



EFFECT OF SUPPLY CHAIN RISK MANAGEMENT PRACTICES ON LOGISTICS PERFORMANCE: THE CASE OF COCA-COLA BEVERAGES AFRICA, ETHIOPIA

By

Semere Tilaye

A thesis submitted to the School of Graduate studies of Addis Ababa University School of Commerce for the Partial Fulfillment of the Requirements of the Degree of Master of Arts in Logistic and Supply Chain Management

Advisor

Busha Temesgen (PhD.)

June- 2024

Addis Ababa, Ethiopia



EFFECT OF SUPPLY CHAIN RISK MANAGEMENT PRACTICES ON LOGISTICS PERFORMANCE: THE CASE OF COCA-COLA BEVERAGES AFRICA, ETHIOPIA

By:

Semere Tilaye

Approved by board of examiners and advisor:

Dr. Busha Temesgen _____

Advisor Signature Date

Dr. _____

Internal examiner Signature Date

Dr. _____

External examiner Signature Date

DECLARATION

I, the undersigned, declare that this Master’s thesis entitled “effect of SC risk management practices on logistics performance: the case of Coca-Cola beverages Africa, Ethiopia” is my original work, prepared under the guidance of Dr. Busha Temesgen (Asst. Professor). All sources of material used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institutions for the purpose of earning any degree.

Semere Tilaye

Date _____

Signature _____

ACKNOWLEDGEMENTS

First and foremost, I offer my deepest thanks to God for his unending love, comfort, and blessings. I am immensely grateful to my advisor, Dr. Busha Temesgen, for his invaluable guidance and support throughout the development of this thesis. My heartfelt gratitude also extends to my family. To my wife, W/ro Sara Haile, a huge thank you for your unwavering patience during my research. Finally, I express sincere appreciation to all the participants who contributed to this research. Without their participation, this paper would not have been possible.

Table of contents

Contents

DECLARATION	iii
ACKNOWLEDGEMENTS	iv
Table of contents.....	1
Acronyms and abbreviations.....	4
List of tables and figures	5
Abstract	6
CHAPTER ONE – INTRODUCTION	7
1.1. Background of the study	7
1.2. Statement of the problem	10
1.3. Research Questions:	11
1.4. Objective of the study:	12
1.5. Significance of the study	12
1.6. Scope of the study	12
1.7. Limitation of the study	13
1.8. Organization of the paper.....	13
CHAPTER TWO - RELATED LITERATURE REVIEW	14
2.1. Introduction.....	14
2.2. Theoretical literature review	14
2.2.1. Theories to be applied in the study	14
2.2.2. Supply chain risk management practices	15
2.2.3. Logistics performance measurement.....	18
2.3. Empirical literature review.....	20
2.3.1. Supply chain risk management practices	20
2.3.2. Supply chain risk management practices and logistics performance	21
2.4. Conceptual frame work.....	23
CHAPTER THREE - RESEARCH DESIGN AND METHODOLOGY	24
3.1. Introduction.....	24
3.2. Description of the study area	24

3.3. Research approach	24
3.4. Research design	24
3.5. Population of the study and sampling technique.....	25
3.6. Data types and data sources	25
3.7. Data collection instrument and collection procedures	25
3.8. Methods of analyzing data	25
3.9. Reliability and Validity tests.....	26
3.10. Ethical considerations	27
CHAPTER FOUR - RESEARCH FINDINGS AND DISCUSSION	28
4.1 Introduction.....	28
4.2. Response rate	28
4.3 Demographic statistics	29
4.3.1 Gender of the respondents.....	29
4.4.2 Level of education of the respondents	29
4.4.3. Experience of the respondents	30
4.5 SCRM practices of CCBA, Ethiopia.....	30
4.5.1 Effect of SC flexibility practices on logistics performance of CCBA, Ethiopia.....	31
4.5.2 Effect of SC collaboration practices on the logistics performance of CCBA, Ethiopia	32
4.5.3 Effect of Supply base rationalization practices on the logistics performance of CCBA, Ethiopia	33
4.5.4 Effect of SC control practices on the logistics performance of CCBA, Ethiopia	34
4.5.5 Effect of SC avoidance practices on the logistics performance of CCBA, Ethiopia	35
4.6 Logistics performance.....	35
4.7. Regression Analysis on the effect of all Supply Chain Risk Management Practices on logistics Performance	36
4.7.1. Multiple linear regression assumptions.....	36
➤ Multicollinearity	36
➤ Homoscedasticity	37
➤ Normality of errors	38
➤ Correlation	39
4.7.2. Regression analysis.....	41
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION	44

5.1. Introduction.....	44
5.2 Summary of Major Findings.....	44
5.3 Conclusions.....	44
5.4. Recommendations.....	45
5.5. Limitations and Implication of Future Research.....	46
References:	47
Annex 1: Questionnaire of the Survey	53
Annex 2: Interview of the Survey.....	59

Acronyms and abbreviations

AV	Supply chain avoidance
CCBA	Coca-Cola Beverages Africa
CL	Supply chain collaboration
CN	Supply chain control
ESLSE	Ethiopian shipping and logistics service enterprise
FMCG	Fast-moving consumer goods
F&B	Food and Beverage
FL	Supply chain flexibility
IFC	International Finance Cooperation
LP	Logistics performance
SC	Supply chain
SCRM	Supply chain risk management
SPSS	Statistical Package for the Social Sciences
SR	Supplier base rationalization
TCCC	The Coca-Cola Company
UNCTAD	United nation conference on trade and development

List of tables and figures

Figure 2.1 Conceptual framework

Figure 4.1 Scatter plot based on residual

Figure 4. 2 P-P Plot of Regression Standardized Residual

Table 3.1 Reliability test

Table 4.1 Response rate by section

Table 4.2 Gender of respondents

Table 4.3 Level of education of respondents

Table 4.4 Years of service of respondents

Table 4.5 Descriptive Statistics on SCRM practices

Table 4.6 Descriptive statistics on SC flexibility practice

Table 4.7 Descriptive statistics on SC collaboration practice

Table 4.8 Descriptive statistics on supply base rationalization practice

Table 4.9 Descriptive statistics on SC control practice

Table 4.10 Descriptive statistics on SC avoidance practice

Table 4.11 Descriptive statistics logistics performance

Table 4.12 Correlation between the grouped SCRM practices and logistics performance

Table 4.13 Model summary table

Table 4.14 ANOVA table

Table 4.15 Coefficients table

Abstract

The study is sought to explore the effect of supply chain risk management practices on the logistics performance of Coca cola beverages Africa, Ethiopia. The population of the study is employees who are first line managers and above in the logistics functions of Addis and Sebeta plants of Coca cola beverages Africa, Ethiopia. Data was collected through Self-administered questionnaire consisting of two open ended and all the rest closed ended questions and supported by semi structured interview with key respondents. In this explanatory case study the collected data was analyzed using both descriptive and inferential statistics by SPSS 27 to find out the effect of Supply chain risk management practices on the logistics performance of Coca cola beverages Africa, Ethiopia. The five supply chain risk management practices identified for the study are supply chain flexibility, supply chain collaboration, supply base rationalization, supply chain control and supply chain avoidance. As per the regression result supply chain avoidance has the highest positive impact on the logistics performance of Coca cola beverages Africa, Ethiopia followed by supply chain control and supply chain flexibility has the highest negative impact. Supply chain collaboration and supply base rationalization practices have low impact.

Key words: Supply Chain Risk Management Practice, logistics performance

CHAPTER ONE – INTRODUCTION

1.1. Background of the study

Historically, the growth in manufacturing has been a key element in the successful transformation of most economies that have seen sustained rises in their per capita incomes (World Bank, 2014).

The food and beverage industry has a special role in expanding economic opportunity because it is universal to human life and health (Roth et al., 2008).

Transport and logistics are one of the key sectors of the Ethiopian economy, with almost 15% of GDP and employing more than 200 thousand people directly and indirectly. Its importance is determined not only by its own potential, but by its role in the efficient functioning of the entire economy (UNCTAD, 2023).

Despite a rapidly growing economy and population, the function of logistics is not well integrated and developed to deliver value-added services to the necessary extent in present-day Ethiopia. Therefore, Ethiopia is marked by a low level of logistics performance (Ensermu, 2021).

Supply chain risk management practices become a critical component of meeting customer requirements thereby gaining a competitive advantage (Fred, 2017).

Supply chain risk management practices- are strategies that manufacturing firms use to reduce or control supply chain risks. These strategies are flexibility, collaboration, supply base rationalization, SC control and avoidance strategies (Skipper & Hanna, 2009; Gligor & Holcomb, 2012; Lockamy, 2014)

The current business environment is marked by instability and unpredictability (Wu and Chaipiyaphan, 2019). There is a heightened variability in demand across various industry sectors, and the life-cycles of products and technologies have notably shortened. The introduction of competitive products further complicates the prediction of demand throughout their life cycles. Additionally, supply chains experience significant disruptions due to factors such as sales promotions, quarterly sales incentives, and decision rules, leading to a state of considerable disorder in the supply chain. (Kiarie, Ngugi and Ogollah, 2017). The expansion of global markets and the practice of outsourcing have led numerous manufacturing companies to prioritize the

management of their operations through supply chain and logistics. Many of these companies are aware that in order to develop a productive and streamlined supply chain, it is crucial to evaluate supply chain management (SCM) for its performance to minimize the risk of disruptions. Supply chain management has been a major component of competitive strategy however risks related to disruptions among manufacturing companies did not get enough attention from researchers (Kiarie, Ngugi and Ogollah, 2017).

Logistics delays, product recalls, safety issues and suppliers' disruptions are clear indications of the rising risk levels caused by global and complex supply chains for which most businesses are not prepared to manage (Sime, 2019).

Nancy, (2018) highlighted that business leaders have serious concerns as they work to respond creatively to new challenges and risks to ensure survival in this highly competitive environment.

According to Sime (2019), firms should have proactive risk management strategies which mitigate the supply chain disruptions rather than dealing with all risks simply by supply chain management.

Supply chain risk management (SCRM) is becoming an integral part of risk management in most organizations (Tomlin, 2006; Ghagde, Dani & Kalawsky, 2013).

Logistics management is within the scope of supply chain management. The sub functions in the logistics management function include supply management, inventory management, transportation management, warehouse and distribution management, and customer service management. Logistics underpins the value addition part of operation through moving resources in forward and reverse direction in every stage of product lifecycle. It is that part of the supply chain process that plans, implements and controls the efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption in order to meet customer requirements (Ensermu, 2021).

Fred (2017) conducted a research project that focused on assessing how different strategies for managing risk in the supply chain impact the performance of food and beverage manufacturing companies in Kenya. The strategies examined in this study included flexibility, SC collaboration, rationalization of the supply base, risk control, and risk avoidance. The findings of the study

revealed that SCRM strategies indeed have an impact on the performance of F&B manufacturing firms. The study suggests, among other things, that these firms need to prioritize supply chain flexibility, collaboration, and supply base rationalization as fundamental strategies for managing supply chain risks and achieving world class performance relies on effectively managing SC risk. Companies should allocate dedicated employees, resources, investments, and adapt best practices to support supply chain risk management, to ensure that their SC efforts meet customer needs in the most efficient and cost-effective manner possible.

Abdellaoui (2019) underscores the negative impact of disruptive events on logistics performance, particularly in the areas of supply, demand, and transportation.

In this research Coca cola beverages Africa Ltd., Ethiopia is used to study the effect of supply chain risk management practices on the logistics performance of a beverage manufacturing firm.

The Coca-Cola Company was born On May 8, 1886 in Atlanta, Georgia .Coca-Cola was first bottled in Ethiopian's capital Addis Ababa in 1959 by the Ethiopian Bottling Share Company. In 1995, Coca-Cola bought shares in the business and in 1999 signed a joint venture agreement with the plants and in 2001 increased its share to 61% and the company changed its name to the East Africa Bottling Share Company (Eden, 2019).

Coca-Cola Beverages Africa (CCBA) bottles and distributes beverages trademarked by The Coca-Cola Company (TCCC) or TCCC's affiliated entities and is the world's 8th largest Coca-Cola bottler by revenue. CCBA has over 20 000 employees across its operations in Africa with more than 39 bottling plants in 14 countries. The creation of CCBA in 2016 was designed to advance a consolidated, more successful Coca-Cola system on the continent. CCBA accounts for about 40% of all Coca-Cola volumes sold in Africa, boasting a diverse pan-African footprint servicing over 600 000 outlets that serve a combined population of over 350 million people across the continent. CCBA's operation in sub-Saharan Africa comprises the following markets: South Africa, Kenya, Ethiopia, Mozambique, Tanzania, Uganda, Namibia, Ghana, Mayotte, Comoros, Botswana, Zambia, Eswatini, and Lesotho. As a subsidiary of CCBA and a bottler for The Coca-Cola Company, CCBA Ethiopia is a world-class, customer-orientated, socially and environmentally conscious fast-moving consumer goods (FMCG) company. (Coca-Cola Beverages Africa-Ethiopia, no date)

1.2. Statement of the problem

Supply chain performance in general and logistics performance in particular is vital for companies to compete in the market and if these could not be realized it can also be a major impediment for competitiveness (Fugate, Mentzer & Stank, 2010).

Legesse, (2019) has cited that studies by Shang & Marlow (2005); Bowersox, Closs & Cooper, (2010); Graeml, and Peinado, (2011) confirm there is a strong link between logistics performance and firm's performance.

As per Ensermu (2021), despite strong evidence indicating a significant connection between the growth of logistics and a country's economic development, Ethiopia's professional logistics sector is largely undeveloped, structurally limited, or overshadowed by other disciplines, with the exception of military organizations. As a consequence, despite a rapidly growing economy and population, the function of logistics is not well integrated and developed to deliver value-added services to the necessary extent in present-day Ethiopia. Therefore, Ethiopia is marked by a low level of logistics performance, ranking 126th among 160 countries, with Germany holding the top position (Ensermu, 2021).

CCBA, Ethiopia is pursuing an ambitious sustainable growth strategy that will be supported through investment in manufacturing, sales, distribution, and marketing. It is also indicated on the company's website that Sales and distribution excellence are its core strengths. However, there was recurrent interruption of product supply to different regions, stock losses majorly during transportation and logistics asset damages in the last 2 years. As an evidence of this it has been observed that there was a stock loss on finished products with a total value of birr 70,000,000 only on finished goods in the operational year of 2023. In year 2022 five trucks with trailers were completely burnt on the route in southern part of the country around Shashemene town due to the instability and political violence in the region.

In addition to the different possible contributors implied above, the risks which cause disruptions in the supply chain could be possibly contributing to this low performance. In fact, this is one of the triggering points which motivate the author to do this research.

Supply chain risk management strategy becomes a critical component of meeting customer requirements thereby gaining a competitive advantage. Achieving world class performance relies on effectively managing SC risk (Fred, 2017).

Though there are quite a number of studies on the different factors which might affect the logistics performance of a firm in Ethiopia, the researcher couldn't find a study conducted on the effect of SC risk management practices on logistics performance in Ethiopia and to the best of knowledge of the researcher, only few researches were done on supply chain risk management in different organizations (Sime, 2019).

There is a need therefore, for the firms to clearly recognize the risks and uncertainties in delivering value to customers through logistics operation. Logistics managers and supply chain practitioners need to be aware of the effects of risk management practices on logistics performance and should develop strong strategies to mitigate these risks and enhance the efficiency and effectiveness of the logistic function.

As CCBA, Ethiopia is a leading soft drink manufacturer and mega player in the beverage sector of the country analyzing the effects of SCRM practices on the logistics performance of CCBA, Ethiopia assists the logistics function of the company in developing the right SCRM strategies to enhance the logistics performance of their firm and the outcome of this research also gives insight to the logisticians in the food and beverage industry.

The study also generated empirical body of knowledge which would be useful to scholars and supply chain practitioners.

1.3. Research Questions:

- How does the logistics function of CCBA, Ethiopia manage supply chain risks?
- What is the effect of SCRM practices on the logistics performance of CCBA, Ethiopia?
- What needs to be done differently in managing risks in order to improve the overall logistics performance of CCBA, Ethiopia?

1.4. Objective of the study:

General objective:

- The general objective of the study was to analyze the effect of SC risk management practices on the logistics performance of CCBA, Ethiopia.

Specific objectives:

- To assess the SC risk management practices in the logistics operations of CCBA, Ethiopia.
- To examine how each SC risk management practice affects the logistics performance of CCBA, Ethiopia.

1.5. Significance of the study

The manufacturing sector, particularly the food and beverage industry, plays a crucial role in the development process and makes a substantial contribution to both the national and global economy (IFC, 2006)

Analyzing the effect of SC risk management practices on logistics performance supposed to have significant importance for firms that manufacture and distribute products in the domestic market. Particularly for the CCBA Ethiopia; the findings of the study enables employees in the logistics function and third party logistics service providers to evaluate their role towards the performance of logistics function of the company. The findings of this study also provides insight for logistics practitioners in the food and beverage industry which is booming in Ethiopia.

On top of the above this research paper serves as a basis for other researchers who are interested to conduct a study in this area as it identified areas for further research. This would be useful to logistics and supply chain management students. It is hoped that this study on the effect of SCRM practices on logistics performance helps entrepreneurs, policy makers, business leaders and researchers to improve the performance of businesses.

1.6. Scope of the study

Among the 5 manufacturing plants that CCBA, Ethiopia operates which are located in Addis Ababa, Sebeta, Ambo, Diredawa and Bahirdar only Addis Ababa and Sebeta plants will be within the scope of the study.

The study considered only five SCRM practices which are flexibility, collaboration, supply base rationalization, control and avoidance practices and was focused on finding out the effect of these SCRM practices on logistics performance.

Regarding performance of the manufacturing firms, this research was limited only to logistics performance of the firm in terms of cost, quality, delivery and customer service rather than productivity and capacity.

1.7. Limitation of the study

No research is free from limitation. This study also have the following limitations:

- Only one manufacturing firm is considered to analyze the effect of SC risk management practices on the logistics performance and recommendations and conclusions were made based on analysis done in one firm only.
- The study was conducted only in selected two plants out of the 5 plants CCBA, Ethiopia operates.

1.8. Organization of the paper

The paper comprises five chapters. The first chapter is introduction which includes back ground of the study, the research problem, research questions, research objectives, scope, significance and limitations of the study. The second chapter provides theoretical and empirical literature review and the methodology is presented in the third chapter. Results and discussions are presented in chapter four.

Chapter five presents summary of major findings, conclusion and recommendations.

CHAPTER TWO - RELATED LITERATURE REVIEW

2.1. Introduction

In this chapter review of both theoretical and empirical literatures is presented. Various literatures related to supply chain risk management practices and logistics performance were covered. Relevant concepts, theories, and empirical evidences related to the topic of the study were reviewed and based on the reviews; the selected conceptual framework is also presented in the chapter.

A literature review involves a thorough examination of the previous research relevant to the study. This examination serves to refine and strengthen the theoretical basis of the research (Fred, 2017).

2.2. Theoretical literature review

2.2.1. Theories to be applied in the study

- Contingency theory

Kihyun (2011) suggested that contingency theory is based on two key assumptions. Firstly, there is no universally optimal way to organize, and the most suitable organizational form depends on the type of task or environment being addressed. Secondly, management should focus on achieving alignment and a good fit. The ability of firms to correctly perceive and respond to unexpected supply chain risks influences their capacity to adopt and implement measures that mitigate the impact of adverse events (Grotsch and Schleper, 2013). The perspective of contingency theory has been applied in studies of supply chain management (Kihyun, 2011; Bufferman, Germain and Lyer, 2018). Flexible risk management practices such as postponement and contingency planning are discussed within this framework.

- Network theory

Network theory is all about describing and mapping out the activities, players, and resources within a supply chain. It's mainly used in supply chain management to build solid, long-term, trust-based connection between the different members of the chain. This can involve things like nurturing relationships between buyers and suppliers, working with third-party logistics providers, and understanding the various management roles within supply networks (Gunasekaran, Lai & Cheng, 2008; Fred, 2019).

- Learning theory

According to Deming (1986) individual and organizational learning is a cyclical process comprising distinct components. These include observation, emotional reaction, judgment, and intervention, which form the loop of learning and improvement.

Despite completing a successful risk management activity, ongoing monitoring is essential to manage the risk, evaluate the effectiveness of the mitigation strategy, and make necessary adjustments based on lessons learned at every stage of the supply risk management process. This approach is supported by various authors (Craighead et al., 2007; Giunipero & Eltantawy, 2004; Matook et al., 2009; Rees and Allen, 2008).

Performing companies provide training to employees, suppliers and customers on inventory management, forecasting, responsiveness and continuous improvement to raise awareness and reinforce the importance of supply chain resilience (Fred, 2017).

2.2.2. Supply chain risk management practices

Supply chain risk management has its origins in the fields of risk management and later in supply chain management. It has been a significant area of research for more than twenty years. The main goal of supply chain risk management is to recognize potential sources of risk and offer appropriate recommendations for minimizing them (Singhal, Agarwal, and Mittal, 2011). SCRM encompasses a range of methods and practices aimed at effectively integrating suppliers, manufacturers, distributors, retailers, and consumers, with the objective of enhancing the long-term performance of both the entire supply chain and the individual companies. It is a formal process that involves identifying potential losses, their likelihood, and their significance (Sunjka and Sklar-Chik, 2012).

According to Fred (2017) the different practices that food and beverage manufacturing firms use to reduce or control supply chain risks are considered as supply chain risk management strategies. These strategies are flexibility, collaboration, supply base rationalization, control and avoidance strategies. Details of each of these practices are presented below.

- Supply chain flexibility

In fast-changing and unpredictable situations, businesses can use dynamic capabilities like flexibility to drive expansion. Dynamic capabilities refer to a company's ability to methodically address challenges, driven by its capacity to identify opportunities and risks, to make timely decisions aligned with the market, and to adapt its available resources (Barreto, 2010).

Agility is often interpreted as the capacity of a supply chain to quickly adjust to changes by modifying its original stable setup (Christopher, Peck, and Towill, 2006).

The Agile paradigm emphasizes high availability and the ability to adapt quickly to changes in the product mix and volume (Christopher et al., 2006), prioritizing speed (Liu, Lin & Hayes, 2010). According to Bernade et al. (2009), agility encompasses all types of changes. Nag, Hana, and Yao (2013) defined agility as consisting of two main factors: the capacity to respond to changes in a timely and appropriate manner, and the ability to leverage changes as opportunities for survival and growth in a competitive environment. Liu et al. (2010) identified the key capabilities of an agile production system as the ease with which the system can transition between products and the capacity to introduce new products without significant investments

Postponement and contingency planning are addressed as flexible risk management practice (Sime, 2019).

As per skipper and Hanna (2009), contingency planning is a unique form of planning that offers companies a strategy for handling risks associated with unforeseen events. It is crucial for achieving adaptability. Contingency planning encompasses actions such as ramping up production in different facilities, temporarily changing transportation methods, and redirecting customer demand to alternative products (Tang and Tomlin, 2009).

Postponement refers to the ability to delay committing resources and activities, which helps to stay flexible and avoid incurring costs until absolutely necessary (Li, G. *et al.* (2006)).

- Supplier base rationalization

Supplier base rationalization, as explained by the Institute for Supply Management (2015), involves a careful and deliberate effort to determine the appropriate number of suppliers to engage with. The process begins by determining the ideal number of suppliers that a company should work with, and then shifts focus to identifying which existing firms should continue being part of the supply base within a specific commodity team or division, as highlighted by Richard (2013) and Antony (Chege & Ochiri ,2019)

According to Fred, (2017) Managing the supply chain has become increasingly important due to the growing reliance on suppliers. This reliance leaves companies highly vulnerable to supply-

related risks. Tang (2006) suggests that effective supply management should play a positive role in reducing these risks in the supply chain.

Micheli et al. (2008) have highlighted the crucial role of suppliers in a company's success, as their reliability, availability, and impact on the final product's competitive edge directly affect the level of risk. Supplier selection, diversification, fostering supplier partnerships, contract agreements, and interactions are some of the strategies used to manage supply chain risks.

By diversifying the pool of suppliers, the risk gets spread out among multiple players, which reduces the impact any one player can have on the supply flow (Manuj & Mentzer, 2008b)

- Supply chain collaboration

Collaboration, according to Chopra et al. (2007), is the decision made by supply chain participants to combine their resources for mutual gain. Musa, Wei, and Tang (2012) assert that firms must establish procedures and processes that encourage partner collaboration. According to Chopra et al. (2007), trust, transparency, and faith are the fundamental cornerstones of a collaborative relationship. A supply chain is fully coordinated, as per Sodhi and Tang (2012), when all choices are made with the goal of achieving shared objectives.

Ineffective coordination will lead to demand distortion (bullwhip effect), higher manufacturing, inventory, and replenishment lead times, as well as higher labor and transportation costs, lower efficiency, lower profit margins, and distorted information (Paik & Bagchi, 2007).

Collaborative supply chain has emerged as essential for lowering supply chain risks. Information sharing and cooperative management are prerequisites for collaborative SC. One of the most important factors in lowering both internal and external risk in the supply chain environment is effective information sharing among partners (Tang, 2006).

Inter-organizational information systems (IOS) serve as a vital informational infrastructure in the supply chain by disseminating real-time demand and supply information, thereby reducing risks. Key components of this infrastructure include message-based systems for transmitting information, electronic procurement hubs, collaborative planning, forecasting and replenishment (CPFR) systems, vendor-managed inventory (VMI), efficient consumer response (ECR), and quick response (Tang & Zimmerman, 2013)

- Supply chain control

Supply chain risk control is the process of adopting proactive measures to mitigate recognized risks where feasible and implementing guidelines, regulations, or policies to limit residual risk or lessen the severity of such a loss. (Son & Orchard, 2013)

Kiarie, Ngugi & Ogollah (2017) conducted a research on relationship between risks monitoring & control management strategy and supply chain performance among manufacturing companies in Kenya and concluded that having a risk monitoring and control management strategy in place influence Supply chain performance in manufacturing companies in Kenya. The study also suggested that risk control and monitoring management techniques be implemented by manufacturing organizations. Specifically, the companies need to think about inspecting suppliers before shipment, obtaining insurance policy of suppliers, and establishing contracts with suppliers. The performance of the supply chain would be improved by this.

- SC Avoidance

Khan & Bunes, (2007) highlighted that risk avoidance which is eliminating any chance of loss by avoiding an activity is the most effective risk management strategy.

Manuj and Mentzer (2008) discuss avoidance strategies, which are categorized into Type 1 and Type 2. Type 1 avoidance strategy is employed when the risks linked to operating in a specific product or geographical market, or engaging with certain suppliers or customers, are deemed unacceptable. According to Manuj and Mentzer (2008), this strategy involves actions such as divesting specialized assets, postponing entry into a market or market segment, or participating solely in markets with low uncertainty. The primary objective of this strategy is to minimize the probability of risk events associated with a decision to zero, thus ensuring the non-existence of the risk. (Tang & Tomlin, 2008; Manuj & Mentzer, 2008). In simple terms, Type 1 avoidance strategy is used when the risks of doing business in a specific area or with certain partners are considered too high, and the goal is to eliminate those risks completely.

2.2.3. Logistics performance measurement

Performance measurement involves quantifying the efficiency and effectiveness of actions taken. Effectiveness refers to the extent to which customer expectations are met, while efficiency

measures how well business assets are utilized to achieve a certain level of customer satisfaction, as noted by Neely, Gregory and Platts (1995). The performance measuring system can be described as a collection of indicators used to measure the efficiency and effectiveness of operations, as explained by Shepherd and Günter (2006).

When it comes to supply chain performance measurement, it focuses on evaluating the efficiency and effectiveness of the supply chain, as mentioned by Wong & Wong (2008). This type of performance measurement encompasses various dimensions, including financial and non-financial metrics that describe costs, capacity, lead times, and service levels, as highlighted by Bigliardi and Bottani (2014)

The Council of Logistics Management described logistics management as the process of planning, implementing, and storing raw materials, in-process inventory, finished goods, and relevant information from the point of origin to the point of consumption, all with the aim of fulfilling customer requirements (Kasilingam, 2012).

Bagshaw (2017) indicated logistics involves managing the movement of goods from their origin to their destination in order to meet customer needs. In essence, logistics encompasses a range of activities that ensure the right products are available in the right quantity to the right customers at the right time. The resources managed in logistics can include physical items such as food, materials, animals, equipment, and liquids, as well as abstract items like time, information, particles, and energy. Logistics operations act as a link between production and consumption, bridging the gap between production and market locations or suppliers separated by distance and time.

In today's competitive landscape, simply offering a product that meets customer requirements is insufficient. The method of delivery is equally crucial, as precise product delivery can help businesses operate more efficiently, reduce costs, attract new customers, and ultimately improve performance (Balakrishnan, 2013).

The primary goal of logistics is to coordinate a series of interconnected activities that collectively form a supply chain, providing time and location benefits for customers (Çancı, 2003).

Logistic performance is often seen as multi-dimensional, reflecting the levels of efficiency, effectiveness, and differentiation associated with the accomplishment of activities (Fugate, Mentzer, & Stank, 2010).

Logistic performance can be seen as the assessment of how well a given task is carried out in terms of both effectiveness and efficiency (Mentzer & Konrad, 1991). Another perspective on logistic performance is that it serves as a means of measuring the efficiency and/or effectiveness of an action (Neely, Gregory, & Platts, 1995).

Efficiency is basically being good at saving money. The ability of the logistics function to compete on costs; everything runs smoothly and costs are kept low while responsiveness is adapting to changes in the market and get products to customers fast. Wong and Wong, (2008) suggested four metrics; cost, quality, delivery and customer service levels which is also adopted in this study for logistics performance measurement.

2.3. Empirical literature review

2.3.1. Supply chain risk management practices

Erick, O. (2014) conducted a study on risk management practices in the supply chain and the control of disruptions in the power supply sector in Kenya. One of the objectives was to establish the link between these practices and disruption control in the Kenyan electric power sector. The findings revealed that the power sector companies have indeed implemented supply chain risk management practices to varying degrees. One notable practice is supply contingency planning, which involves having backup supplies in critical yet disruption-prone categories. Moreover, the research confirmed a statistically significant correlation between the loss of critical stock and the adoption of supply chain risk management practices by the organizations. As a result, the study recommended that all power sector firms should strive to understand their supply chain risks and identify robust supply chain risk management practices that can be integrated into their day-to-day operations, enabling proactive control of disruptions or minimization of the impact of any disruptive incidents.

Kiarie, Ngugi, and Ogollah (2017) carried out a research on risk management strategies and supply chain performance in manufacturing companies in Kenya. They found that companies conducting whole life costing of suppliers and implementing internal controls for suppliers were

more likely to experience improved lead time and better quality. The study recommended that manufacturing companies adopt a risk analysis and evaluation management strategy to enhance their supply chain performance. Specifically, they should consider incorporating whole life costing and internal quality assessments of suppliers. Additionally, the study proposed further research to explore the impact of different types of companies on risk management strategies.

Assefa (2020) carried out a study on the Assessment of Supply Chain Risk Management Practices: The Case of Ethiopian Shipping & Logistics Service Enterprise. The data analysis showed that the organization has insufficient risk assessment practices and processes, often follows procedures without emphasizing continuous review during the evaluation stage. However, the study also found that the organization is capable of applying risk mitigation measures to ensure effective supply chain risk management. The study recommended that participants in the supply chain risk management process within ESLSE should improve the formal application of supply chain risk identification, ensure transparency among involved parties, and enhance reporting & communication processes to strengthen the organization in the competitive and dynamic business environment.

2.3.2. Supply chain risk management practices and logistics performance

The impact of supply chain risk management practices on logistics performance is a complex and multifaceted issue. Gebisa (2019) and Ristovska (2017) both highlight the importance of logistics practices and information sharing in enhancing supply chain performance, with a particular focus on cost reduction and operational efficiency. Abdellaoui (2019) underscores the negative impact of disruptive events on logistics performance, particularly in the areas of supply, demand, and transportation.

Gligor and Holcomb (2012) conducted a study on understanding the role of logistics capabilities in achieving supply chain agility and found out that flexible companies are super creative, can change with the times, and handle any problem that comes their way. Basically, they're way better at keeping up with the competition and even beating them. Hence, flexibility positively impacts its ability to enhance comparative performance relative to leading industry competitors.

Wang (2018) and Singh (2020) both emphasize the importance of risk management in improving logistics performance, with Wang focusing on the OBOR initiative and Singh highlighting the role of supply chain exploration and exploitation practices.

Wang, Jie and Abareshi, (2018) conducted a study entitled Improving logistics performance for one belt one road: a conceptual framework for supply chain risk management in Chinese third-party logistics providers and identified the critical role of effective risk management in enhancing logistics performance. .

Risk identification, assessment, and mitigation significantly impact supply chain operation performance. (Aghapour et al., 2017)

Fred, (2017) conducted a research on influence of supply chain risk management strategies on the supply chain performance of food and beverage manufacturing firms in Kenya and found out that supply chain risk management strategies have influence on performance of food & beverage manufacturing firm. The research indicates that the most crucial supply chain risk management (SCRM) strategies for enhancing the performance of a food and beverage manufacturing firm are SC avoidance strategies. Following closely are SC control strategies, then SC flexibility strategies, and finally SC base rationalization strategies. Supply chain collaboration strategies have the least impact on these types of firms. The study's recommendations include the recognition of SC flexibility, collaboration, and supply base rationalization as key SCRM strategies for food and beverage manufacturing firms in Kenya. It emphasizes that achieving top-tier performance depends on effectively managing supply chain risks. To achieve this, firms should allocate dedicated employees, resources, investments, and best practices to support supply chain risk management and ensure that their supply chain efforts efficiently satisfy customers in a cost-effective manner.

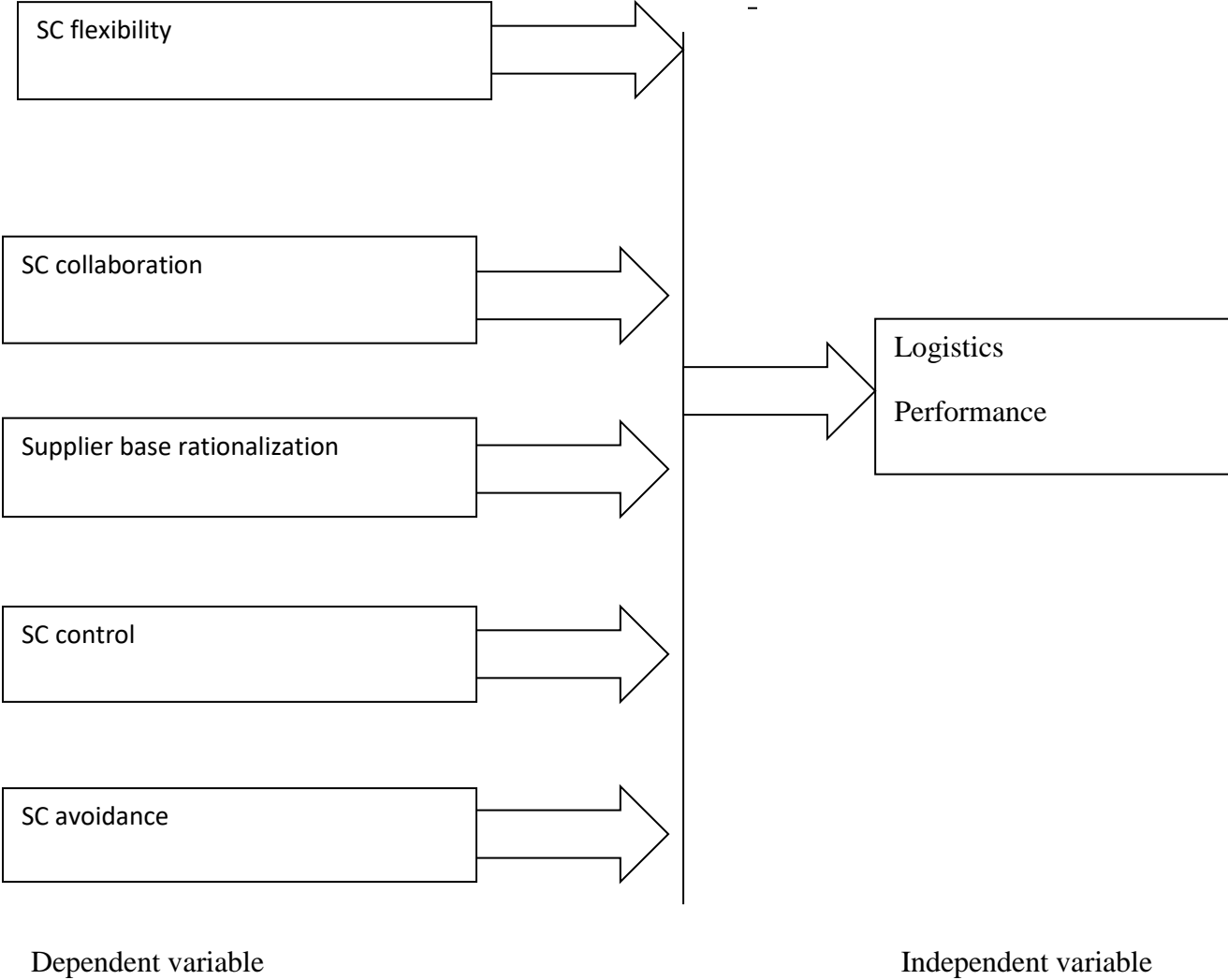
According to Sime (2019) Pharmaceutical manufacturing companies in Ethiopia utilized various supply chain risk management practices to differing degrees, including supply chain flexibility, collaboration, supply base rationalization, control, and avoidance. The study found that supply chain collaboration was the most widely practiced, followed by supply chain avoidance and control, while supply chain flexibility and supply base rationalization were the least implemented. Additionally, the research revealed that supply chain flexibility, collaboration, and

control significantly impacted the supply chain performance of these firms. It was recommended that companies develop contingency plans for demand fluctuations, establish a supply chain risk management procedure manual, and adopt proactive strategies to mitigate supply chain disruptions rather than solely relying on supply chain management to address all risks.

2.4. Conceptual frame work

The conceptual framework of the study comprises one dependent variable (Logistics Performance) and five independent variables (SC flexibility, SC collaboration, Supply base rationalization, SC control and SC avoidance).

Figure 2.1. Conceptual frame work of the study



Source: The conceptual Framework of the study adopted from Fred (2017) and Sime (2008).

CHAPTER THREE - RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

This chapter details the methodology used in the study which enables the researcher to answer the research question systematically. The chapter is organized as follows: It explains description of the study area, research approach, the research design, population of the study, data type and sources, measurement and instrument, data collection procedure, ethical consideration, data analysis techniques and validity and reliability tests.

3.2. Description of the study area

The study area was focused on analyzing the effect of SC risk management practices on the logistics performance of Coca-Cola beverages Africa, Ethiopia.

3.3. Research approach

Mixed approach is used in the study. Mixed approach involves both qualitative and quantitative approaches. The advantage of using this approach is that the combination of qualitative and quantitative approach provides a more complete understanding of the research problem than using only either one and also it enables to triangulate and support the data and results collected by questionnaire and interview (Greener, 2008).

The quantitative method eases the conversion of information obtained into statistical models for general analyses to be made and the research questions to be answered based on the statistical models in unbiased and objective manner. Qualitative approach, on the other hand was used to analyze data obtained from interview and open ended questions to substantiate the result obtained from the quantitative approach.

3.4. Research design

The research used an explanatory case study design. Explanatory research implies that the research in question is intended to explain, rather than simply to describe, the phenomena studied (Saunders, Lewis & Thornhill, 2009). Explanatory research Studies establish casual relationships between variables. The target here is on studying a situation or a problem to explain the relationships between variables (Saunders et al., 2008 P: 140). Since this research is about the study of the effect of supply chain risk management practices on logistics performance, explanatory research design was found to be appropriate for this study. In the explanatory survey

design, independent and dependent variables can be measured at the same point in time by using single questionnaire.

3.5. Population of the study and sampling technique

Kombo and Dello (2006) define population as a group of individuals, objects or items from which samples are taken for measurement.

The population of the study is employees who are first line managers or above in the logistics functions of Addis and Sebeta plants of CCBA, Ethiopia. The unit of analysis is the individual employees (Head count). These target respondents are chosen due to their set of skills, business responsibilities, logistics expertise and direct involvement in strategic and operational decision-making. The total number of these employees as per the organogram of the logistics function of CCBA, Ethiopia is 52 which is be the population of this study. 14 employees from these are in warehouse section, 16 from distribution, 10 from fleet, 3 from logistics excellence, 3 from trade service, 6 from stock and settlement sections. Since the population size manageable census technique will be applied.

3.6. Data types and data sources

Both primary and secondary sources was used to collect the required data. Primary data will be collected from employees in the logistics function of CCBA, Ethiopia and secondary data from performance records, policy and strategy documents, research outputs and literatures on supply chain risk management in F & B manufacturing firms.

3.7. Data collection instrument and collection procedures

Self-administered questionnaire consisting of few open ended and more closed ended questions was used to collect responses from the employees. Targeted key respondents were also interviewed. These people are the logistics director, and his direct reports whose titles are national logistics manager, national fleet manager, national trade service manager, Country logistics excellence manager, and Sebeta depot manager.

3.8. Methods of analyzing data

Descriptive statistics was used to address one of the objectives of the study which is assessing the SC risk management practices in the logistics operations of CCBA, Ethiopia. Frequencies and percentages were used to analyze respondents' demographic data while Mean and standard deviation were used for the assessment of the responses of the respondents'. To address the other

objective which is determining the effect of the SC risk management practices on the logistics performance of CCBA, Ethiopia, inferential statistics specifically, a multiple regression model was employed. The independent variables (Supply chain risk management practices) are: SC Flexibility, SC Collaboration, supply base rationalization, SC control, and SC avoidance while the dependent variable is logistics performance. The data analysis was carried out using SPSS version 27.

3.9. Reliability and Validity tests

Validity Test: In his research, Malhotra, (2010) discusses three types of validity: content validity, predictive validity, and construct validity. To ensure the validity of the data collection instrument for this research, the study addressed content validity through review of literature and the questionnaire was adopted from relevant literatures. Previous research studies conducted by Sime, (2019), Fred, (2017) and Wong and Wong, (2008) have been identified for this purpose.

Reliability Test: When it comes to reliability analysis, the focus is on the internal consistency of the research instrument. In this context, reliability refers to the extent to which data collection techniques or analysis procedures produce consistent findings, as explained by Saunders et al. (2009). To assess internal consistency or reliability, researchers often use Cronbach's Alpha, especially when the study includes Likert questions in questionnaires that form a scale and aims to determine the scale's reliability. Cronbach's Coefficient Alpha value 0.7 was the minimum acceptable for reliability measure (Nunnally, 1978).

Table 3.1 Reliability test

Construct	Variables	Number of items	Cronbach's Alpha
SCRM practices	FL	5	.888
	CL	5	.902
	SR	5	.904
	Cn	5	.891
	AV	5	.917
Logistics performance	LP	4	.906
All variables		29	.917

All values of the Cronbach's alpha for SCRM practices and logistics performance measure shows more than 0.7 so we can conclude that the data collection instrument is reliable.

3.10. Ethical considerations

Respondents were informed that the study is purely meant to satisfy an academic requirement and not for any other reason. Responses were kept anonymous and respondents were instructed not to write their names in the questionnaires. Serious attention was given to respect individual and company information confidentiality notice which is directly or indirectly related to ethical matters.

CHAPTER FOUR - RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The objective of this study is to analyze the effect of supply chain risk management practices on the logistics performance of CCBA, Ethiopia. The SCRM practices include supply chain flexibility, supply chain collaboration, supplier base rationalization, supply chain control and supply chain avoidance practices. These five explanatory variables were identified in the previous sections and correlation analysis is carried out to examine the relationship between each of these variables and logistics performance of CCBA, Ethiopia. The result of the bivariate analysis indicates that there is a strong association between the explanatory variables and logistics performance of CCBA, Ethiopia.

It is also found important to carry out multiple regression analysis to analyze the effect of all explanatory variables on logistics performance of CCBA, Ethiopia as bivariate association between two variables doesn't necessarily show a significant relationship between all explanatory variables and logistics performance.

Data collected via questionnaire and interview is analyzed and the findings of the research are presented in this chapter.

4.2. Response rate

Out of the total distributed 52 questionnaires 45 questionnaires were collected, which makes a response rate of 86.5 % (Table 4.1).

The researcher cleaned out the outliers, missing values and discrepancies and 43 complete respondent's data was used for the survey analysis via SPSS Version 27.

Table 4.1 Response rate by section

Section	Total distributed	Total collected
Warehouse	14	11
Distribution	16	14
Fleet	10	9
Logistics excellence	3	2
Stock and settlement	6	6
Trade service	3	3

Source: Survey data, 2024

4.3 Demographic statistics

The study sought to find out the level of education, experience and gender of the respondents and the results are shown in the tables below.

4.3.1 Gender of the respondents

Table 4.2 Gender of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid male	29	67.4	67.4	67.4
Female	14	32.6	32.6	100.0
Total	43	100.0	100.0	

Source: Survey data, 2024

67.4 % of the respondents were male and 32.6% female which shows that there is gender disparity in the management of the logistics function of CCBA, Ethiopia.

4.4.2 Level of education of the respondents

As presented on the table below 9.3% of the respondents have Master's degree and 65.1% first degree which shows 74.4% of the employees who are first line managers or above in the logistics functions of Addis and Sebeta plants of CCBA, Ethiopia have a qualification of first degree or above so it is expected that they can understand the subject matter of the study and provide reliable input.

Table 4.3 Level of education of respondents

Level of education	Frequency	Percent
Master's degree	4	9.3%
Bachelor's degree	28	65.1%
Diploma	11	25.6%
College certificate		
Total	43	100%

Source: Survey data, 2024

4.4.3. Experience of the respondents

Experience of the respondents is key for the success of the survey. 44.2% of the respondents have less than 5 years' experience and the remaining 55.8% have more than 5 years which indicates that more than half of the respondents have been with the company for more than 5 years which implies they have adequate knowledge of the firm and its way of working.

Table 4.4 Years of service of respondents

Experience	Frequency	Percent
Less than 5 years	19	44.2%
6 up to 10 years	12	27.9%
10 up to 15 years	9	20.9%
More than 15 years	3	7%
Total		100%

Source: Survey data, 2024

4.5 SCRM practices of CCBA, Ethiopia

Different questions were asked under each dimension of SCRM practices and the questions are aggregated in to one explanatory variable.

Table 4.5 Descriptive Statistics on SCRM practices

	Mean	Std. Deviation	N
SC flexibility	3.5395	.39166	43
SC collaboration	4.1209	.33845	43
Supply base rationalization	3.6419	.33398	43
SC control	3.8744	.40479	43
SC avoidance	3.8279	.32829	43
Logistics performance	3.3605	.43747	43

Source: Survey data, 2024

The mean score for SC control, supply base rationalization, SC avoidance and logistics performance are above the average value (3). The mean score for SC collaboration is also close to the average while the mean for SC flexibility practices is below the average.

4.5.1 Effect of SC flexibility practices on logistics performance of CCBA, Ethiopia

Selected employees were asked to answer five questions to assess SC flexibility practices of CCBA, Ethiopia and its influence on logistics performance. The mean score for all the variables is above the average with grand mean value of 3.54. The outcome revealed that the firm has good SC flexibility practice and it influences the firm's logistics performance. This finding is in line with the findings of Gligor and Holcomb (2012) who found out that flexible companies are super creative, can change with the times, and handle any problem that comes their way. Basically, they're way better at keeping up with the competition and even beating them. Hence, flexibility positively impacts its ability to enhance comparative performance relative to leading industry competitors.

The result also agrees with Sime (2019) whose study concludes SC flexibility practice positively influences SC performance of Pharmaceutical manufacturing firms in Ethiopia.

Table 4.6 Descriptive statistics on SC flexibility practice

Practice	N	Mean	SD
Delays final product assembly activities until the last possible position (or nearest to customers) in the supply chain	43	3.5	1.12
Stores items at appropriate distribution points close to the customers in the supply chain.	43	3.5	1.20
Can re-arrange production process so that customization is possible.	43	3.6	1.33
Delays final product assembly activities until customer orders have been received	43	3.6	1.18
Accommodate several customer services requirements	43	3.6	1.09
Grand mean		3.54	

Source: Survey data, 2024

4.5.2 Effect of SC collaboration practices on the logistics performance of CCBA, Ethiopia

The mean for all variables is greater than the average ranging from 4.4 up to 3.53 and grand mean 4.12. Majority of the respondents ranging from 93% up to 63% agree on the positive influence of SC collaboration practices (See table 4.7 below). The study thus concludes SC collaboration practices positively influence the logistics performance of CCBA, Ethiopia. The findings agree with Fred (2017) who concluded SC collaboration strategies positively influence the SC performance of F & B manufacturing firms in Kenya. Interview results of the study also confirms the same result.

Table 4.7 Descriptive statistics on SC collaboration practice

Practice	N	Mean	SD
Exchange of information that helps in the reducing supply chain risks	43	4.4	1.029
Frequent and timely exchange of information about events or changes that may affect business	43	4.4	0.906
Collaboration with supply chain partners	43	3.95	0.899
Involvement of supply chain partners in the new product design development effort and marketing	43	3.53	1.297
Information technology is used to reduce supply chain risks	43	4.28	1.098
Grand mean		4.12	

Source: Survey data, 2024

4.5.3 Effect of Supply base rationalization practices on the logistics performance of CCBA, Ethiopia

The mean score for Sourcing from multiple foreign suppliers to minimize losses is slightly below the average while for all the other four supply base rationalization practices it is above the average. Thus the study concludes this practice has influence on the logistics performance of CCBA, Ethiopia (See table 4.8 below).

Ponomarov (2012) indicated that supplier rationalization based on quality, pricing, delivery and performance of product can lead to improved performance. Musa and Tang (2012) indicated reducing the number of suppliers that a company works with can reduce risk problems and encourage cooperation and trust. Both these findings are in line with the finding of this study.

Table 4.8 Descriptive statistics on supply base rationalization practice (Source: Survey data, 2024)

Practice	N	Mean	SD
Sourcing from multiple local suppliers to minimize the likelihood of supply chain risks	43	3.628	1.363
Sourcing from multiple foreign suppliers to minimize losses	43	2.953	1.214
Sourcing from a few local and foreign suppliers	43	3.814	1.277
Sourcing from a few local suppliers only to minimize risks	43	3.209	1.44
Sourcing from suppliers who have been evaluated and selected to reduce supply risks	43	4.605	0.728
Grand mean		3.64	

4.5.4 Effect of SC control practices on the logistics performance of CCBA, Ethiopia

The meant score for all the five variables is above the average with grand mean value of 3.87. The finding here is that SC risk control practices influence logistics performance of CCBA, Ethiopia. The finding agrees with Sime(2019) who states regularly monitoring risks influences SC performance.

Table 4.9 Descriptive statistics on SC control practice (Source: Survey data, 2024)

Practice	N	Mean	SD
Holding of buffer stock to mitigate the risk of stock-out	43	3.53	1.369
Keeping extra inventory of strategic items (e.g., raw materials, parts and finished goods)	43	3.86	1.207
Holding of underutilized capacity which serves as a cushion to any disruptions	43	3.65	1.066
Using improved forecasting techniques to reduce risks associated with the supply chain	43	4.12	0.731
Regular monitoring of supply chain risks (demand, supply process and environmental risks)	43	4.21	1.036
Grand mean		3.87	

4.5.5 Effect of SC avoidance practices on the logistics performance of CCBA, Ethiopia

As can be seen on the table below the mean for all the five questions related to SC avoidance practices is above the average ranging between 4.19 to 3.4. The study concludes avoidance practices can lead to improved logistics performance.

Table 4.10 Descriptive statistics on SC avoidance practice

Practice	N	Mean	SD
Avoids geographical markets deemed risky	43	3.4	1.417
Avoids some suppliers in order to minimize supply chain risks	43	3.98	0.886
Delays getting into certain markets until the uncertainty is reduced.	43	3.42	1.295
Audits both our processes and supplier processes to minimize quality risks	43	4.19	0.824
Information technology is used to reduce supply chain risks	43	4.16	0.721
Grand mean		3.83	

Source: Survey data, 2024

4.6 Logistics performance

63 % of the respondents agrees that the firm's logistics operation has achieved the lowest possible cost and 30% disagree and 7% are neutral. Respondents were asked if the firm can reduce the time between customer order and delivery where 58% agree and 28% disagree. 49% of the respondents agree on the ability of the firm to meet quoted or anticipated qualities consistently and 42% disagree. On whether logistics performance matches customers' expectation or not the 58% agrees that performance matches with customers' expectation while 30% of respondents disagree.

Table 4.11 Descriptive statistics logistics performance

Practice	N	Mean	SD
The ability to achieve the lowest possible cost of logistics through efficient operations, technology and/or scale economies.	43	3.56	1.221
The ability to reduce the time between order receipt and customer delivery to as close to zero possible.	43	3.47	1.077
The ability to meet anticipated quality on consistent bases.	43	3.07	1.334
The extent to which perceived logistics performance matches customer expectations.	43	3.35	1.193
Grand mean		3.36	

Source: Survey data, 2024

4.7. Regression Analysis on the effect of all Supply Chain Risk Management Practices on logistics Performance

The researcher carried out multiple regression analysis in order to understand the effect of the different supply chain risk management practices on the firm's logistic performance. Multiple regression model is a linear equation with two or more explanatory variables(independent) and one explained variable(dependent).

4.7.1. Multiple linear regression assumptions

It is required to test pre regression assumptions. These assumptions are no multicollinearity, homoscedasticity, independent errors and normally distributed errors.

➤ **Multicollinearity**

Predictors must not be highly correlated. Multicollinearity exists if predictors are highly correlated. To conclude that there is no multicollinearity;

- Tolerance should be more than 0.2(Menard,1995)
- Variance inflation factor(VIF) should be less than 10(Myers,1990)

As can be observed on the output table below all VIF values are below 10 and tolerances are more than 0.2 so we can conclude that there is no multicollinearity.

Table 4.11 Multicollinearity test

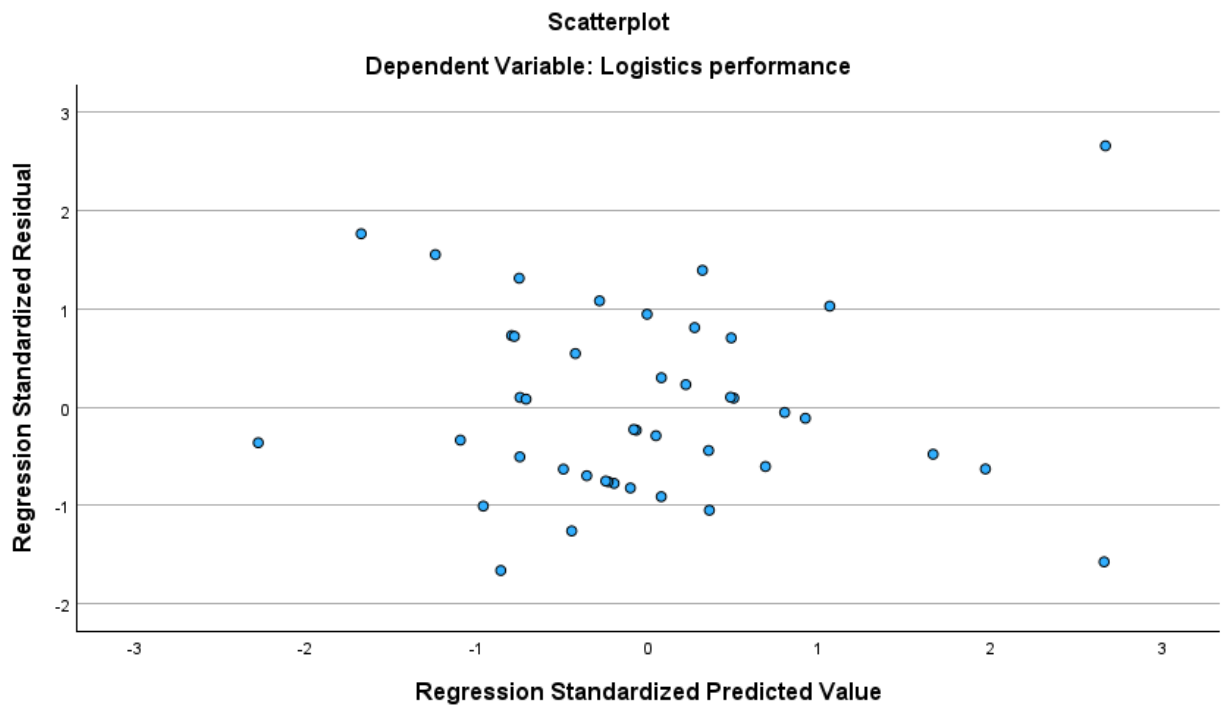
Coefficients^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	SC flexibility	.606	1.651
	SC collaboration	.742	1.347
	Supply base rationalization	.736	1.359
	SC control	.442	2.264
	SC avoidance	.407	2.455

Source: Survey data, 2024

➤ **Homoscedasticity**

As can be seen in the scattered plot on fig 4.2 above, the residuals at each level of explanatory variables look like they are evenly dispersed and that the graph do not assume any type of shaped. Therefore, it is safe to say that this study has no heteroscedasticity problem.

Figure 4.1 Scatter plot based on residual

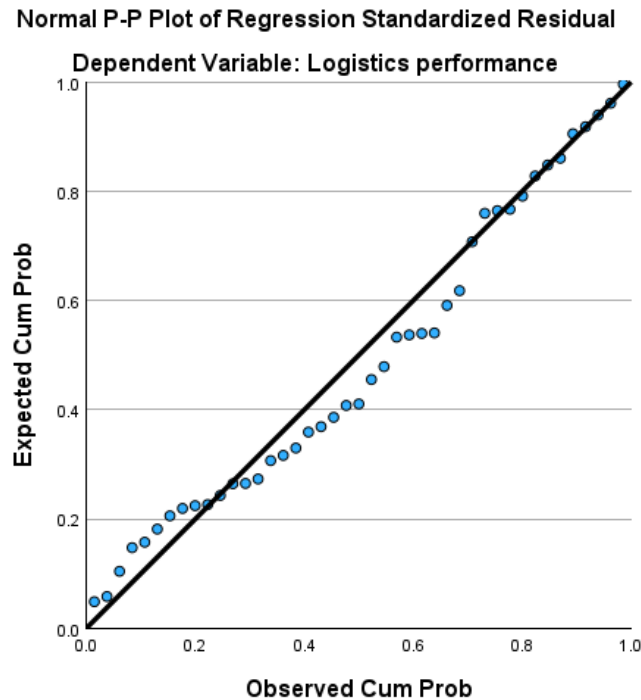


Source: Survey data, 2024

➤ **Normality of errors**

The assumption of normally distributed error means that the errors in the model are randomly distributed and follow a normal distribution, with a mean of 0. This means that most of the errors are small, and larger errors are less common. Figure 4.3 shows that the residuals in the model are normally distributed, as they are plotted around a diagonal straight line.

Figure 4. 2 P-P Plot of Regression Standardized Residual



Source: Survey data, 2024

➤ Correlation

Pearson's correlation is used to measure the degree of association or relationship between different variables under consideration. Evan's (1996) guide for the absolute or r was used to describe the strength of the correlation, which states 0.00-0.19(very weak), 0.20-0.39(weak), 0.40-0.59(Moderate), 0.6-0.79(strong) and 0.80-1.00 (very strong). Based on the output value of the analysis,

- ✓ Independent variables, SC control and avoidance have a statistically significant positive relationship with logistics performance, $p < .01$.
- ✓ Independent variables, SC collaboration and supply base rationalization have a statistically significant relationship with logistics performance, $p < 0.005$
- ✓ The magnitude, or strength of the association is very strong for SC avoidance and strong for supply chain control practices while supply base rationalization and supply chain collaboration and supply chain flexibility practices have weak association with logistics performance.

Table 4.12 Correlation between the grouped SCRM practices and logistics performance

Correlations							
		FL	CL	SR	Cn	AV	LP
FL	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	43					
CL	Pearson Correlation	.247	1				
	Sig. (2-tailed)	.110					
	N	43	43				
SR	Pearson Correlation	.455**	.054	1			
	Sig. (2-tailed)	.002	.729				
	N	43	43	43			
Cn	Pearson Correlation	.428**	-.186	.390**	1		
	Sig. (2-tailed)	.004	.232	.010			
	N	43	43	43	43		
AV	Pearson Correlation	.397**	-.306*	.375*	.727**	1	
	Sig. (2-tailed)	.008	.046	.013	<.001		
	N	43	43	43	43	43	
LP	Pearson Correlation	.280	-.348*	.303*	.778**	.953**	1
	Sig. (2-tailed)	.069	.022	.048	<.001	<.001	
	N	43	43	43	43	43	43
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Source: Survey data, 2024

4.7.2. Regression analysis

- **Regression Analysis Model**

Table 4.13 Regression model summary table

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.972 ^a	.944	.937	.17341
a. Predictors: (Constant), AV, CL, SR, FL, Cn				

Source: Survey data, 2024

The finding shows, the adjusted R² (coefficient of determination) explains 93.7% of the factors affecting logistics performance of CCBA, Ethiopia. Based on SPSS 27 generated data (Table 4.12 above), the adjusted R² explains 93.7% of the factor affecting logistics performance as represented by the five independent variables that were studied.

- **Analysis of variance**

The ANOVA table below shows that our regression model is statistically significant with P value of <0.01% which means a 99% confidence level.

Table 4.14 ANOVA table

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.894	5	3.779	125.664	<.001 ^b
	Residual	1.113	37	.030		
	Total	20.007	42			
a. Dependent Variable: LP						
b. Predictors: (Constant), AV, CL, SR, FL, Cn						

Source: Survey data, 2024

- **Coefficient of regression**

The regression table indicates that SC avoidance and SC control practices have positive and significant influence on the logistics performance of CCBA, Ethiopia, where t-statistic value was calculated to be 14.022 and 3.994 respectively at p value < 0.05. The coefficient of SC control was 0.264 which means keeping all other variables constant a unit increase in SC control practice causes 26.4 % increase in logistics performance of CCBA, Ethiopia. The value of the coefficient of supply chain avoidance practice is close to 1 which implies again keeping all other variables constant a unit increase in SC avoidance practice causes 100% increase in logistics performance of the firm.

SC flexibility has a negative and significant influence on logistics performance. The value of coefficient for SC flexibility was found to be -.177 which means that, keeping other variables constant, a unit increase in supply chain flexibility practice causes 17.7% decrease in logistics performance of the CCBA, Ethiopia.

SC collaboration and Supply base rationalization coefficients were found to be -0.012 and -0.048 respectively which implies that keeping other variables constant, a unit increase in SC collaboration or supply base rationalization practice causes 1.2 % increase or 4.8% increase in logistics performance of CCBA, Ethiopia. The regression analysis result shows SC collaboration and supply base rationalization practices are not significant with P value >0.05.

As per the regression result SC avoidance has the highest positive impact on the logistics performance of CCBA, Ethiopia followed by SC control and SC flexibility has significant negative impact. SC collaboration and supply base rationalization practices have low impact.

However the findings of the regression analysis are not in full agreement with findings of the descriptive analysis of the variables as SC collaboration practice got the highest mean followed by SC control and SC avoidance practices in the descriptive analysis.

The findings of the interview also proved supply chain collaboration, SC avoidance and SC control practices are critical practices to improve the logistics function performance of CCBA, Ethiopia.

Table 4.15 Coefficients table

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.185	.268		-.689	.495
	FL	-.177	.065	-.135	-2.713	.010
	CL	-.012	.063	-.008	-.188	.852
	SR	-.048	.048	-.045	-1.004	.322
	Cn	.264	.066	.233	3.994	<.001
	AV	1.029	.073	.852	14.022	<.001

a. Dependent Variable: LP

Source: Survey data, 2024

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Introduction

Summary of the findings, conclusions, recommendations, limitations and indication of area for future research are presented in this chapter.

5.2 Summary of Major Findings

The study indeed established that all SCRM practices examined in the study were adopted by the firms but in a varying extent. The research adopted a kind of case study in an effort to establish the effect of SCRM practices on logistics performance, the case of CCBA, Ethiopia

- SC collaboration practice got the highest mean followed by SC control and SC avoidance practices with respective mean score of 4.1, 3.87 and 3.82.
- From the five SCRM practices, supply chain flexibility and Supply base rationalization practices got least mean score.
- The grand mean score for both SCRM practices and logistics performance variables is above the average.
- The interview indicated that there is no formal SCRM practice which is guided by manual and standard working procedure.
- As per the regression result SC avoidance has the highest positive impact on the logistics performance of CCBA, Ethiopia followed by SC control and SC flexibility has significant negative impact. SC collaboration and supply base rationalization practices have low impact so the firm needs to focus on the three practices which are having the significant impact.
- SC collaboration practice is the most important SCRM practice as per the result of mean score, literatures and interview.
- Interview findings revealed that SC risks of CCBA, Ethiopia are mostly associated with road safety, national security, and foreign currency shortage.

5.3 Conclusions

The below conclusions were drawn from the findings.

- From the demographic data it is observed that 44.2% of the employees have experience of less than 5 years which indicates a high employee turnover in the logistics function more over 67.4 % of the respondents were male and 32.6% female which shows that there is gender disparity in the management of the logistics function of CCBA, Ethiopia.
- Descriptive statistics findings confirm that all the SCRM practices and logistics performance scored more than average which confirms higher level of implementation.

- The grand mean score for SC flexibility practice was 3.54. The outcome revealed that the firm has good SC flexibility practice.
- The grand mean score for supply base rationalization practice is 3.64 but the mean score for Sourcing from multiple foreign suppliers to minimize losses is slightly below the average which shows the logistics function of the firm doesn't source from multiple foreign suppliers to minimize losses. Interview finding also indicates most logistics leaders do not agree with that.
- SC collaboration practice got the highest mean followed by SC control and SC avoidance practices with respective mean score of 4.1, 3.87 and 3.82. There is no below the average mean score for any of the questions under these three variables which shows the practices are in place.
- Logistics performance of CCBA, Ethiopia is more than moderate enough as its mean score is above average.
- As per the regression result SC avoidance has the highest positive impact on the logistics performance of CCBA, Ethiopia followed by SC control and SC flexibility has significant negative impact. SC collaboration and supply base rationalization practices have low impact so the firm needs to focus on the three practices which are having the significant impact.
- Interview findings revealed that SC risks of CCBA, Ethiopia are mostly associated with road safety, national security, and foreign currency shortage.

5.4. Recommendations

- CCBA, Ethiopia should do proper employee engagement survey and put a staff retention plan to reduce the employee turnover in the logistics function.
- CCBA, Ethiopia should develop capabilities to respond to changes in markets, and socio-political changes. Delaying final product assembly till final order receipt and having approved list of suppliers (Especially transporters) is key to respond to peak demand situations.
- CCBA, Ethiopia's logistics function should use portfolio analysis technique (Kraljic) to optimize its supply base.
- Defensive driving trainings and technology supported performance monitoring (Like live tracking of fleet) will assist in reducing accidents which will lead to monetary losses and lost sales.
- CCBA, Ethiopia should develop standard risk management programs which has to be guided by procedure manual with respect to supply chain activities. Avoid risky logistics activities like delivering risky geographical areas via own fleet.
- Outsourcing distribution to risky trade zones can help in minimizing risks and improve performance.

- Focusing on sourcing locally is important to enhance performance. Given the foreign currency challenge this is a business sustainability agenda. Working with local suppliers and developing their capabilities to the business need is crucial.

5.5. Limitations and Implication of Future Research.

Suppliers and customers who are important members in the logistics operation are not considered in this study. Future studies including these parties and exploring the additional factors that might affect logistics performance of the firm will be highly valuable.

References:

Aghapour, A.H., Marthandan, G., Fie, D.Y.G. and Zailani, S. (2017). Risk management process towards operation performance in supply chain management: a survey of manufacturing SMEs. *International Journal of Logistics Systems and Management*, 27(1), p.78. doi:<https://doi.org/10.1504/ijlsm.2017.083224>.

Bagshaw, K.B. (2017) 'LOGISTICS MANAGEMENT FROM FIRMS' PERFORMANCE PERSPECTIVE,' *International Journal of Supply Chain and Logistics*, 1(3), pp. 1–18. <https://doi.org/10.47941/ijscsl.180>.

Balakrishnan, N. (2013) *Handbook of the Logistic Distribution*. CRC Press.

Barreto, I. (2010) 'Dynamic Capabilities: a review of past research and an agenda for the future,' *Journal of Management*, 36(1), pp. 256–280. <https://doi.org/10.1177/0149206309350776>

Bernardes, E & Hanna, M 2009 'A theoretical review of flexibility, agility and responsiveness in the operations management literature: toward a conceptual definition of customer responsiveness': *International journal of operations & production management*. Vol. 29, No.1, pp. 30-53

Blackstone. (ed). (2013). *APICS Dictionary*.14th Edition. Chicago: APICS, [available at: <http://www.feg.unesp.br/dpd/scm/claudemir/part3/Apics%20Dictionary.pdf>,access June 14,2019]

Bigliardi, B. and Bottani, E. (2014) 'Supply chain performance measurement: a literature review and pilot study among Italian manufacturing companies,' *International Journal of Engineering, Science and Technology & B. Lagos*, 6(3), p. 1. <https://doi.org/10.4314/ijest.v6i3.1s>.

Canci, E. (2003). *Logistics management*. Istanbul, UTIKAD

Chege, A.N. and Dr, G.O. (2019) 'INFLUENCE OF SUPPLY BASE RATIONALIZATION ON PERFORMANCE OF MANUFACTURING FIRMS IN KENYA,' *International Journal of Supply Chain and Logistics*, 3(1), pp. 101–123. <https://doi.org/10.47941/ijscsl.287>.

Chopra, S., Meindl, P., & Kalra, V. (2007). *Supply chain management: strategy, planning and operation*. New Delhi: Dorling Kindersley.

Christopher, M., Peck, H. and Towill, D.R. (2006) 'A taxonomy for selecting global supply chain strategies,' *The International Journal of Logistics Management*, 17(2), pp. 277–287. <https://doi.org/10.1108/09574090610689998>.

Coca-Cola Beverages Africa-Ethiopia (no date) *Coca-Cola Beverages Africa-Ethiopia / LinkedIn*. <https://et.linkedin.com/company/cccbathiopia>.

Deming, W.E. (1986) *Out of the crisis*. MIT Press.

Eden, G. (2019). *Effect of Road Transport Infrastructure on Business Logistics performance The Case of East Africa Bottling Company* Thesis, Addis Ababa University

Ensermu, M. (2015) *Managing Logistics and Supply Chain in Ethiopia*.

Fred, O 2017, *Influence Supply Chain Risk Management Strategies on Performance of Food and Beverage Manufacturing Firms in Kenya*, PHD, Jomo Kenyatta university.

Fugate, Mentzer, & Stank (2010). Logistic performance: efficiency, effectiveness and differentiation. *Journal of business logistic*, Vol. 31 no. 1.

Gebisa, D.A. (2019). Review on Effects of Logistics Practices and Information Sharing on Supply Chain Performance. *International Journal of Marketing Research Innovation*, 3(2), pp.1–9. doi:<https://doi.org/10.46281/ijmri.v3i2.408>.

Ghadge, A., Dani, S., Chester, M., & Kalawsky, R. (2013). A systems approach for modeling supply chain risks. *Supply Chain Management: An International Journal*, 18(5), 523– 538.

Giunipero, L.C., & Eltantawy, R. (2004). Securing the upstream supply chain: A risk management approach, *International Journal of Physical Distribution & Logistics Management*, 34(9), 698-713.

Gligor, D., & Holcomb, M. (2012). Understanding the role of logistics capabilities in achieving supply chain agility: A systematic literature review. *Supply Chain Management: An International Journal*, 17(4), 438-453

Greener, S., 2008. *Business research methods*. BookBoon.

Gunasekaran, A., Lai, K. and Cheng, T.C.E. (2008) 'Responsive supply chain: A competitive strategy in a networked economy☆,' *Omega*, 36(4), pp. 549–564. <https://doi.org/10.1016/j.omega.2006.12.002>.

International Finance Cooperation. (2006). Small and medium enterprise department, background note on micro, small and medium enterprise database, World Bank, Washington. Retrieved from www.ifc.org/wps/wcm/connect/.../ifc.../ifc.../smetoolkit-global.

Kasilingam, R.G. (2012) *Logistics and transportation: Design and planning*. Springer Science & Business Media.

Khan, O. and Burnes, B. (2007) 'Risk and supply chain management: creating a research agenda,' *The International Journal of Logistics Management*, 18(2), pp. 197–216. <https://doi.org/10.1108/09574090710816931>.

Kiarie, Dr.David., Ngugi, Dr.P. and Ogollah, Dr.K. (2017). RISK MANAGEMENT STRATEGY AND SUPPLY CHAIN PERFORMANCE AMONG MANUFACTURING COMPANIES IN KENYA. *International Journal of Supply Chain and Logistics*, 1(1), pp.1–21. doi:<https://doi.org/10.47941/ijscsl.81>.

Kombo, K., & Dello, A. (2006). *Proposal and thesis: an Introduction*. Nairobi: Paulines Publication Africa

Li, G. *et al.* (2006) 'Enhancing agility by timely sharing of supply information,' *Supply Chain Management*, 11(5), pp. 425–435. <https://doi.org/10.1108/13598540610682444>.

Legesse, A.(2018) *Analysis on the Performance of Third Party Transporters: the Case of Heineken Breweries S.C.* Thesis, Addis Ababa University

Liu, S, Lin, J& Hayes, K 2010'An agile and diversified supply chain: reducing operational risks. Competitiveness review', *An international Business Journal*, Vol. 20, No.3, pp. 222234.

Manuj, I. and Mentzer, J.T. (2008) 'Global supply chain risk management strategies,' *International Journal of Physical Distribution and Logistics Management*, 38(3), pp. 192–223. <https://doi.org/10.1108/09600030810866986>.

Manuj, I., & Mentzer, J. (2008b). Global supply chain risk management strategies. *International Journal of Physical Distribution and Logistics Management*, 38(3), 192-223.

Micheli, G.J.L., Cagno, E. and Zorzini, M. (2008) 'Supply risk management vs supplier selection to manage the supply risk in the EPC supply chain,' *Management Research News*, 31(11), pp. 846–866. <https://doi.org/10.1108/01409170810913042>.

Musa, S.N., Shuoguo, W. and Tang, O. (2012) 'Information Flow and Mitigation Strategy in a Supply Chain under Disruption,' *Linköping University* [Preprint]. <http://liu.diva-portal.org/smash/record.jsf?pid=diva2:535613>.

Neely, A., Gregory, M. and Platts, K. (1995) 'Performance measurement system design,' *International Journal of Operations & Production Management*, 15(4), pp. 80–116. <https://doi.org/10.1108/01443579510083622>.

Nunnally, J.C. (1978). *Psychometric Theory* (2nded.). New York, NY: McGraw-Hill.

Paik, S. and Bagchi, P.K. (2007) 'Understanding the causes of the bullwhip effect in a supply chain,' *International Journal of Retail & Distribution Management*, 35(4), pp. 308–324. <https://doi.org/10.1108/09590550710736229>.

Richard, S. W. (2013). *Institutions and Organizations: Ideas and Interests*. Kenya: Sage Publications

Roth, A., Tsay, A., Pullman, M. & Gray, J. (2008). Unraveling the food supply chain: strategic insights from China and the 2007 Recalls. *Journal of Supply Chain Management*, 44(1), 22–39.

Saunders, M., Lewis, P. and Thornhill, A. (2009) *Research Methods for Business Students (5th edn)*. <https://epubs.surrey.ac.uk/816026/>.

Scott, W.R. (2013) *Institutions and organizations: Ideas, Interests, and Identities*. SAGE Publications.

Shepherd, C. and Günter, H. (2006) 'Measuring supply chain performance: current research and future directions,' *International Journal of Productivity and Performance Management*, 55(3/4), pp. 242–258. <https://doi.org/10.1108/17410400610653219>.

Singh, N.P. and Hong, P.C. (2020). Impact of strategic and operational risk management practices on firm performance: An empirical investigation. *European Management Journal*, 38(5). doi:<https://doi.org/10.1016/j.emj.2020.03.003>.

Sime, N. (2019). *The Influence of Supply Chain Risk Management Practices on Supply Chain Performance: The Case of Selected Pharmaceutical Manufacturing Firms in Ethiopia*. Thesis, Addis Ababa University.

Skipper, J.B. and Hanna, J.B. (2009) 'Minimizing supply chain disruption risk through enhanced flexibility,' *International Journal of Physical Distribution & Logistics Management*, 39(5), pp. 404–427. <https://doi.org/10.1108/09600030910973742>.

Sodhi, M.S. and Tang, C.S. (2012) 'Strategic Approaches for mitigating supply chain risks,' in *International series in management science/operations research*, pp. 95–108. https://doi.org/10.1007/978-1-4614-3238-8_7.

Son, J.Y. and Orchard, R.K. (2013) 'Effectiveness of policies for mitigating supply disruptions,' *International Journal of Physical Distribution & Logistics Management*, 43(8), pp. 684–706. <https://doi.org/10.1108/ijpdlm-04-2012-0109>.

Supply Chain Risk Leadership Council. (2011)

Tang, C.S. (2006) 'Perspectives in supply chain risk management,' *International Journal of Production Economics*, 103(2), pp. 451–488. <https://doi.org/10.1016/j.ijpe.2005.12.006>.

Tang, C.S. and Tomlin, B. (2009) 'How much flexibility does it take to mitigate supply chain risks?' in *International series in management science/operations research*, pp. 155–174. https://doi.org/10.1007/978-0-387-79934-6_10.

Tang, C.S. and Zimmerman, J.D. (2013) 'Information and communication technology for managing supply chain risks,' *Communications of the ACM*, 56(7), pp. 27–29. <https://doi.org/10.1145/2483852.2483862>.

Tomlin, B. (2006). On the value of mitigation and contingency strategies for managing Supply Chain disruption risks. *Management Science*, 52(5), 639-657.

UNCTAD,(2023) Policy action plan(Pap) for transport services in Ethiopia-unctad https://unctad.org/system/files/official-document/unda-project-1819I_ethiopia_pap_en.pdf

Wang, M., Jie, F. and Abareshi, A. (2018). Improving logistics performance for one belt one road: a conceptual framework for supply chain risk management in Chinese third-party logistics providers. *International Journal of Agile Systems and Management*, 11(4), p.364. doi:<https://doi.org/10.1504/ijasm.2018.095515>.

Wong, W.P. and Wong, K.Y. (2008) 'A review on benchmarking of supply chain performance measures,' *Benchmarking: An International Journal*, 15(1), pp. 25–51. <https://doi.org/10.1108/14635770810854335>.

Wu, P.-J. and Chaipiyaphan, P. (2019) 'Diagnosis of delivery vulnerability in a logistics system for logistics risk management,' *The International Journal of Logistics Management*, 31(1), pp. 43–58. <https://doi.org/10.1108/ijlm-02-2019-0069>.

Annex 1: Questionnaire of the Survey



ADDIS ABABA UNIVERSITY, SCHOOL OF COMMERCE

DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

MA PROGRAM

QUESTIONNAIRE

Dear Sir/ Madam

This questionnaire is designed to gather primary data from employees to conduct a thesis paper entitled “effect of sc risk management practices on logistics performance: the case of coca-cola beverages Africa, Ethiopia” and is being carried out as a requirement for the partial fulfillment of MA in Logistics and supply chain management.

Kindly be assured that all the information you provide will be kept strictly confidential, will be used for academic purposes only and anonymity of your identity is guaranteed. In addition, all personal data shall be treated collectively rather than on personal bases.

The survey will take 20-25 minutes to complete but allow yourself enough time so that you don't have to rush. Please be responsible to answer honestly in order to get the most accurate result.

In case of any questions, please feel free to contact the researcher via the addresses below,

Semere Tilaye

E-mail: Semeretilaye@yahoo.com,

Cell phone: +251 911 36 18 01.

With regards,

N.B:-

- It is not necessary to write your name
- For the closed ended questions, use tick mark for your choice in the given box.
- Make sure there are 5 pages including the introduction

Section A: Background Information

Department.....

Designation.....

Tick on the appropriate box

1. Gender: Male Female

2. Year of Experience: 1-5 6-10 11-15 Over 15

3. Qualification:

PhD Master's degree Bachelor's degree Diploma

Certificate Other.....

Section B: Supply Chain Risk Management Practices

1. Flexibility practice: The ability to delay the actual commitment of resources and activities to maintain flexibility and delays incurring costs.

To what extent do the statements apply to your flexibility practices?

(1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

	Supply Chain Risk Management practices	5	4	3	2	1
Fl1	Delays final product assembly activities until the last possible position (or nearest to customers) in the supply chain.					
Fl2	Stores items at appropriate distribution points					

	close to the customers in the supply chain.					
FI3	Can re-arrange production process so that customization is possible.					
FI4	Delays final product assembly activities until customer orders have been received.					
FI5	Accommodate several customer service requirements.					

2. Collaboration Practice: Coordination and collaboration across the supply chain from customers to the suppliers.

To what extent do the statements apply to your supply chain collaboration practices?

(1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

	Supply Chain Risk Management practices	5	4	3	2	1
COI1	Exchange information that helps in the reduction of supply chain risks.					
COI2	Frequent and timely exchange of information about events or changes that may affect businesses.					
COI3	Collaboration with supply chain partners.					
COI4	Involvement of supply chain partners in the new product design development effort					
COI5	Information technology is used to reduce supply chain risks.					

3. Supply Base Rationalization Practices: Management of suppliers in a way that reduces supply chain risks.

To what extent do the statements apply to your Supply Base Rationalization practices?

(1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

	Supply Chain Risk Management practices	5	4	3	2	1
SBR1	Sourcing from multiple local suppliers to minimize the likelihood of supply chain risks.					
SBR2	Sourcing from multiple foreign suppliers to minimize the likelihood of supply chain risks					
SBR3	Sourcing from few local and foreign suppliers					
SBR4	Sourcing from few local suppliers only to minimize risks.					
SBR5	Sourcing from suppliers who have been evaluated and selected to reduce supply risks.					

4. Control Practice: supply chain risk control is the process of taking proactive steps to reduce the identified risks where possible and putting procedures, rules and policies in place to minimize the residual risk or to reduce the severity of such a loss.

To what extent do the statements apply to your supply chain Control practices?

(1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

	Supply Chain Risk Management practices	5	4	3	2	1
Cont1	Holding buffer stock to mitigate the risk of stock-out.					
Cont2	Keeping extra inventory of strategic items (e.g Raw materials, parts and finished goods).					
Cont3	Holding of underutilized capacity which serves as cushion to any disruptions.					
Cont4	Using improved forecasting techniques to reduce risks associated with supply chain.					
Cont5	Regular monitoring of supply chain risks (Demand, Supply process and environmental risks).					

5. Avoidance Practices: this practice is geared toward driving over all probabilities associated with risk events of a decision to zero by ensuring that risk doesn't exist.

To what extent do the statements apply to your supply chain Avoidance practices?

(1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

	Supply Chain Risk Management practices	5	4	3	2	1
A1	Avoid geographical markets that deemed risky					
A2	Avoid some suppliers to minimize supply chain risks					
A3	A delay getting in to certain markets until the uncertainty is reduced.					
A4	Audit supplier processes to minimize quality risk.					
A5	Information technology is used to minimize supply chain risks.					

What are the major supply chain risk management practices with in the logistics function of CCBA, Ethiopia?

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....
- 6.....

Section C: Logistics Performance

A firm's supply chain performance is measured in terms of cost, quality, delivery relative to industry standards and customer service levels.

To what extent do the statements apply to your business logistics performance?

(1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

	Supply Chain Performance Activities	5	4	3	2	1
LP1	The ability to achieve the lowest possible cost of logistics through efficient operations, technology and/or scale economies.					
LP2	The ability to reduce the time between order receipt and customer delivery to as close to zero possible.					
LP3	The ability to meet anticipated quality on consistent bases.					
LP4	The extent to which perceived logistics performance matches customer expectations.					

What are the major influences of supply chain risk management practices on the logistics performance of CCBA, Ethiopia?

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....

Thank you!

Annex 2: Interview of the Survey



Addis Ababa University, School of Commerce

Department of Logistics and Supply Chain Management

MA Program

Interview

Company Name.....

Designation.....

Experience.....

Question 1: What are the supply chain risks associated with the logistics function of CCBA, Ethiopia?

Question 2: What are the supply chain risk management practices your firm apply to mitigate your company supply chain risks?

Question 3: How is your company's logistics performance in terms cost, quality, delivery and customer service?

Thank you!