THE INFLUENCE OF STRATEGIC LEADERSHIP, BUSINESS CONTINUITY PLANNING AND SUPPLY CHAIN RESILIENCE ON ORGANIZATIONAL PERFORMANCE

HABANI MOSAAB ABDULKADER S

UNIVERSITI TEKNOLOGI MALAYSIA

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HABANI MOSAAB ABDULKADER S

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Doctor of Philosophy

Azman Hashim International Business School
Universiti Teknologi Malaysia

OCTOBER 2022

DEDICATION

This thesis is dedicated to my father, who supported me every day and in any way he could.

ACKNOWLEDGEMENT

I wish to express my utmost gratitude to God for giving me health and wisdom to conduct this study. I also appreciate my supervisor, Dr. Suzilawati Kamarudin (my first principal supervisor), for all the support she gave throughout my PhD journey by providing technical guidance and advice and valuable comments that significantly enhanced the quality of my thesis. I would also like to thank Dr. Siti Zaleha Bte Omain (my second supervisor after retirement of Dr. Suzilawati Kamarudin), for helping me to complete my research. I would also like to thank Dr. Samar Shoaib for coaching and supporting me.

Then, I appreciate my parents for their unceasing prayers, encouragement, and support, which have strengthened me all the time. Last but not least by no means, I would like to express my special gratitude to my wife Sumiah Almhroqi and my son and daughters for completing me and being part of my life. In particular, my wife who sacrificed a lot and supported me to stand on course to come this far. Thank you, family, you mean a lot to me.

ABSTRACT

Supply chain risks result in negative impacts on organizations' performance and often lead to the decline of sales, increase of costs and failure of service delivery by the organizations. In this circumstance, it is highly important for organizations to manage supply chain risks effectively. Organizations with a higher ability to return to the original condition after disruption will exhibit better performance. Therefore, this study aims to determine the factors that enhance organizations' supply chain resilience, thereby improving organizational performance. To achieve this objective, the influence of strategic leadership, business continuity planning, and supply chain resilience on multidimensional organizational performance involving financial performance, operational performance, and supply chain risk management performance were tested using two theories, namely Structural Contingency and Upper Echelon. Using non-probability-convenience sampling, a questionnaire was distributed among 248 CEOs and top managers of food manufacturing companies in Saudi Arabia. The current study employed the Statistical Package for the Social Sciences (SPSS) and Partial Least Square-Structural Equation Modelling (PLS-SEM) techniques for data analysis. The findings revealed that business continuity planning and supply chain resilience have positive impacts on all dimensions of organizational performance. However, strategic leadership only affects operational performance. Additionally, a mediating relationship was found between business continuity planning and all dimensions of organizational performance through supply chain resilience. The findings of this study contribute to the literature by investigating the factors that improve an organization's ability to avoid and recover from disruptions and thus be more resilient. This study is also significant as it fills the gap in the literature by examining the mechanism through which business continuity planning affects organizational performance. From a practical perspective, the findings benefit managers and leaders of organizations by providing a theoretically-supported and empirically-proven framework.

ABSTRAK

Risiko rantaian bekalan mengakibatkan kesan negatif terhadap prestasi organisasi dan sering menyebabkan penurunan jualan, peningkatan kos, dan kegagalan penyampaian perkhidmatan oleh organisasi. Dalam keadaan ini, sangat penting bagi organisasi untuk menguruskan risiko rantaian bekalan dengan berkesan. Organisasi dengan keupayaan yang lebih tinggi untuk kembali ke keadaan asal selepas gangguan akan mempamerkan prestasi yang lebih baik. Oleh itu, kajian ini bertujuan untuk menentukan faktor-faktor yang meningkatkan daya tahan rantaian bekalan organisasi, untuk meningkatkan prestasi organisasi. Untuk mencapai objektif ini, pengaruh kepimpinan strategik, perancangan kesinambungan perniagaan, dan daya tahan rantaian bekalan terhadap prestasi organisasi multidimensi yang melibatkan prestasi kewangan, prestasi operasi dan prestasi pengurusan risiko rantaian bekalan diuji menggunakan dua teori iaitu Kontingensi Struktur dan Echelon Atas. Dengan menggunakan persampelan kemudahan bukan kebarangkalian, soal selidik diedarkan di kalangan 248 CEO dan pengurus atasan syarikat pembuatan makanan di Arab Saudi. Kajian ini menggunakan teknik Pakej Statistik untuk Sains Sosial (SPSS) dan Pemodelan Persamaan Struktur Terkecil Separa (PLS-SEM) untuk analisis data. Hasil kajian menunjukkan bahawa perancangan kesinambungan perniagaan dan daya tahan rantaian bekalan mempunyai kesan positif terhadap semua dimensi prestasi organisasi. Walau bagaimanapun, kepimpinan strategik hanya memberi kesan kepada prestasi operasi. Selain itu, hubungan pengantaraan ditemui antara perancangan kesinambungan perniagaan dan semua dimensi prestasi organisasi melalui daya tahan rantaian bekalan. Penemuan kajian ini menyumbang kepada kesusasteraan dengan menyiasat faktor-faktor yang meningkatkan keupayaan organisasi untuk mengelakkan dan pulih daripada gangguan dan dengan itu menjadi lebih berdaya tahan. Kajian ini juga penting kerana ia mengisi jurang dalam kesusasteraan dengan mengkaji mekanisme di mana perancangan kesinambungan perniagaan mempengaruhi prestasi organisasi. Dari perspektif praktikal, penemuan ini memberi manfaat kepada pengurus dan pemimpin organisasi dengan menyediakan rangka kerja yang disokong secara teori dan terbukti secara empirikal.

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LIST OF ABBREVIATIONS

BCP	-	Business continuity planning
SL	-	Strategic leadership
BP	-	Business performance
RTC	-	Resilience to change
AVE	-	Average variance extracted
SEM	-	Structural equation modelling

LIST OF SYMBOLS

n	-	Sample size
f^2	-	Effect size
R^2	-	R Square

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CHAPTER 1

INTRODUCTION

This chapter, first, explains the research background by highlighting the importance of supply chain risk management. Second, an overview of the supply chain in Saudi Arabia is presented. Then, the research problem and relevant gaps are described, followed by research questions and objectives. Lastly, the chapter clarifies the significance of the current research and defines the key terms and scope of the study.

1.1 Background of the Study

Today's ever-changing business environment is often qualified to be highly competitive, dynamic, and complicated. Customers are requesting more variability, better quality, higher reliability, and faster delivery. Additionally, organizations are being faced with more uncertainties (Ganbold, 2017) and business threats, which exert a great pressure on them (Păunescu and Argatu, 2020). In the supply chain literature, risk, which is the source of a crisis, happens when one or more supply chain activities are disturbed, leading to disorder of the flow of products or services (Malini *et al.*, 2009). Supply chain disruptions result in "declining sales, cost increases, and service failures" for organizations (Park *et al.*, 2016).

In a comprehensive framework presented by Pfohl *et al.* (2010), critical terms in supply chain risk, their associations, and their impact on the organization performance are described. As illustrated in Figure 1.1, organizations are surrounded by risks that consequently lead to disruption or disturbance in supply chain. While disruption imposes a strong negative impact on a firm performance (with wide scope and long duration of effect), disturbance only has a negative impact to a limited extent and for a limited period. However, resilience to disruption and disturbance varies from

one organization to another. That is, the firms with higher capability to restore to their previous conditions after disruption will exhibit better performance.

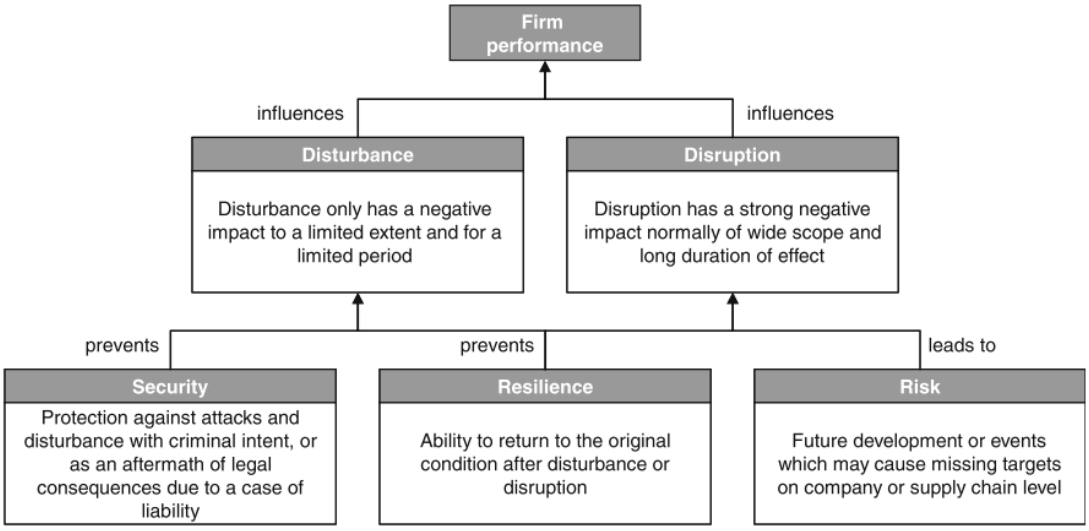

Figure 1.1 Supply chain risk (Pfohl *et al.*, 2010)

Wagner and Bode (2008) categorized the risk or disruption in supply chain into five classes: demand side (poor supply chain coordination); supply side (interruption of the buyer-supplier relationship); regulatory, legal, and bureaucratic (necessary approvals for supply chain operations); infrastructure (disruptions in infrastructure such as IT); and catastrophic (such as epidemics and natural hazards).

Without any doubt, managing supply chain disruption needs to be considered a vital activity for most organizations (Khan and Burnes, 2007). Supply chain risk management implies identifying, assessing, monitoring, and evaluating the potential risks across all supply chain members (Kilubi and Haasis, 2015). The process of risk management emphasizes the improvement of supply chain performance through designing appropriate strategies. To be more particular, the chief responsibility in supply chain risk management is to ensure quality performance during crises and disruptions (Adam and Fazleena, 2014).

Organizations have different strategies and approaches to supply chain risks and uncertainty, which include “Passive supply chain risk management strategies” (an approach to do nothing), “Reactive supply chain risk management” strategies (Tactical

and operational decisions that lead to tangible investments in variable assets aimed at reducing the severity of a risk event), and "Proactive supply chain risk management" strategies (Strategic decisions that lead to tangible investments in fixed assets, which change the supply chain network architecture and reduce or eliminate the probability of a risky event) (Roscoe *et al.*, 2020). Blackhurst *et al.* (2005) conducted an empirical study to identify major variables and relationships in transaction with supply chain disruptions. As a result, "discovery", "recovery", and "supply chain redesign" were identified. They argued that enabling the speedy detection of disruptions requires various styles of visibility.

Extant theoretical research has shown the performance benefits of the firms implementing supply chain risk management by preventing disruptions and reducing operational accidents. Supply chain risk management allows the firms to react to the external environment and improves operational performance. It is an "information-intensive process" that benefits operational performance (Munir *et al.*, 2020a). Based on the empirical evidence provided by Strom *et al.* (2013), supply chain disruptions have significant impacts on organizational performance.

Considering the undeniable effect of supply chain disruptions on business success, there is a need for framing key directions of action and essential activities to be performed in order to make the company's supply chain network more resilient in the presence of risk and uncertainty (Park *et al.*, 2016; Păunescu and Argatu, 2020). Managers are expected to develop a system eligible of identifying, assessing, mitigating, and monitoring risk for better performance. An abiding commitment to the management of risk in the supply chain helps managers to select suitable strategies capable of mitigating different risks, which will eventually upgrade the overall performance of the business entity (Adeleke *et al.*, 2020).

However, despite the importance of supply chain risk management, scholars failed to find an answer to the question of how supply chain risks management affects an organization performance (Ahmad *et al.*, 2019). An essential question in supply chain resilience is recognizing its determinants and examining the importance of each determinant in improving resilience to supply chain disruptions (Shekarian and Mellat

Parast, 2021). As a result, there is a need to identify effective strategies and plans that lead to firms' resilience to disruption, which consequently impact financial and non-financial performance of the organizations. Thus, to address the gap in the literature, a new conceptual framework is developed, which intends to examine the influence of strategic leadership and business continuity planning on supply chain resilience. This, in turn, impacts organizational performance. In this study, organizational performance is operationalized with three dimensions: financial performance, operational performance, and risk management performance.

1.2 Context of Saudi Arabia

According to the Saudi Arabia Vision 2030 launched in April 2016, Saudi Arabia aims to move from a "Petro-state" to an "industrial manufacturing-based" productive economy (Nuruzzaman, 2018). However, currently, it can be considered an oil-dependent country with a huge potential market for a range of manufactured goods. Similar to its neighboring countries, to date, its needs are mostly supplied from abroad. Though, experts believe that Saudi Arabia has potential to not only meet domestic demands, but also cover some regional demands by utilizing natural resources and taking advantages of the large market size (Al-Kibsi *et al.,* 2015). In Saudi Arabia, strategies of effective management of supply chain for companies and organizations are highly important. Supply chains are the heartbeat of every country and the engine of all other industrial, commercial, and service sectors, as no country can achieve any development without sustainable development of its supply chains.

In this regard, the business consulting firm "McKinsey Global Institute" and "McKinsey & Company's Middle East office" have investigated the economic situation, performance, challenges, and opportunities that Saudi Arabia have faced over the past decade and will face over the next 15 years. Their research highlighted manufacturing as one of the most important sectors that can increase GDP noticeably by 2030 (Al-Kibsi *et al.*, 2015). Though, the Kingdom's manufacturing contributes to only 10 percent of the total GDP without any increase for more than two decades. This is while manufacturing average share of total GDP in other developing economies such

as Brazil, India, Indonesia, Mexico, Thailand, and Turkey are around 20 percent. Despite current small share of manufacturing in the Kingdom's GDP, Saudi Arabia has opportunity to improve its own global competitiveness and take advantages of the export and, consequently, create pool of jobs. Accomplishing this goal will require a push to attain functional excellence in manufacturing and supply chain process (Al-Kibsi *et al.*, 2015).

Several criteria and standards reflect the level of performance and shortcomings, and perhaps among all, the most important item is Logistics Performance Index reported by the World Bank. This index is a global criterion that helps us to gain better understanding of the increasingly complex supply chains. In this index, the overall logistics performance of countries are determined by four elements, namely infrastructure, services, border procedures, and supply chain reliability. According to the most recent values published in 2018, Saudi Arabia's overall score is 3.01 (1=low to 5=high), ranking the 52nd country in the world (out of 160) (Arvis *et al.*, 2018).

The importance of supply chain improvement in Saudi Arabia is also evident by establishing "Supply Chain & Procurement Society", which is a national non-profit organization with focus on developing the supply chain and procurement sector in the Kingdom. The society derives its strategic goals from the Kingdom's 2030 Vision that provides value-added and sustainable services to support local content. In addition, it attempts to transfer knowledge and technology to national workers in the field of supply and procurement (*https://saudiscp.org/en/*, 2022).

1.3 Problem Statement

The issue of supply chain disruptions has been greatly emphasized in the literature (Katsaliaki *et al.*, 2021). Organizations are increasingly subjected to unexpected disruptions and risks (Munir *et al.*, 2020) due to the emergence of global business environment, short life-cycle of products, technological innovations, natural disasters, and ever-changing government policies (Shenoi *et al.*, 2016). Supply chain

risks lead to disruption (Pfohl *et al.*, 2010), which is an unintended triggering event that significantly threatens normal business operations and flows of goods or services in supply chains (Wagner and Bode, 2008). At a very broad level, disruption is caused either by nature (e.g., flooding, earthquakes, and hurricanes) or by human behavior (e.g., political instability, terrorism, and quality problems) (Vakharia and Yenipazarli, 2008; Katsaliaki *et al.*, 2021). Since 2020, supply chain disruptions have emerged as an ever-present challenge (Stephens *et al.*, 2022). Pandemic that was caused by COVID-19 is a disruption with a devastating impact seriously hitting supply chains (Pournader *et al.*, 2020).

Firms strive to manage risk, handle unexpected disruptions and improve performance in ever changing uncertain business environments (Munir, 2020). It is agreed upon that supply chain risks have a negative influence on the organizational performance (Xu *et al.*, 2020; Vakharia and Yenipazarli, 2008) since it creates a snowball effect with serious consequences to all related supply chain echelons (Katsaliaki *et al.*, 2021). Supply chain disruptions are frequent and detrimental for firm performance. Therefore, firms of all sizes are concerned with avoiding or recovering quickly from disruptions (Polyviou *et al.*, 2020). Organizations need to establish the principles of supply chain risk management to serve their customers effectively (Shenoi *et al.*, 2016).

To achieve superior performance, organizations should develop both short- and long-term risk management strategies and plans. The preservation and strengthening of supply chains remains an important factor for consideration that has both practical and theoretical implications (Wong *et al.*, 2020). Researchers and practitioners paid increasing attention to supply chain resilience and placed it at the forefront of research agendas because of the increased disruptive events in global supply chains (Chowdhury and Quaddus, 2017). Supply chain resilience, which means identifying strategies to react to supply chain disruption (Shekarian and Mellat Parast, 2021), has a strong impact on organizational performance (Sharma and Modgil, 2020; Wong *et al.*, 2020). Increasing regional and global competition and pressure to render the best services to customers necessitate the understanding of the complication of the supply chain risks. Nowadays, supply chains are a highly-valued capability, but more

vulnerable than any time in the history as a result of the rivalry in a complicated and fluctuating business environment (Javaid and Siddiqui, 2018). That is why it is important to improve the understanding about supply chain resilience and its impact on organizational performance. Although researchers and practitioners are aware of the importance of supply chain resilience, its impact on firm performance has remained unclear (Gu *et al.*, 2021).

Business continuity planning is known as one of the most effective programs to use in the face of crisis, incidents, and disasters, specifically for organizations to continue or resume their operations (Charoenthammachoke *et al.*, 2020). However, the role of business continuity management in the enhancement of firms' performance requires a deeper understanding (Corrales-Estrada *et al.*, 2021). Additionally, although business continuity is a planning strategy that helps organizations to experience resilience (Hatton and Brown, 2021), only few studies have investigated the relationship between resilience and business continuity to understand risk management (Corrales-Estrada *et al.*, 2021).

Despite the important role of emerging concept of business continuity planning in improving overall organizational effectiveness (Păunescu and Argatu, 2020), the mechanism through which business continuity planning impacts the firm performance is still undeveloped. This necessitates further theoretical underpinning and empirical evidence (Azadegan *et al.*, 2020; Tracey *et al.*, 2017). Although the strategic role of the business continuity practices in the provision of the sources of competitive advantage for organizations has been highlighted in the literature, the question of how business continuity plans could influence the organizational performance has remained underdeveloped (Bakar *et al.*, 2015).

In this regard, Kang and Stephens (2022) suggested that mediation effect is suspected for supply chain resilience. Supply chain resilience stands out among extant literature as a critical solution for maintaining a good performance despite supply chain dynamism, nevertheless; it is unclear what develops supply chain resilience; furthermore, the interrelationships are unclear with other variables. It can be assumed that supply chain resilience mediates the relationships between the independent

variables and performance of a business entity. Applying to the realm of this study, resilience can act as mediator between business continuity planning and organizational performance. Business continuity planning makes the firm's supply chain more resilient in the presence of risk and uncertainty. Subsequently, enhanced supply chain resilience contributes to performance (Chowdhury and Quaddus, 2017).

It is also argued that the performance of companies is influenced by the level of support of top power and allocation of sufficient resources (Fameso, 2021). The results of a study conducted by Rahman *et al.* (2019) indicated a strong positive relationship between strategic leadership and organizational performance. Similarly, Kitonga *et al.* (2017) recognized a significant positive association between strategic leadership variables and organizational performance. In spite of some empirical evidence, there is limited research concerning the impact of strategic leadership on the performance of business organizations (Rahman *et al.*, 2019), and researchers only lately have figured out the importance of strategic leadership (Tirastittam *et al.*, 2020). Furthermore, not only it is suggested to investigate the influence of strategic leadership on organizational performance, future studies are also encouraged to investigate the style of leadership that is most fitting for business continuity planning application, effective response, and recovery efforts (Azadegan *et al.*, 2020).

Regarding the context of this study, it is worth mentioning that the manufacturing industry plays a significant role in enhancing the country's GDP and uplifting the quality of peoples' lives in a country (Yas *et al.*, 2021). Despite the fact that manufacturing is identified as one of the main sectors that can run the engines of economic growth, the Kingdom's manufacturing sector contributes to only 10 percent of the total GDP without any increase for more than two decades. This is while manufacturing average share of the total GDP in other developing economies such as Brazil, India, Mexico, and Turkey are around 20 percent. To address this issue, increasing contribution of the manufacturing industry is highlighted in the Vision 2030 and it is estimated that manufacturing could potentially contribute to more than 17 percent of Kingdom's GDP by 2030 (Al-Kibsi *et al.*, 2015). To achieve this goal, it is highly crucial to follow an efficient approach to understand and improve the performance of manufacturing firms (Rehman *et al.*, 2020). In this case, organizations

face boundless challenges to enhance performance and compete favorably with other actors on the industry stage (Yas *et al.*, 2021).

In terms of supply chain efficiency, manufacturing sector poses several major challenges, particularly in emerging economies (Shenoi *et al.*, 2016). As a result of globalization, organizations face numerous operational problems in the manufacturing industries in all over the world (Yas *et al.*, 2021), and many hazardous events occur in this industry. For instance, in Saudi Arabia, 18 percent of all occupational injuries in 2018 occurred in the manufacturing industry. According to the annual injury rate indicator, which calculates a frequency measure to compare the hazardous areas, the manufacturing industry ranks the highest (785.4 injuries per 100,000 employees); in this regard, Riyadh region recorded the highest ratio (20.08%) (Ahmed *et al.*, 2021).

Based on the above discussed arguments and to bridge the gaps in the literature, the current study aims to empirically test the influence of strategic leadership, business continuity planning, and supply chain resilience on the organizational performance of the companies involved in Saudi Arabia's food industry. Additionally, this study intends to examine how business continuity planning can improve organizational performance through strengthening supply chain resilience.

1.4 Research Questions

The main question of this study is "What are the supply chain risk management practices that improve organizational performance?". This question is divided into the following sub-questions:

RQ1. Does strategic leadership impact the organizational performance?

- RQ1a. Does strategic leadership impact the financial performance?
- RQ1b. Does strategic leadership impact the operational performance?
- RQ1c. Does strategic leadership impact the supply chain risk management performance?

RQ2. Does business continuity planning impact the organizational performance?

- RQ2a. Does business continuity planning impact the financial performance?
- RQ2b. Does business continuity planning impact the operational performance?
- RQ2c. Does business continuity planning impact the supply chain risk management performance?

RQ3. Does strategic leadership impact the business continuity planning?

RQ4. Does business continuity planning impact supply chain resilience?

RQ5. Does supply chain resilience impact the organizational performance?

- RQ5a. Does supply chain resilience impact the financial performance?
- RQ5b. Does supply chain resilience impact the operational performance?
- RQ5c. Does supply chain resilience impact the supply chain risk management performance?

RQ6. Does supply chain resilience mediate the relationship between business continuity planning and organizational performance?

- RQ6a. Does supply chain resilience mediate the relationship between business continuity planning and financial performance?
- RQ6b. Does supply chain resilience mediate the relationship between business continuity planning and operational performance?
- RQ6c. Does supply chain resilience mediate the relationship between business continuity planning and supply chain risk management performance?

1.5 Research Objectives

The main objective of this study is "To examine the supply chain risk management practices that improve organizational performance". This objective is divided into the following sub-objectives:

RO1. To examine the influence of strategic leadership on the organizational performance

- RO1a. To examine the influence of strategic leadership on financial performance
- RO2b. To examine the influence of strategic leadership on operational performance
- RO3c. To examine the influence of strategic leadership on supply chain risk management performance

RO2. To examine the influence of business continuity planning on the organizational performance

- RO2a. To examine the influence of business continuity planning on financial performance
- RO2b. To examine the influence of business continuity planning on operational performance
- RO2c. To examine the influence of business continuity planning on supply chain risk management performance

RO3. To examine the influence of strategic leadership on the business continuity planning

RO4. To examine the influence of business continuity planning on supply chain resilience

RO5. To examine the influence of supply chain resilience on the organizational performance

- RO5a. To examine the influence of supply chain resilience on financial performance
- RO5b. To examine the influence of supply chain resilience on operational performance
- RO5c. To examine the influence of supply chain resilience on supply chain risk management performance

RO6. To examine the mediating influence of supply chain resilience on the relationship between business continuity planning and organizational performance

- RO6a. To examine the mediating influence of supply chain resilience on the relationship between business continuity planning and financial performance
- RO6b. To examine the mediating influence of supply chain resilience on the relationship between business continuity planning and operational performance

RO6c. To examine the mediating influence of supply chain resilience on the relationship between business continuity planning and supply chain risk management performance

1.6 Significance of the Study

Supply chain disruptions and resilience have developed to become a well-defined research area, exhibiting a rich academic output (Katsaliaki *et al.*, 2021). This research provides a glimpse into the factors that develop supply chain resilience and improve organizational performance. To this end, the antecedents of organizational performance will be examined to suggest how manufacturers can develop and maintain continuous uninterrupted operations through strengthening supply chain resilience.

The review of the literature showed that there is a scarcity of research on the organizational performance of companies, particularly those working in the manufacturing sector that has a great importance to any contemporary economy. Therefore, the current research comes as a significant study because of not only bridging the above-mentioned gap, but also showing theoretical and managerial contributions.

From a theoretical perspective, the current study can be considered one of the pioneering studies due to its contribution to the body of the knowledge and presenting a new theoretical framework. Getting support from both the structural contingency theory and upper echelon theory, the current study proposes new variables and also develops new relationships between the variables. From one side, the structural

contingency theory emphasizes that organizations both affect and are affected by their environment and contingencies. The fit between contingencies and structure is the key to higher organizational performance. Meaning that structures need to be designed in a way to effectively address contingencies. From the other side, the upper echelon theory highlights the vital and undeniable role of top management and leaders in organizations' performance. Applying to the context of this study and by combining two theories, it can be argued that strategies and plans designed by top authorities in an organization mitigate and manage risks and lead to resilience to existing disruptions in environment. In other words, designing right strategies and plans leads to higher resilience, hence improving organizational performance.

From a methodological point of view, this study fills the gap in the literature by conducting an empirical research. As it is also stated by Shekarian and Mellat Parast (2021), the vast majority of the published scholarly papers in this area are conceptual and modelling/simulation papers (71%), followed by qualitative studies (17%). Therefore, there is a need to conduct more empirical studies, particularly with a quantitative approach.

In addition to theoretical significance, this study contributes to the methodology in the field of supply chain resilience. The present study bridges the gap in the literature by conducting empirical-quantitative research. As it is indicated in Figure 5.1, dominant research methodology in the realm of supply chain resilience is theoretical or conceptual, which means it is written based on the literature review, without any data (neither primary nor secondary data) to provide empirical evidence. The second most prevalent research method in this field is modelling or simulation, followed by case study (qualitative) (Shekarian and Mellat Parast, 2021). Therefore, there is dearth of quantitative studies empirically investigating the concept of supply chain resilience.

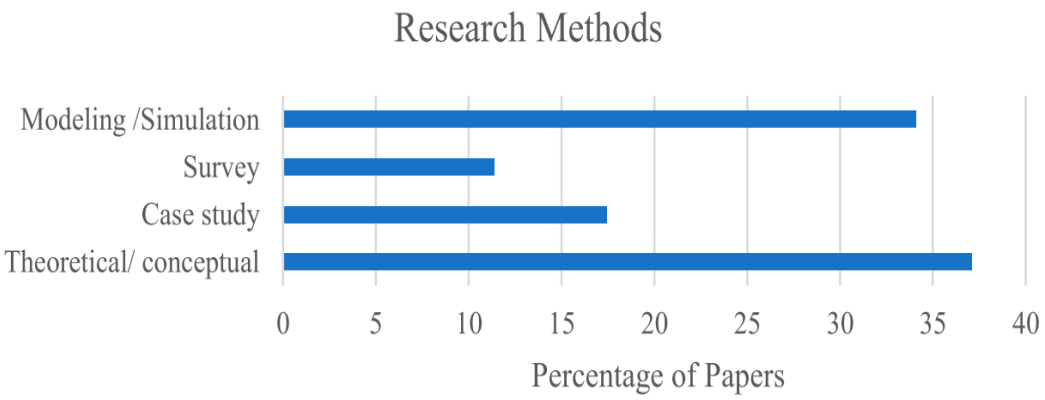

Figure 1.2 Categorization of papers based on research method (Source: Shekarian and Mellat Parast, 2021)

Additionally, this study is significant from the contextual perspective. Bearing in mind the overall paucity of the knowledge in Saudi Arabia, findings of this study bring new insights to the body of knowledge in this country. Lastly, from a practical perspective, the results of this study may benefit the government and policy makers of Saudi Arabia by identifying factors that mitigate risk and increase companies' resilience, hence improving the performance of food manufacturing firms in the Kingdom. The results of this study can be also useful for students, industrial/commercial specialists, and economists to gain a broader understanding of supply chain risk management and its implications on the organizational performance of manufacturing firms.

1.7 Scope and Limitations

The current research focuses on supply chain risk management practices that lead to improving organizational performance of the food manufacturing firms in Saudi Arabia. It is important to note that in the current study, "organizational performance" is limited to business entities; thus, public and non-profit sectors are excluded. Consequently, the impacts of strategic leadership, business continuity planning, and supply chain resilience on organizational performance were investigated. This study is conducted in Saudi Arabia for the following reasons. First, the supply chain risk management studies are limited to the settings of specific

countries such as the USA and UK (Roscoe *et al.*, 2020), which necessitates investigating this concept in other contexts. Second, manufacturing and supply chain improvement are currently at the center of attention and main pillars of the Vision 2030 which focus on transforming the Kingdom from an oil-dependent country to an industrial one. However, today, Saudi Arabia's manufacturing is very limited and dominated by little value-added segments on which the country depends, and it has gotten only a few steps far from the absolute dependence on the oil sectors. To guarantee competitiveness in these segments, it is necessary to remove a range of obstacles and gaps in local supply chains (Al-Kibsi *et al.*, 2015) and improve the performance of manufacturers.

Due to the crises such as the COVID-19 global epidemic that disrupted food systems and threatened food security, the global food system does not work well today: the number of hungry people in the world has increased substantially, with the World Food Program warning of the possibility of a "hunger pandemic" (Savary *et al.*, 2020). Saudi Arabia highly relies on imported food to meet the needs of its population (Baig *et al.*, 2017). The countries that depend on import are vulnerable to food insecurity more than others; therefore, they must have proper risk management plans to well address the challenge. Managing food disruption (both the demand and supply side) with an ever-growing population is one of the critical challenges facing Saudi Arabia to 2025 and beyond (Lovelle, 2015). According to statistics reported by the Global Food Security Index (GFSI), although the availability, affordability, and quality of food is acceptable in Saudi Arabia (among top 42 out of 113 countries), the Natural Resources and Resilience indicator reveals dangerous insecurity in food industry, which calls for an immediate attention. Saudi Arabia is ranked 109th in terms of exposure to the impacts of a climate change; natural resource risks; and how it is adapting to the risks, which indicates food insecurity (Global Food Security Index (GFSI) (eiu.com).

According to the latest data published by the Ministry of Commerce and Investment in 2016, the food industry of Saudi Arabia, with 732 active manufacturers, is one of the leading industries in terms of its contribution to GDP and providing employment opportunity. Regarding geographical focus, this study collected data from

Jeddah and Riyadh because a large number of food companies are located in these cities, approximately 40%. The respondents were chosen from top managers or CEOs who are actively involved in supply chain risk management practices and are aware of firms' strategies and plans for risk management.

The current research is limited by time and it is necessary to conduct this study within three years. Consequently, many influential variables that could potentially be incorporated into the framework are excluded.

1.8 Definition of Key Terms

1.8.1 Supply chain

The concept of "supply chain" generally refers to alongside firms (with all members) that offer goods or services to the market (Felea and Albăstroiu, 2013). In this study, this concept refers to the all the members of manufacturing firms who play a role in offering good and services to Saudi Arabia's market.

1.8.2 Supply chain risk

Supply chain risk can be defined as the probability of unforeseen "macro- or micro-level disruptions" that unfavorably influence any part of a supply chain and consequently lead to failures or low quality organizational performance at operational, tactical, or strategic levels (Ho *et al.*, 2015). In this study, supply chain risk signifies all the unexpected disruptions that negatively impact the performance of supply chain.

1.8.3 Supply chain risk management

Supply chain risk management refers to developing solutions and strategies to avoid or mitigate disruption (Shahbaz *et al.*, 2017). Supply chain risk management allows responding to the external environment and improves firm's operational performance (Munir *et al.*, 2020b). In this study, supply risk management refers to the strategies and plans to deal with potential risks and disruptions that exist in internal and external environments, threatening the performance of food manufacturing firms in Saudi Arabia.

1.8.4 Organizational performance

Organizational performance is the measurement of what has been achieved by a company in a certain period of time (Chiarello *et al.*, 2014), e.g., return on investment/sales, growth in sales/profit/market share, and overall competitive position (Li *et al.*, 2006). According to Subburaj *et al.* (2020), a more efficient performance measure should combine indicators of both operational performance and financial performance, instead of merely measuring financial performance. Additionally, very limited studies have considered supply chain management to achieve better operational performance (Sharma and Modgil, 2020) and supply chain performance (Javaid and Siddiqui, 2018).

In this study, three dimensions, i.e., the financial performance, operational performance, and supply chain risk management performance of manufacturing firms, are considered for measurement. While financial performance is concerned with monetary benefits of an organization, operational and supply chain risk management performance deal with the degree to which an organization succeeds in managing potential risks that threaten supply chain and overall operational performance.

1.8.5 Strategic leadership

Strategic leadership includes strategic decision making, allocation of resources to major organizational components, defining the organizational objectives, and conceptualizing and installing organizational designs and major infrastructures (Crossan *et al.*, 2008). In the current study, strategic leadership points out to the leaders' ability to think strategically and lead manufacturing companies facing risks in their supply chain process.

1.8.6 Business continuity planning

A business continuity plan is a set of plans to deal with problematic situations and avoid or mitigate disruption in performance (Păunescu *et al.*, 2018). In the context of the present study, this concept refers to a well-defined continuity plan that helps Saudi Arabia's manufacturing firms for effective response towards the threats that occur in supply chain process.

1.8.7 Supply Chain Resilience

Firms' resilience and their power to confront the challenges of the internal and external environments play an important role in their survival and success in market. Supply chain resilience refers to a firm's capability to deal with disruptions and operate normally by making necessary adjustments (Abeysekara *et al.*, 2019). In this study, supply chain resilience refers to the quick response to the supply chain disruption and recovering after disruption and presenting quality performance.

1.9 Organization of the Research

This thesis is presented in five chapters:

Chapter 1 provides an explanation of the background of the current study, overview of the Saudi Arabian context, statement of the problem, research questions, research objectives, significance of the study, scope and limitations as well as a short description of key terms.

In Chapter 2, a review of the literature is provided about underpinning theories, supply chain management, supply chain risk management, business continuity planning, strategic leadership, supply chain resilience, and organizational performance. The chapter ends with defining the developed hypotheses and elaborating the conceptual framework of this study.

Chapter 3 begins with explaining research paradigm and design and continues by discussing research methodology. After providing justifications to choose certain paradigm, approach, and methodology, the research design is described. Then, items adapted/adopted to measure research variables are introduced. Next, details of the sampling strategy, population, and sample size are presented. Additionally, this chapter describes data collection method and data analysis procedure.

Chapter 4 is fundamentally dedicated to describing the results obtained from data analysis with structural equation modelling. To this end, first, data screening process is explained step by step. Then, the results of the measurement model and structural model are presented. Hypotheses testing is also conducted in this chapter.

Chapter 5, which is termed “conclusion and recommendations”, elaborates the research findings that are obtained in Chapter 4. After presenting the research findings and comparing them with previous studies, the practical, methodological, and empirical implications of the current study are discussed in detail. Organization of the research is visualized in Figure 1.2.

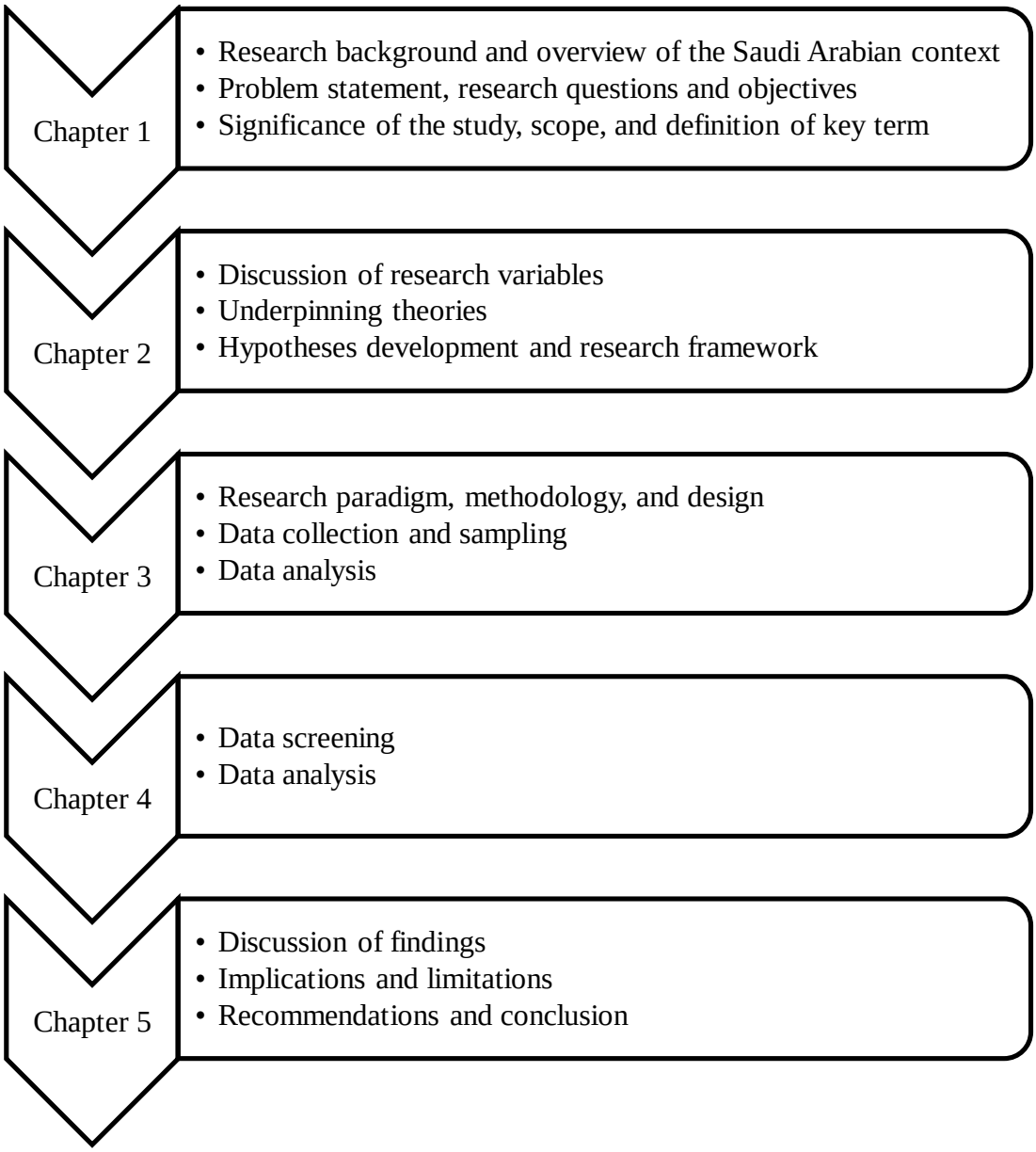

Figure 1.3 Organization of the research

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Appendix A - Questionnaire

Dear Participant,

Hereby we invite you to take part in a survey on supply chain risk management practices in Saudi Arabia. It is highly appreciated if you spend 5 minutes to fill up the questionnaire based on your personal opinion. The participation in this survey is on a volunteer base and your information will remain confidential.

Thank you for your time

If you have any question, please feel free to contact me at 06505614257

Mosaab Habani, PhD. candidate

Azman Hashim International Business School, Universiti Teknologi Malaysia

Email: mm.habani@gmail.com

Part A:

Part I: Basic Information

No	Characteristics	Details
1	Gender	1. Malel 2. Female
	Age	1. 18-24 2. 25-34 3. 35-44 4. 45 and above
1	Position in the company	1. Owner/Entrepreneur 2. CEO 3. Top Manager
2	Experience at the current position	1. Less than one year 2. 1- 3 years 3. 4 years and above
3	Number of employees in the company	1. Less than 50 employees 2. 50 - 200 employees 3. 201 and above

Part B:
Please indicate the level of agreement with the following statements by indicating Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A) or Strongly Agree (SA)

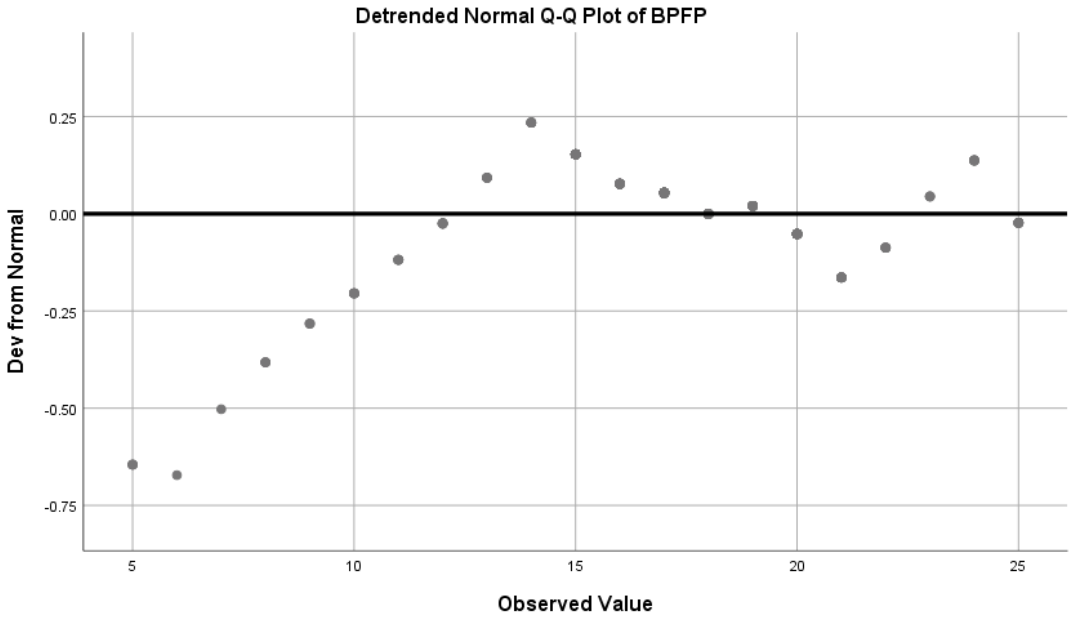
Business performance: financial performance					
We have better return on investment than our competitors.	SD	D	N	A	SA
We have better return on sales than our competitors.	SD	D	N	A	SA
We have better growth in sales than our competitors.	SD	D	N	A	SA
We have better growth in net profit than our competitors.	SD	D	N	A	SA
We have better growth in market share than our competitors.	SD	D	N	A	SA
Business performance: operational performance					
Our company can quickly modify products to meet our major customer's requirements.	SD	D	N	A	SA
Our company can quickly introduce new products into the markets.	SD	D	N	A	SA
Our company can quickly respond to changes in market demand.	SD	D	N	A	SA
Our company has an outstanding on-time delivery record with our major customers.	SD	D	N	A	SA
The lead time for fulfilling the customers' orders (the time which elapses between the receipt of customer's order and the delivery of the goods) is short.	SD	D	N	A	SA
Our company provides a high level of customer service to our major customers.	SD	D	N	A	SA
Business performance: Supply chain risk management performance					
Our company have the ability to confront opportunities and threats in the environment.	SD	D	N	A	SA
Our company is capable to manage supply chain risks.	SD	D	N	A	SA
Our company allocate resources into supply chain risk management.	SD	D	N	A	SA
Our company's agility is increasing.	SD	D	N	A	SA

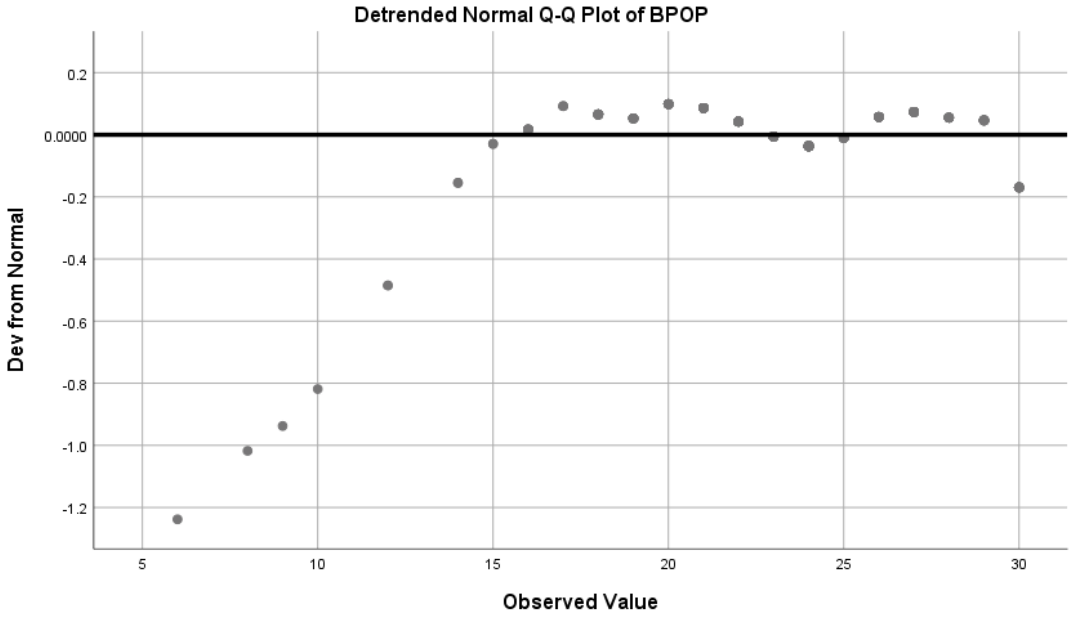
Our company have the ability to confront opportunities and threats in the environment.	SD	D	N	A	SA
Strategic leadership					
The leader in your company has the ability to motivate employees.	SD	D	N	A	SA
The leader in your company has the ability to manage change.	SD	D	N	A	SA
The leader in your company has the ability to clarify ambiguity and uncertainty.	SD	D	N	A	SA
The leader in your company has the ability to think strategically.	SD	D	N	A	SA
The leader in your company has the ability to delegate.	SD	D	N	A	SA
The leader in your company is flexible, but consistent.	SD	D	N	A	SA
Business continuity planning					
Employees in your business unit are aware of whom to contact during office hours in times of need relating to your organizational operations.	SD	D	N	A	SA
Employees in your business unit are aware of whom to contact outside office hours in times of need relating to your organizational operations	SD	D	N	A	SA
Employees in your business unit are aware of whom to contact in an emergency relating to your organizational operations	SD	D	N	A	SA
Your business unit has a well-defined organizational structure for the business continuity planning teams for your organizational operations	SD	D	N	A	SA
Your business unit has a well-defined organizational structure to quickly recover after a disruption in your organizational operations	SD	D	N	A	SA
Employees in your business unit are aware of their roles in times of emergency relating to your organizational operations	SD	D	N	A	SA

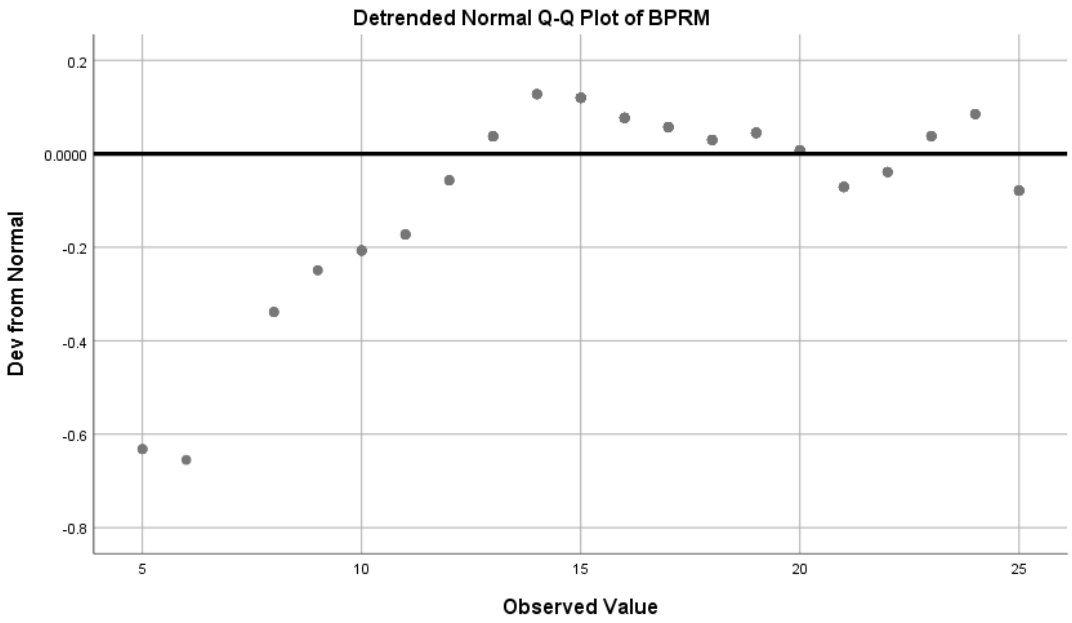
Your business unit has a categorization of the level of risk the organization deems acceptable for your organizational operations	SD	D	N	A	SA
Your business unit is aware of the magnitude of risk its organizational operations are exposed to.	SD	D	N	A	SA
Your business unit is aware of the types of risk its organizational operations are exposed to.	SD	D	N	A	SA
Your business unit knows how much time is acceptable for responding to threats to its organizational operations.	SD	D	N	A	SA
Your business unit knows how much time is acceptable for implementing business continuity plans for its organizational operations.	SD	D	N	A	SA
Your business unit knows how much time is acceptable for recovering from disruptions in your organizational operations.	SD	D	N	A	SA
Your business unit knows how it should review business continuity plans for its organizational operations.	SD	D	N	A	SA
Your business unit knows when it should review business continuity plans for its organizational operations.	SD	D	N	A	SA
Your business unit knows who in the business unit should review business continuity plans for its organizational operations.	SD	D	N	A	SA
Your business unit has in place the right processes that inform the staff how to react to and handle particular disruptions in your organizational operations	SD	D	N	A	SA
Your business unit has in place the right procedures that inform staff how to react to and handle particular disruptions in your organizational operations	SD	D	N	A	SA
Your business unit has in place methods of documenting disruptions in your organizational operations.	SD	D	N	A	SA
Your business unit has in place methods of recording responses to disruptions in your organizational operations	SD	D	N	A	SA

Your business unit has in place methods of documenting impact of response to disruptions in your organizational operations.	SD	D	N	A	SA
Your business unit has formulated acceptance criteria for the business continuity plan for its organizational operations.	SD	D	N	A	SA
Your business unit has formulated the testing requirements for the business continuity plan for its organizational operations	SD	D	N	A	SA
Your business unit has provided adequate training for staff involved in preparing business continuity plans for its organizational operations.	SD	D	N	A	SA
Your business unit has provided adequate training for staff involved in failure recovery processes for its logistical operations.	SD	D	N	A	SA
Your business unit has provided adequate training for staff involved in testing the business continuity plans for its organizational operations	SD	D	N	A	SA
Supply chain resilience					
We are able to cope with changes brought by the supply chain disruption.	SD	D	N	A	SA
We are able to adapt to the supply chain disruption easily.	SD	D	N	A	SA
We are able to provide a quick response to the supply chain disruption.	SD	D	N	A	SA
We are able to maintain high situational awareness at all times.	SD	D	N	A	SA
Our organization can easily restore material flow.	SD	D	N	A	SA
Our organization would not take long to recover normal operating performance.	SD	D	N	A	SA
The supply chain would quickly recover to its original state.	SD	D	N	A	SA
Our organization can quickly deal with disruptions.	SD	D	N	A	SA

Appendix B - Data normality






Detrended Normal Q-Q Plot of BPRM
Dev from Normal
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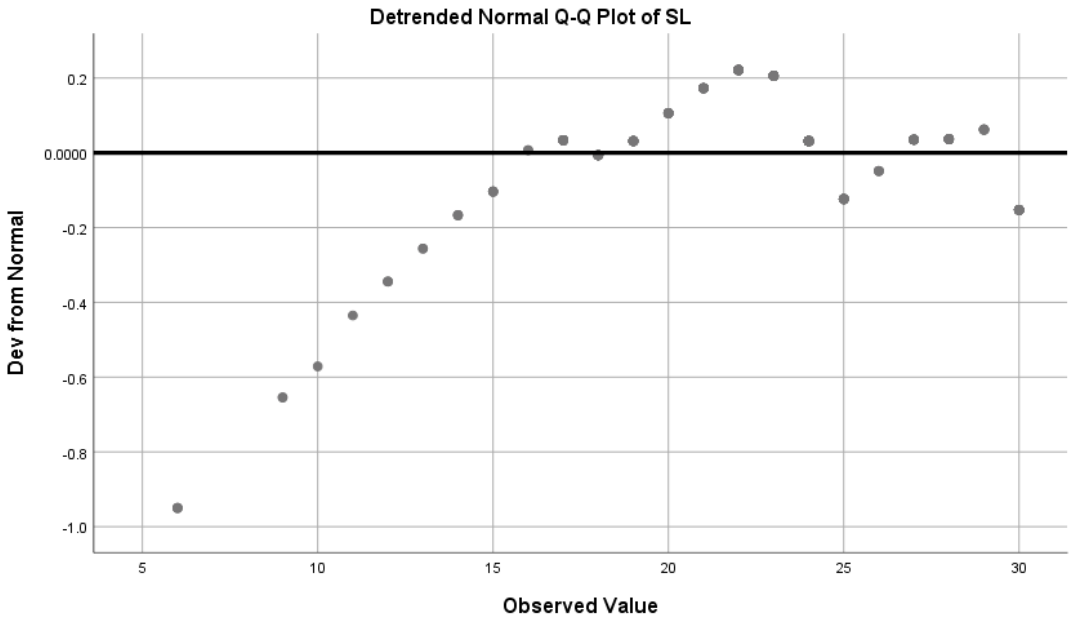
0.0000
-0.2
-0.4
-0.6
-0.8
5
10
15
20
25
Observed Value


Detrended Normal Q-Q Plot of SL
Dev from Normal
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-0.6
-0.8
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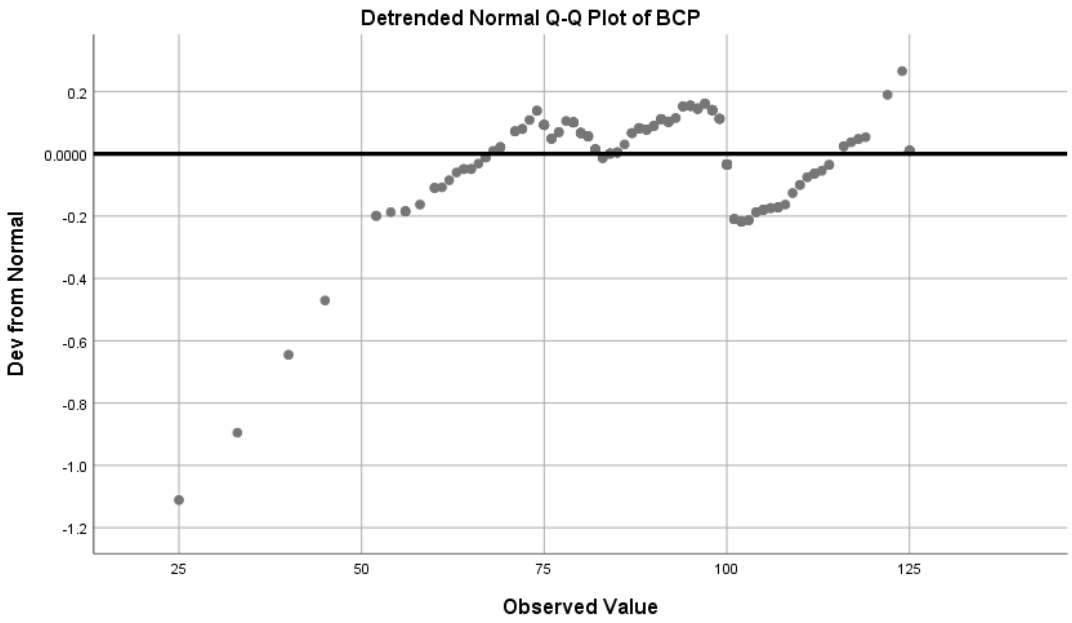
5
10
15
20
25
30
Observed Value


Detrended Normal Q-Q Plot of BCP
Dev from Normal
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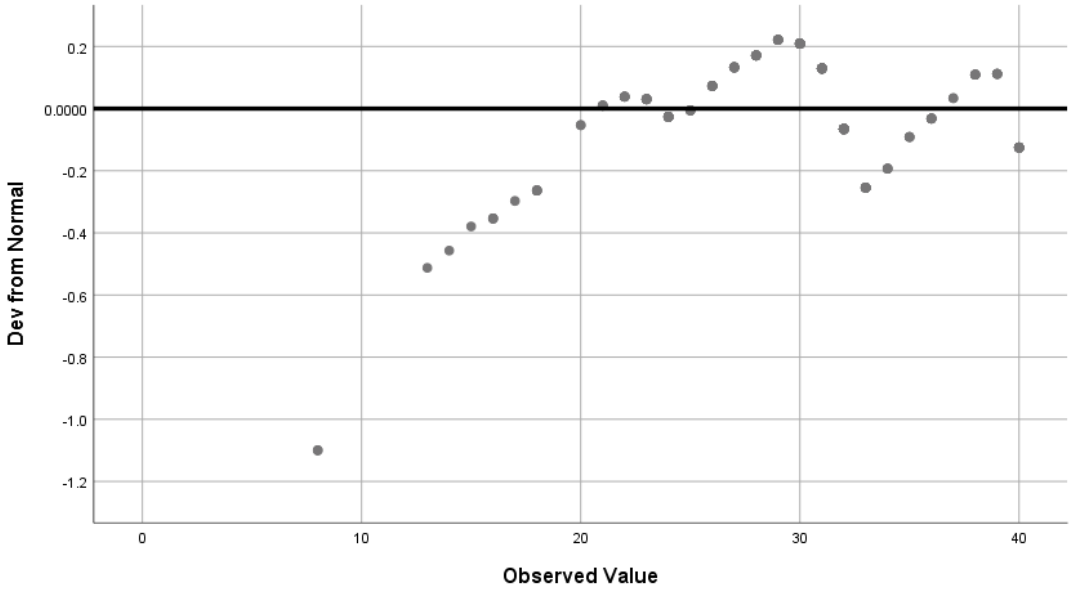
0.0000
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
25
50
75
100
125
Observed Value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-0.8
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-1.2
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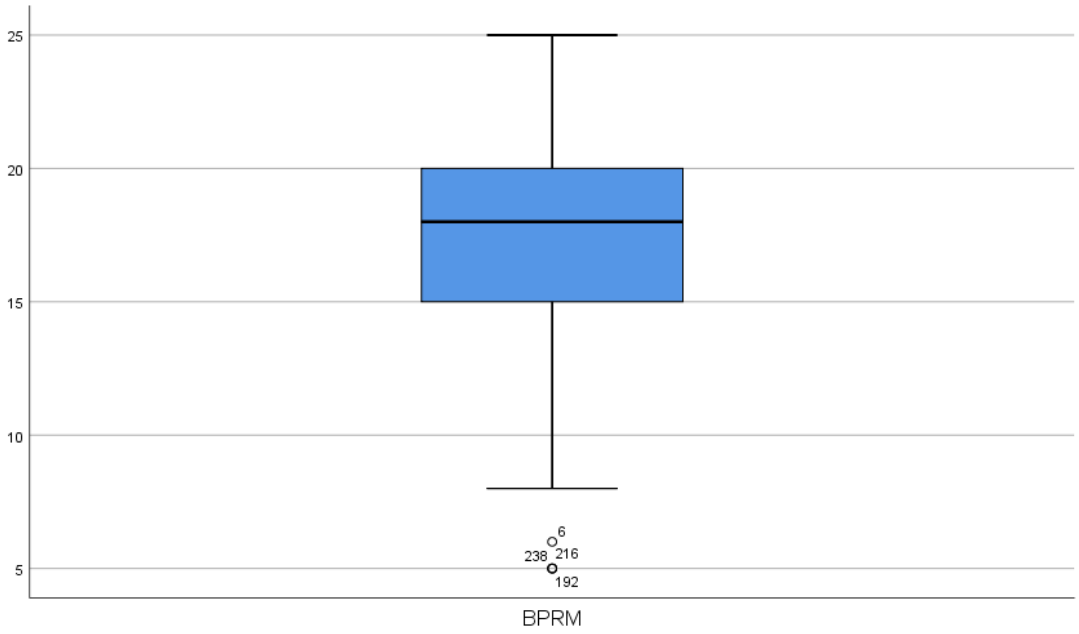
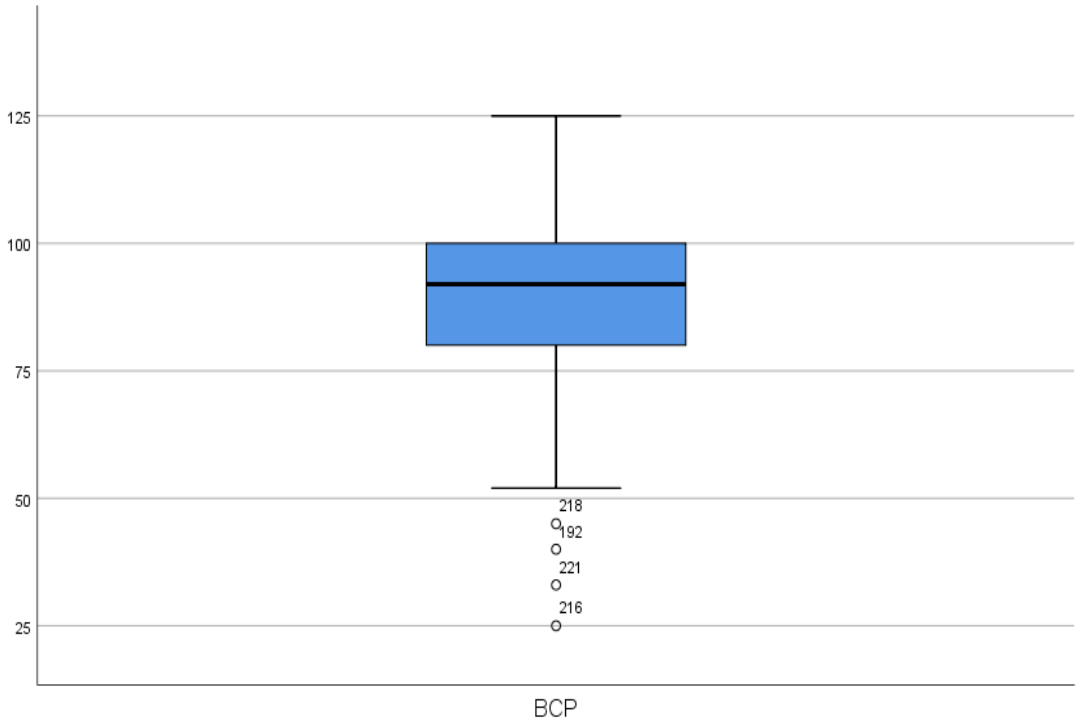
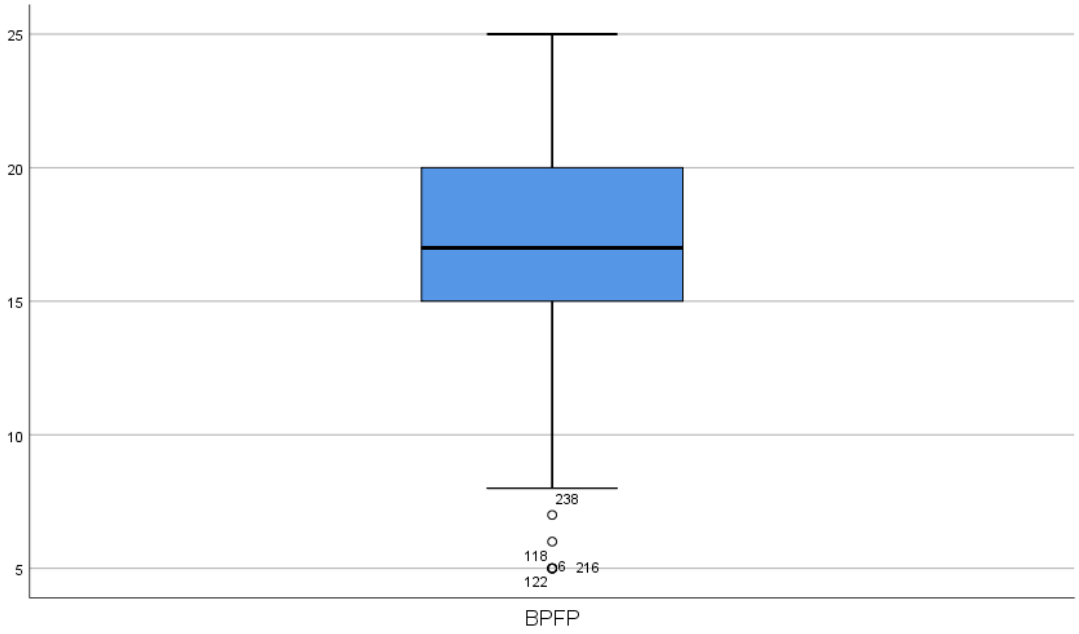
20
30
40
Observed Value

Appendix C- Outliers



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20
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10
5
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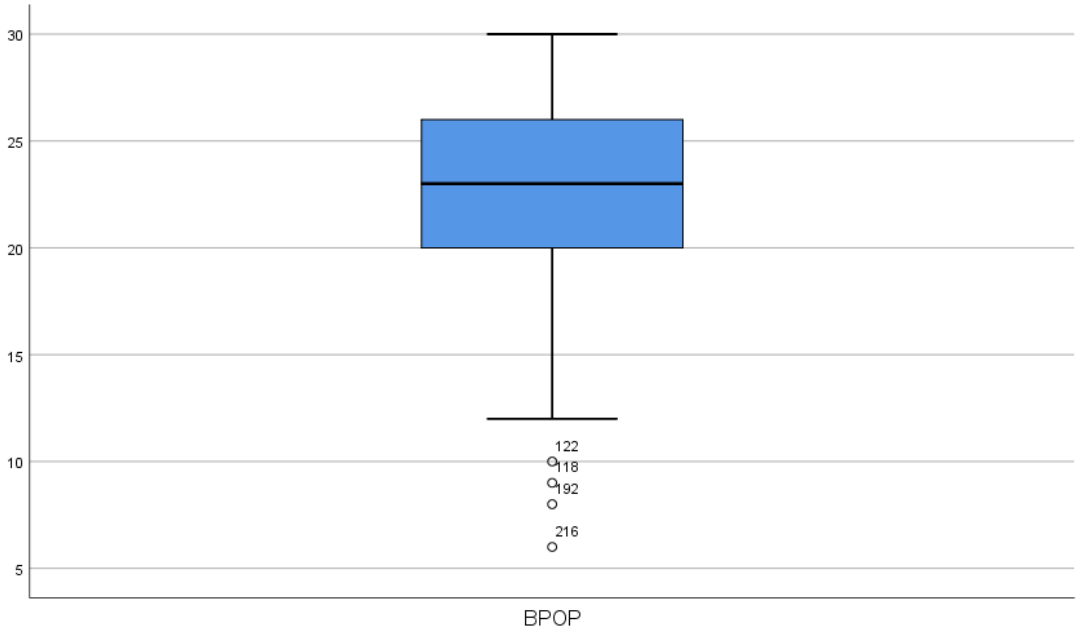
118
216
122
BPFP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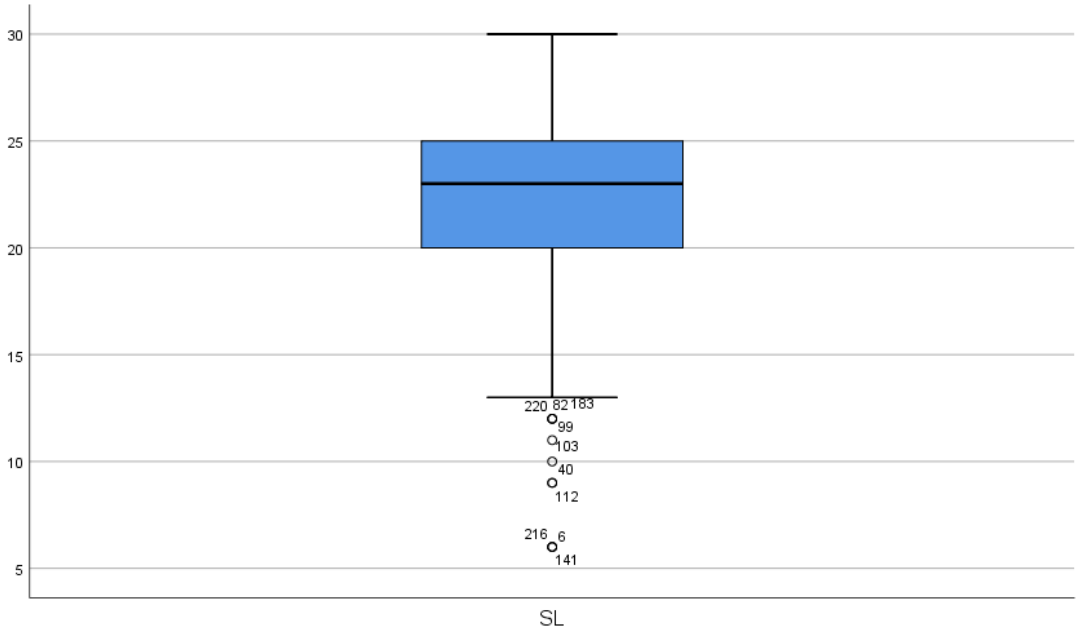
118
192
216
BPOP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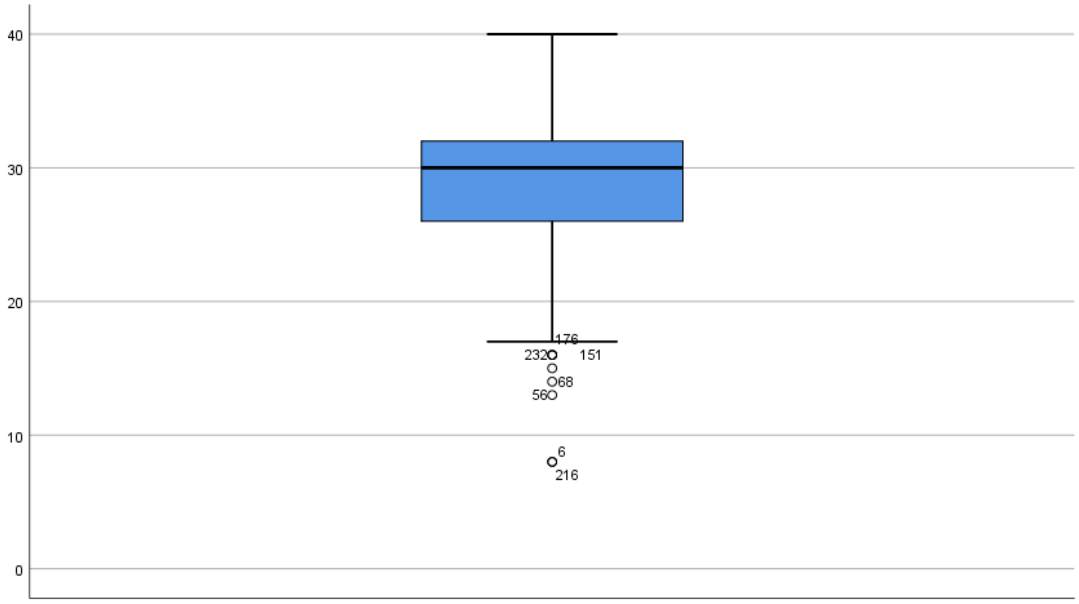
82
183
99
103
40
112
216
6
141
SL


40
30
20
10
0
176
232
151
68
56
6
216

Appendix D Missing values

Univariate Statistics

Items	N	Mean	Std. Deviation	Missing		No. of Extremes[a,b]	
				Count	Percent	Low	High
Gender	247	1.11	.318	0	.0	.	.
Age	247	2.54	.747	0	.0	0	0
Position	247	2.15	.929	0	.0	0	0
Experience	247	2.31	.712	0	.0	0	0
Number of employees	247	1.85	.854	0	.0	0	0
FP1	247	3.39	.989	0	.0	12	0
FP2	247	3.42	.996	0	.0	10	0
FP3	247	3.54	.953	0	.0	7	0
FP4	247	3.25	.983	0	.0	12	0
FP5	247	3.47	.995	0	.0	9	0
OP1	247	3.77	1.027	0	.0	6	0
OP2	247	3.68	1.031	0	.0	6	0
OP3	247	3.81	.930	0	.0	3	0
OP4	247	3.85	.911	0	.0	0	0
OP5	247	3.65	.967	0	.0	7	0
OP6	247	4.00	.920	0	.0	0	0
RMP1	247	3.62	1.004	0	.0	8	0
RMP 2	247	3.75	.938	0	.0	4	0
RMP 3	247	3.13	1.126	0	.0	0	0

Items	N	Mean	Std. Deviation	Missing		No. of Extremes[a,b]	
				Count	Percent	Low	High
RMP 4	247	3.57	.964	0	.0	6	0
RMP5	247	3.49	1.016	0	.0	12	0
SL1	247	3.75	1.041	0	.0	11	0
SL2	247	3.77	.970	0	.0	8	0
SL3	247	3.66	.973	0	.0	7	0
SL4	247	3.87	.975	0	.0	0	0
SL5	247	3.78	.985	0	.0	6	0
SL6	247	3.72	1.027	0	.0	12	0
Bcp1	247	3.98	.788	0	.0	.	.
Bcp2	247	3.95	.764	0	.0	.	.
Bcp3	247	3.98	.781	0	.0	.	.
Bcp4	247	3.57	1.029	0	.0	9	0
Bcp5	247	3.51	.983	0	.0	8	0
Bcp6	247	3.63	.954	0	.0	7	0
Bcp7	247	3.50	.945	0	.0	6	0
Bcp8	247	3.66	.914	0	.0	5	0
Bcp9	247	3.59	.923	0	.0	6	0
Bcp10	247	3.56	.917	0	.0	7	0
Bcp11	247	3.59	.919	0	.0	5	0
Bcp12	247	3.55	.872	0	.0	4	0
Bcp13	247	3.67	.842	0	.0	3	0

Items	N	Mean	Std. Deviation	Missing		No. of Extremes[a,b]	
				Count	Percent	Low	High
Bcp14	247	3.62	.912	0	.0	7	0
Bcp15	247	3.64	.868	0	.0	5	0
Bcp16	247	3.79	.837	0	.0	5	0
Bcp17	247	3.77	.869	0	.0	5	0
Bcp18	247	3.62	.967	0	.0	5	0
Bcp19	247	3.58	.967	0	.0	6	0
Bcp20	247	3.48	.987	0	.0	9	0
Bcp21	247	3.46	1.003	0	.0	10	0
Bcp22	247	3.44	1.022	0	.0	10	0
Bcp23	247	3.52	.975	0	.0	8	0
Bcp24	247	3.40	1.062	0	.0	13	0
Bcp25	247	3.40	1.073	0	.0	14	0
SCR1	247	3.69	.931	0	.0	8	0
SCR2	247	3.55	.998	0	.0	10	0
SCR3	247	3.66	.897	0	.0	5	0
SCR4	247	3.66	.922	0	.0	5	0
SCR5	247	3.67	.903	0	.0	4	0
SCR6	247	3.67	.930	0	.0	6	0
SCR7	247	3.74	.896	0	.0	4	0
SCR8	247	3.78	.828	0	.0	2	0

LIST OF PUBLICATIONS

Habani M, A, and Kamaruddin S. (2021). Supply Chain Risk Management Strategies and Business Performance: A Conceptual Framework. Review of International Geographical Education (RIGEO), 11(7), 3938-3945. Doi: 10.48047/rigeo.11.07.36.

Habani M, A, and Kamaruddin S. (2021). The Influence of Strategic Leadership, Business Continuity Planning and Supply Chain Resilience on Organizational Performance: Instrument Validation. Business Management and Strategy, 12(2). Doi: https://doi.org/10.5296/bms.v12i2.19101