive statistics and cause-effect in order to attain the study objectives.

3.2 Population and sample:

There are many KSA retailers who have developed a brand name. The population of the study will be the retailers who have made the greatest impact on the Kingdom's retail industry, based on the Saudi Arabia Food Retail Market report published by Technavio (2022), there are five main retail companies have significant impact on the Saudi Arabia retail market. The first one is Carrefour; Carrefour was established in 2004, and by 2015, it had more than twenty-one branches in three main cities of Saudi Arabia. The second one is NESTO; NESTO was established in the year of 2004, UAE, which currently has 1,255 hypermarkets in Saudi Arabia. Another choice is Othaim Markets, which was established in 1980 and has its headquarters in Riyadh, Saudi Arabia. The 268 retail locations spread around Saudi Arabia are part of this joint stock company's food and homecare product wholesale and retail operations. The fourth one is Panda United which is one of the essential producer and retailer of food sector in Saudi Arabia with Panda United with 187 branches in Saudi Arabia. The fifth one is Tamimi Markets, which began in 1979 with the opening of a single supermarket in Al Khobar selling food and household goods. Today, the firm has more than 90 locations, the exact number of which can be found on the websites of the individual companies.

Stratified random sampling employed as sampling technique in the recent study, to cover all branches of the main retail companies in Saudi Arabia, table1 will explain the stratified random sampling to choose the respondents of the study.

Table 1: stratified random sampling of the study

Company	No. Branches	The portion	No. in the sample
Carrefour	21	21*0.174	4
NESTO	1255	1255*0.174	218
Othaim Markets	268	268*0.174	47
Panda United	187	187*0.174	33
Tamimi Markets	90	90*0.174	16
Total	1821		317

The whole number of branches (1821) and the sample size for (1821) population is (317) based on the (Krejci & Morgan 1970). Each company have the portion of

(317/1821= 0.174) from the sample will be distributed randomly to the branches. Each branch will be represented by the branch manager as the unit of study is organisation.

3.3 Measurement:

The measures of SC ambidexterity the independent variable of the recent study adapted from previous literature of (Khan et al.,2022 and study of Ojha et al., (2018) by five items. The mediating variable SC sustainability conceptualized based on the study of Hussain et al. (2016) to four sub-constructs; environmental management measured by five items, social responsibility measured by five items, health, safety and risk management measured by five items and customer management measured by six items, all items of the SC sustainability adapted from the study of (Hussain et al., 2016). Moreover, the dependent variables of the study are; the economic performance measured by three items adapted from the study of Kitsis and Chen, (2020), the environmental performance measured by three items adapted from the studies of (Wang & Dai, 2018; Zhu et al., 2005; Daily et al., 2007) and social performance measured by seven items adapted from the study of (Wang & Dai, 2018; Kassinis & Soteriou, 2003; Gimenez et al., 2012).The items of the study variables included in Appendix A at the end of the study. The questionnaire used five Likert scale to rate the responses of the respondents from strongly agree to strongly disagree based on the study of (Sekaran & Bougie 2016).

3.4 Data Analysis:

The next is data analysis will be conducted by with SPSS and SMART-PLS path modeling. Measurement model conducted for the reliability test internal consistency, and the validity test; discriminant validity and convergent validity. All results will be displayed in the following sections. Moreover, the structural model analysis conducted to establish the causal impact between constructs to test the study hypotheses.

3.4.1 The Structural Equation Modelling (SEM):

The Structural Equation Modelling (SEM) is technique used to evaluate the study model by path modelling to analyze the data in based two-step approach. The first

stage conducted to evaluate the measurement model, by checking the items' reliability and validity, and the second stage namely the structural model, which conducted to test the significance of the path coefficients and calculating the R2 and F2 value of the study model.

3.4.2 Measurement Model Evaluation:

To determine the reliability of the individual items, and the internal consistency reliability of the constructs study measurement model evaluated. Another output of the measurement model is the discriminant validity, content validity and convergent validity. All acceptable level of the measurement model reliability and validity illustrated in the study of Hair, et al., (2014). The study measurement model displayed in figure 1.
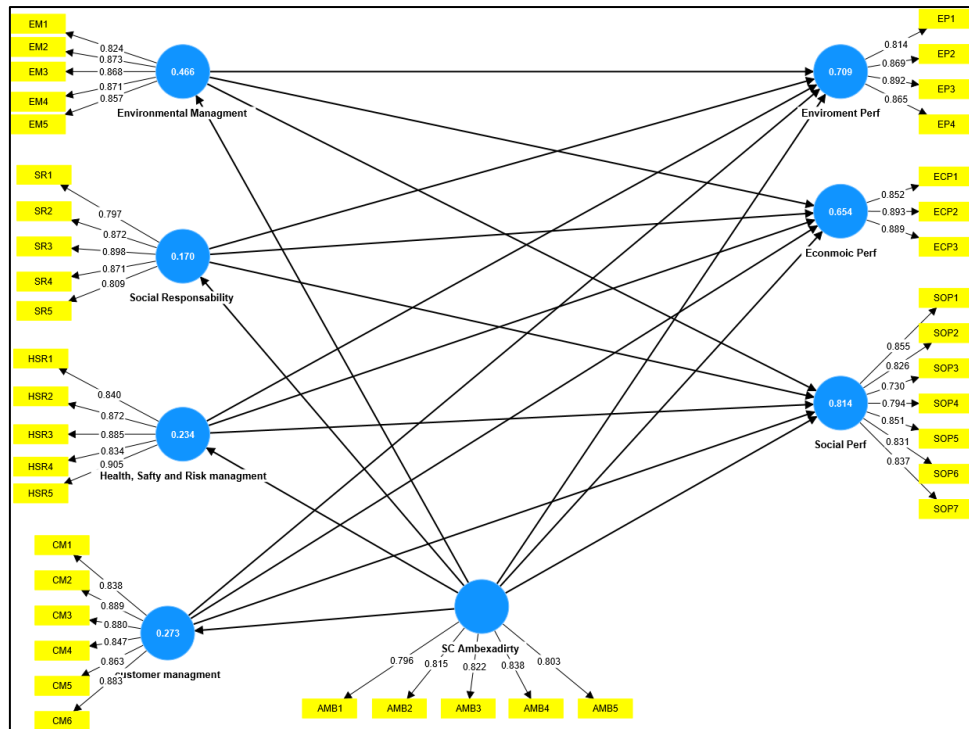

Figure 2: The measurement model of the study

The items outer loadings of the latent constructs are shown in figure2, the results shows that all items have loadings satisfied the level of 0.40 suggested by (Hair et al., 2014). Further, the results of the internal consistency reliability, Cronbach's alpha, and composite reliability which are used to quantify the internal consistency and

reliability of a scale, particularly one with numerous components are displayed in table 2 as part of the assessment of the measurement model.

Table 2: Assessment for Measurement Model

Construct	Sub Construct	Items (Indicators)	Indicators Reliability loading >0.70	Internal consistency CR >0.70	Convergent validity AVE >0.50	Reliability Cronbach's Alpha >0.70
SC Ambidexterity		AMB1	0.796	0.908	0.664	0.874
		AMB2	0.815			
		AMB3	0.822			
		AMB4	0.838			
		AMB5	0.803			
SC sustainability	Environmental management	EM1	0.824	0.934	0.738	0.911
		EM2	0.873			
		EM3	0.868			
		EM4	0.871			
		EM5	0.857			
	Social Responsibility	SR1	0.797	0.929	0.723	0.903
		SR2	0.872			
		SR3	0.898			
		SR4	0.871			
		SR5	0.809			
	Health, Safety and Risk Management	HSR1	0.840	0.938	0.753	0.918
		HSR2	0.872			
		HSR3	0.885			
		HSR4	0.834			
		HSR5	0.905			
	Customer Management	CM1	0.838	0.948	0.751	0.934
		CM2	0.889			
		CM3	0.880			
		CM4	0.847			
		CM5	0.863			
		CM6	0.883			
Environmental performance		EP1	0.814	0.919	0.74	0.883
		EP2	0.869			
		EP3	0.892			
		EP4	0.865			
Economic performance		ECP1	0.852	0.91	0.771	0.852
		ECP2	0.893			
		ECP3	0.889			
Social Performance		SOP1	0.855	0.934	0.67	0.918
		SOP2	0.826			
		SOP3	0.730			
		SOP4	0.794			
		SOP5	0.851			
		SOP6	0.831			
		SOP7	0.837			

Table 2 show that the composite reliability CR of all constructs exceeds the acceptable level 0.70 of Hair, et al. (2014), internal consistency of reliability (CR)

applied to evaluate the internal consistency of reliability, the result of CR indicates good internal consistency of the all constructs. Moreover, the study's convergent validity as assessed by the average variance extracted (AVE), the threshold for which AVE is considered satisfactory should exceed the values of 0.5 as suggested by (Hair, et al., 2014). The Average Variance Extracted (AVE) coefficients in Table2 show convergent validity are acceptable for all constructs in this study.

In addition to reliability, table 3 display that the of the constructs. Discriminant validity indicates that a measurement model is free from redundant items in each construct, by empirical standards, it is actually distinct from other constructs. In SMART-PLS discriminant validity measured by Fornell and Larcker method. The discriminating validity assessment proved the study measurements' validity. In the Fornell-Larcker approach the constructs correlation utilizing to test measurement model discriminant validity is shown in Table 3

Table3: Fornell-Larcker approach

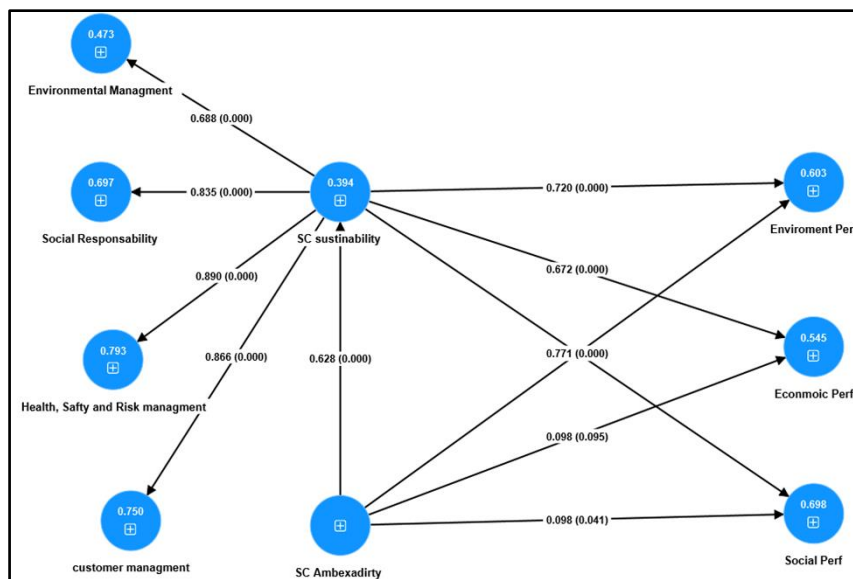|	Economic performance	Environmental performance	Environmental Management	Health, Safety and Risk management	SC Ambidexterity	Social performance	Social Responsibility	customer management
Economic performance	0.878							
Environmental performance	0.778	0.86						
Environmental Management	0.501	0.523	0.859					
Health, Safety and Risk management	0.543	0.576	0.518	0.868				
SC Ambidexterity	0.52	0.538	0.682	0.484	0.815			
Social performance	0.74	0.762	0.512	0.646	0.581	0.819		
Social Responsibility	0.518	0.56	0.398	0.766	0.412	0.617	0.85	
customer management	0.791	0.823	0.457	0.66	0.522	0.887	0.61	0.867

Based on the study of Fornell and Bookstein (1982) if the calculated of AVE square root exceeds the correlation between the factors accounting for each pair, the discriminate validity occurs. This is displayed in bold in table 3. In this study's correlation matrix, the value should exceed the other off-diagonal entries in both the

rows and columns. These results indicate that the requirements for the measures' ability to differentiate between different constructs have been satisfied.

3.4.3 Structural Model Findings:

The value and significance of structural parameter estimates, displayed as one-headed arrows in the path diagrams, are not considered in the evaluation of structural parameters. This assessment concludes by validating the precision of the structural model, which is determined by examining the hypothesized links between the identified and assessed variables. The Partial Least Squares Structural Equation Modeling (PLS-SEM) technique employed in this study. Also, bootstrapping with 5000 replicates to assess the structural model and validate the hypotheses. The tests conducted in this study included the inner model R2, F2, and p-value tests (Hair et al., 2014). Figure 3 displays the internal structure of the model, including the p-value and beta coefficient of construct correlations.

Figure3: The Structural Model path coefficient and P value of the study

The coefficient determination R^2 for each endogenous variable of the study shown in table 4, figure 2 show the results the R^2, which was show good value for all endogenous variables.

Table 4: R^2 of the Endogenous Variables

Variables Relation	R^2	R^2 Adjusted
Environment performance	0.603	0.601
Economic Performance	0.545	0.542
Social Performance	0.698	0.697
SC Sustainability	0.394	0.392

As shown above in table 3 the SC Sustainability and SC Sustainability explain 60.1% of the variation of environment performance, and SC Sustainability and SC Sustainability explain 54.2% of the variation of economic performance, also SC Sustainability and SC Sustainability explain 69.7% of the variation of social performance among food retail companies in KSA.

Another results can be extracted from the structural model is the effect size F^2. The effect size F^2 is an approach that can be used to assess the significance of a predictor's influence on an endogenous variable (Cohen, 1988). The F^2 statistic is used to assess the significance of an exogenous construct's contribution to an endogenous one. Based on the study of Cohen (1988) the value of the effect sizes the value of F^2 0.35, 0.15 and 0.02 are regarded high, medium and small effect sizes respectively. Table 5 presents the assessments of coefficient of effect size F^2.

Table 5: Effect Size of the Exogenous Constructs

Construct Relation	F^2	Effect Size
SC Ambidexterity -> Environmental Performance	0.007	Small
SC Ambidexterity -> Economical Performance	0.01	Small
SC Ambidexterity -> Social Performance	0.013	Small
SC Ambidexterity -> SC sustainability	0.898	High
SC sustainability -> Environmental Performance	1.161	High
SC sustainability -> Economical Performance	0.897	High
SC sustainability -> Social Performance	1.778	High

As shown in table 5, the effect size of the exogenous constructs on the endogenous were ranged between small, medium and high based on the study of (Cohen, 1988).

3.4.4 Hypotheses Testing (Path Coefficient):

This section discusses the findings of the path coefficient which used to examine the hypotheses of the study. The finding of direct (H1 to H7), are presented in figure 2

also in table 6. The numbers in bracket represent the p-value in, and the values next to the bracket represent the co-efficient value (beta value).

Table 6: Structural Model Assessment for the direct effect hypotheses

		Path coefficient Beta	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
H1	SC Ambidexterity -> Environmental Performance	0.086	0.053	1.628	0.104	Not Supported
H2	SC Ambidexterity -> Economical Performance	0.098	0.059	1.67	0.095	Not Supported
H3	SC Ambidexterity -> Social Performance	0.098	0.048	2.047	0.041	Supported
H4	SC Ambidexterity -> SC sustainability	0.628	0.038	16.645	0.000	Supported
H5	SC sustainability -> Environmental Performance	0.72	0.048	14.847	0.000	Supported
H6	SC sustainability -> Economical Performance	0.672	0.056	12.063	0.000	Supported
H7	SC sustainability -> Social Performance	0.771	0.045	17.244	0.000	Supported

Notes: Significant level at ** = p < 0.05,

Table 6 shows the results of the direct effect hypotheses; the result show that the first hypothesis H1 which is formulated to examine the impact of the SC Ambidexterity on the environmental performance and the second hypothesis H2 which is formulated to examine the impact of the SC ambidexterity on the economic performance weren't supported. While all other direct effect hypotheses were supported, the supported hypotheses H3 which is related to the impact of the SC ambidexterity on the social performance, H4, related to the impact of the SC ambidexterity on the SC sustainability, H5 which is related to the impact of the SC sustainability on the environmental performance, H6 which is related to the impact of the SC sustainability on the economic performance and H7 which is related to the impact of the SC sustainability on the social performance within food retail companies in KSA.

3.4.5 Indirect effects (Mediation Effect) of the SC Sustainability:

The study examines the mediating role of the SC sustainability on the impact of the SC ambidexterity environmental, economic and social performance as dependent

variables. Table 7 shows the mediation bootstrapping output using Preacher & Hayes (2008) method.

Table 7: meditation effect of SC sustainability

No.	Hypothesis	Indirect effect (β)	p-value	Confidence Interval (BC)		Decision
				LL	UL	
H8	SC Ambidexterity ->SC sustainability -> Environmental Performance	0.452	0.453	0.381	0.53	Supported
H9	SC Ambidexterity ->SC sustainability -> Economic Performance	0.422	0.423	0.344	0.506	Supported
H10	SC Ambidexterity ->SC sustainability -> social Performance	0.484	0.484	0.417	0.556	Supported

The result of the study shows that all mediating hypotheses were supported. The result of the study support H8 which related to the mediation impact of the SC sustainability in the impact of the SC ambidexterity and environmental, H9 which related to the mediation impact of the SC sustainability in the impact of the SC ambidexterity and economic and H10 which related to the mediation impact of the SC sustainability in the impact of the SC ambidexterity and social within food retail companies in KSA.

4. Discussion and Conclusion:

The majority of the assumptions in the model that are related to the mediating function of SC sustainability on the influence of SC ambidexterity on the social, environmental, and economic performance of food retail enterprises in KSA are supported by the findings of the study when it comes to the relationships between the two. The findings of the study do not provide evidence to support the hypothesis that SC ambidexterity has a direct impact on the economic performance and environmental performance of food retail firms in the Kingdom of Saudi Arabia. This result can be explained by the necessity of this industry to have sustainability in the supply chain in order to improve the SC ambidexterity towards the environmental and economic performance. This can be accomplished by improving health safety, risk management, and environmental management in order for the SC ambidexterity to actually have an effect on the environmental and economic performance.

The result of the study was confirmed by the study of Li et al. (2023) and Hussain et al. (2016). The result of the previous studies in the literature, such as the study of Hahn et al. (2016) and Zhao et al. (2021), confirms the study result of the significant direct impact of SC ambidexterity on social performance. In addition, the result of the significant impact of SC sustainability on environmental, economic, and social performance is confirmed by many studies in the literature (Pham, H., & Kim, S. Y., 2019; Chowdhury et al., 2021; Neri et al., 2021).

The findings of the study conducted by Bui et al. (2021) provide further evidence that the impact of SC ambidexterity and SC sustainability is significant. There are a number of studies that support the role of SC sustainability in the context of SC ambidexterity and environmental, economic, and social performance (Khan et al., 2021; Li et al., 2023; Malak-Rawlikowska et al., 2019). These studies are related to the role that SC sustainability plays as a mediator in the relationship between SC ambidexterity and environmental, economic, and social performance.

The relationship between SC ambidexterity, SC sustainability, environmental, economic, and social performance is supported by a variety of theories, including RBV theory, TBL approach, and DCV, as demonstrated by several research that have been published in the academic literature. Some examples of these studies are those conducted by Joshi and Sharma (2022) and Li et al. (2023). A new industry and a new setting, namely the food retail enterprises in Saudi Arabia, are the subject of the most current study, which gives yet another corroboration of these hypotheses.

5. Implications:

Study of Rahman (2022) With regard to the growth drivers that sustain KSA retailing, he asserted that A number of factors are contributing to the rapid expansion of retail marketing in Saudi Arabia, including the country's expanding population, rising demand for retail goods, the rise of e-commerce, the emergence of supermarkets and malls as places for shopping and entertainment, religious tourism, new fashions, and available retail space. All these factors enhance the competitiveness in this sector. For organizations to achieve a competitive advantage,

they should enhance their performance. This study provided policymakers and decision-makers in food retail in the KSA with an essential tool to enhance their environmental, economic, and social performance by enhancing their supply chain ambidexterity and supply chain sustainability to enhance their performance and then compete strongly in the highly dynamic business environment.

New research provides useful insight for decision-makers by identifying factors that boost supply chain ambidexterity and performance, which in turn boost business performance. Policy recommendations based on the study's findings can be utilized to encourage the development of effective models of SC collaboration, cooperation, ambidexterity, performance, and practice and strategy. Enterprises can work together and reach an agreement on effective supply chain management to boost performance and give oil and gas companies in KSA a competitive edge.

The recent study provides theoretical implications for the supply chain literature. Firstly, the result of this study supports the idea that environmental and social factors are other indicators of performance, not only the economic aspect in the new economy, so this study conceptualized performance based on the TBL approach to economic, environmental and social performance. Moreover, in order to enhance environmental, economic, and social performance, and based on the RBV and DCT, the study examines SC ambidexterity as one of the most important resources and capabilities that has a strong impact on environmental, economic, and social performance. Sustainability in the supply chain, as asserted by many authors (Khan et al., 2021; Li et al., 2023; Malak-Rawlikowska et al., 2019), is confirmed as a very essential context to enhance environmentally, economically, and socially. Based on this argument, the study examines SC sustainability as a mediator in the impact of the SC on environmental, economic, and social performance. The study applied empirical confirmation of three important theories, RBV, DCT, and TBL, in one model in the context of the supply chain field in the food retail market in KSA, which is regarded as an unexplored context with the need for more studies (Abunar et al., 2016). Based on the researcher's knowledge, there is no study that examines SC ambidexterity, SC sustainability, conceptualized as social responsibility, environmental management, health, safety and risk management, and customer

management, environmental performance, economic performance, and social performance in one model, which provides the novelty of the study.

6. Limitations and Future Research:

The findings of the recent study confirm the organization's capabilities as SC Ambidexterity as an important determinant of the firm's performance, environmentally, economically, and socially. Moreover, the recent study confirms the role of SC sustainability in the impact of SC on environmental, economic, and social performance.

The data collection in this study was conducted using a questionnaire with a survey methodology. In addition, this study utilized a cross-sectional approach, which only records the participants' opinions at a specific moment in time. It is suggested that future studies consider employing longitudinal research designs to more properly establish cause-and-effect linkages. One further constraint of this study pertains to its methodology. Specifically, the study solely employed a quantitative technique to assess the influence of the factors under investigation. Future research in the field of supply chain management could concentrate on exploring the "depth" of the subject matter rather than solely focusing on its quantitative aspects, as was done in this study. The qualitative approach can offer novel perspectives and enhance understanding of the matter under consideration. The qualitative and quantitative approaches are mutually beneficial, enhancing the overall outcomes.

The study model was empirically tested on the food retail market, and the study applied only to the five most important food retail companies. For the suture research, the model of the study can be tested in another field, such as manufacturing or service industries, to compare the results with the study results. Also, the model can be examined in another context and in other countries or cultures. Another limitation of the recent study is that it examines SC sustainability as a mediator. The body of research on supply chain management will be expanded by adding moderators to future studies that look at how SC ambidexterity affects environmental, economic, and social performance. These could be technological tools or new ideas that make the model better and allow researchers to look at it again in a different industry and setting.

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APENDIX

Questionnaire items of the Study and previous literature adapted from

Main Construct	Sub-Construct	Items indicators		Reference
SC Ambidexterity		AMB1	It is critical to our company's plan to make use of our present supply chain technologies.	Khan et al. (2022); Ojha et al. (2018)
		AMB2	To maintain a competitive edge, our supply chain managers prioritize the enhancement of our current technology.	
		AMB3	Our management team is laser-focused on improving our current supply chain operations to a higher level of competency.	
		AMB4	In order to enhance our supply chain, we aggressively seek out innovative ideas and are always experimenting.	
		AMB5	It is critical to our company's plan to make use of our present supply chain technologies.	
SC sustainability	Environmental management	EM1	All relevant environmental laws and regulations have been considered and implemented into the organization's management system.	Hussain et al. (2016)
		EM2	The company's ISO 14001 certification, or other relevant certifications, are current.	
		EM3	All employees are informed about the company's environmental policies, practices, and expectations in a language that is suitable for their location or native tongue.	
		EM4	All suppliers are informed of the environmental policies, practices, and expectations in a language that is local or suitable.	
		EM5	Environmentally important goals are covered in the training sessions.	
	Social Responsibility	SR1	A corporate responsibility policy is in place at the company.	
		SR2	Organizational policies for worker health and safety are outlined in a formal statement of commitment.	

Main Construct	Sub-Construct	Items indicators		Reference
		SR3	Keeping in touch with community members who have a vested interest in the organization's success is a top priority.	
		SR4	A management structure has been put in place by the organization to ensure that relations with community stakeholders are maintained.	
		SR5	When it comes to social laws and regulations, this organization's performance management system is on point.	
	Health, Safety and Risk Management	HSR1	All hazardous materials have documented protocols outlining how to handle, store, and dispose of them in a way that employees can comprehend.	
		HSR2	There is a documented system for fire evacuation and emergency response at the organization.	
		HSR3	A detailed plan outlining the organization's protocol for fire evacuation is in place.	
		HSR4	An emergency drill is something that happens often at the company.	
		HSR5	Each location of the organization has a fully supplied first aid station that is accessible at all times.	
	Customer Management	CM1	A customer service vision has been established by the organization.	
		CM2	Based on factors like age, gender, life stage, tastes, and demography, the firm has identified major client segments.	
		CM3	Customer data is gathered at multiple touchpoints by the company.	
		CM4	The company conducts surveys, focus groups, interviews, and other activities with its clients.	
		CM5	Standards and methods for communication have been established by the organization.	
		CM6	The organization's services are delivered through a variety of creative channels, including the internet, kiosks, mobile devices, and others.	
Environmental performance		EP1	Our organization has initiatives in the Reduction in air emission/waste water/solid waste	Wang & Dai, 2018; Zhu et al.,

Main Construct	Sub-Construct	Items indicators		Reference
		EP2	Our organization has initiatives in the Decrease in consumption of hazardous/harmful/materials	2005; Daily et al., 2007
		EP3	Our organization has initiatives in the Reduction in energy consumption	
		EP4	Our organization has initiatives in the Decrease in frequency for environmental accidents	
Economic performance		ECP1	Our firm increased the profit as a percentage of sales	Kitsis & Chen, 2020
		ECP2	Our firm increased the earnings before interest and tax	
		ECP3	Our firm increased the return on asset (ROA)	
Social Performance		SOP1	Our organization exert efforts to reduce in the impacts and risks to general public	Wang & Dai, 2018; Kassinis & Soteriou, 2003; Gimenez et al., 2012
		SOP2	Our organization exert efforts to in the Improvement in occupational health and safety of employees	
		SOP3	Our organization exert efforts to provide more positions in community	
		SOP4	Our organization exert efforts to in the Improvement in product image	
		SOP5	Our organization exert efforts to in the Improvement in firm's image in the eyes of customers	
		SOP6	Our organization exert efforts to in the Improvement in firm's social reputation	
		SOP7	Our organization exert efforts to in the Improvement in firm's community activities	