

**SUPPLY CHAIN RISK MANAGEMENT AND COMPETITIVENESS OF
AUTOMOTIVE TYRE RETAILERS IN NAIROBI CITY COUNTY**

BY

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF
BUSINESS, UNIVERSITY OF NAIROBI**

2016

DECLARATION

I, the undersigned, declare that this research project is my original work and has not been submitted to any other college, institution or university other than The University of Nairobi for examination.

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This research project has been submitted for examination with my approval as the appointed university supervisor.

Signed: _____ **Date:** _____

Michael Chirchir

DEDICATION

This project is dedicated to my dear wife Rose for the immense support and encouragement and our children Laura and Leo

ACKNOWLEDGEMENT

I give thanks to the almighty for his many blessings. Special thanks go to my supervisor Michael Chirchir for his guidance, patience and leadership.

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ABBREVIATIONS AND ACRONYMS

| | | |
|-------------|---|---|
| CRO | - | Chief Risk Officer |
| FMEA | - | Failure Mode and Effect Analysis |
| IRM | - | Information Risk Management |
| RDS | - | Respondent-Driven Sampling |
| SCM | - | Supply Chain Management |
| SCRM | - | Supply Chain Risk Management |
| SCT | - | Strategic Choice Theory |
| SPSS | - | Statistical Package for Social Sciences |

ABSTRACT

The primary goal of the study was to look into the role of supply chain risk management practices on competitiveness in automotive tyre retailers in Nairobi City County. Specifically, to establish the supply chain risk management practices used by tyre retailers in NCC and to establish the influence of supply chain risk management practices on competitiveness of automotive tyre retailers in NCC. Survey research design was adopted by this study. The study population involved of all the automotive tyre retailers operating within the county where it focused of 50 respondents from two major locations in Nairobi where most tyre retailers operate from, and these included: Kirinyaga road and Industrial area. The instrument used to collect primary data from the respondents was a questionnaire. Objective one was analyzed through descriptive statistics and objective two was analyzed by use of regression model. The study established that the supply chain risk management practices used by tyre firms operating in Nairobi City County were supply risk management, demand risk management, employee risk management and information risk management. Production risk management was a non-issue to the retailers since they were not involved in manufacturing. The study further discovered that demand and information risk management had an influence on the competitiveness of automotive tyre retailers in Nairobi City County. The study rejected the null hypothesis that supply chain risk management practices have no effect on competitiveness of a firm. The study therefore recommends that the tyre retail firms should look up on the ways to mitigate risks associated with supply and employees. The study was confined on the supply chain risk management practices applicable to automotive tyre retailer operating in Nairobi City County. The study further suggests that a national survey should be done on supply chain risk management and competitiveness of automotive tyre retailers in order to cover the national geographical diversity.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Supply chain practices in the automotive industry have been challenged by risks drawn from internalization, variations in product on market, increased outsourcing activities, as well as defaults of suppliers (Thun, Druke, & Hoenig, 2011). These risks have become a threat to finished product distribution channels as well as supply of materials. Therefore, main players in automotive industry have consequently recorded an increase of supply chain risk management (SCRM) functions. For instance, identifying the fragile links through mapping their supply chains (Tang & Musa, 2011). Nonetheless, an assessment of SCRM researches from 1995 until 2009 showed that the study on implementation of SCRM were partial in the current literature (Wagner, Bode, & Koziol, 2009). Thun and Hoenig (2011) observed that there was lack of surveys on implementation of SCRM in some countries.

Price Water Coopers (2013) explained that the automotive industry is asset, labour and material demanding and therefore calls for combined planning in operations and implementation at management levels. For instance, the driving force which is key to expansion of the industry of automobile at the incubation stage in the United States, China, Brazil and South Korea for sustainability and penetration stages are the government interventions (Kearney, 2013). Sub-optimal utility of supply chain management (SCM) practices causes threats to automotive dealers in their pursuit to attain competitive advantage, specifically in markets which are still emerging such as Kenya. Hence, there was a need to investigate several factors of supply chains as used in the automobile industry in such markets which are emerging with its influence to firms' competitive advantage.

SCRM incorporates both previous and ongoing initiatives, such as supply-chain security and business continuity. According to Supply Chain Risk Leadership Council (2011), security management systems of supply chain have a habit of resisting global act(s), which are unlawful and intended to cause damage or harm to the chain of supply. SCRM not only seek to attend to such kind of acts but also to promoting continuity of business and competitive advantage through mitigation of any disruptions that affect the normal business activities, operations, or processes (Sosa, Alcaraz, & Torres, 2014). The risks are therefore identified more widely as operational activities and process, converting the manufacturing activities into a key point to assess the operational risks. The activities and processess outside the company diminish the capacity to identify the risks that threaten them as a whole (Tang & Musa, 2011).

1.1.1 Supply Chain Risk Management

Risks in supply chain can be decisions and activities whose outcomes might negatively affect goods or information in a supply chain, while SCRM could mean supply chain risks mitigation which can be done through proper collaboration or coordination among the partners of supply chain to enhance continuity and profitability (Brindley 2004). Wieland and Wallenburg (2012) refer to SCRM as the process of strategy implementation that mitigates both exceptional and everyday threats found in the supply chain assessment and its goal is reduce susceptibility as well as to ensure stability. Therefore, the emergence of SCRM as a supply chain management tool is essential and has the primary aim of identifying the sources of potential risks and suggestion of action plans suitable to alleviate them (Singhal, Agarwal & Mittal, 2011). SCRM is a joint partner in supply chain in that it realigns risk management instruments to mitigate the uncertainties and risks generated through logistics impacts on resources or activities related to supply chain (Brindley, 2004).

The SCRM concept has increasingly received attention from consultants, academicians, and business managers alike (Choudry & Iqbal, 2013; Lavastre, Gunasekaran, & Spalanzani, 2012; Thun & Hoenig, 2011). Companies have appreciated that SCRM is the main driver to creating sustainable competitive edge for their products and/or services in an increasingly crowded market place. Wu and Olson (2010) noted that the risks experienced in supply chain management are instigated from two major areas namely demand and supply. The other levels can be political, environmental, process and security risks. Environmental and political risks oftenly remain vague and unmanageable to adequately quantify. Security risks are found to be more volatile but on a far higher priority level. Proper management of risks has become the central concern of many companies to carry on and flourish in the current competitive business environment (Zsidisin, Wanger, Melnyk, Ragatz, & Burns 2008). The supply chain risks range from counterfeit products to unpredictable natural threats, and they cut across security, quality, to product integrity and resiliency. Cyber-security, finance, logistics, and risk management disciplines are among the plans to mitigate and manage these risks with the ultimate aim of enhancing continuity in supply chain (Choi & Chiu, 2012).

According to Blos, Quaddus, Wee and Watanabe (2009), the issue of SCRM can be address based on two dimensions: firstly, risk of supply chain which includes risks in operations or risks of disruption, and secondly, through approach of mitigation which involves product management, supply management, information management and demand management. Scholars of supply chain suppose that mitigation of risks of supply chain by firms can only be done where damage and loss could not be avoided when accidents happen. SCRM therefore stands in a good chance of reducing these damages and losses effectively (Juttner, Peck & Christopher, 2003). On their study of automotive companies in Brazil, Blos, Quaddus, Wee and Watanabe (2009)

revealed that there are three major practices are often linked to SCRM which include better communication of supply chain, business continuity management training program and SCRM as well as creating the position of Chief Risk Officer (CRO).

1.1.2 Competitiveness

Continuity and achievement of organizations in current turbulent economies increasingly depend on competitiveness. Many scholars have defined competitiveness as a relative and multidimensional concept and these descriptions change depending on time and context. Stajano (2009) defines competitiveness as an activity which entails the performance and ability of a business, country or sub-sector to supply and sell goods and services in a given market. On other hand, Li, Poppo and Zhou, (2008) defined a competitive advantage as the organizations' capability defend their competitors' positions. It is a universal phenomenon describing a firm's strength in an economy based on competition globally of which ideas, goods, skills, people, and services are exchanged freely from one point to another (Murths, 1998). At an organization's level the description of competitiveness can be the firm's ability to design, produce and or market goods with greater value than their rivals, with price consideration and qualities of non-prices (Ambastha & Momaya, 2004). Companies have started realizing that improving efficiencies within an organization is not the only focus, but creating competition in the whole supply chain. Suhong, et. al. (2004) noted that the SCRM practices are a prerequisite for competing globally and for profit enhancement.

Hoffman (2000) argued that competitive advantage is essential to the sustainability and the future success of an organization an area that has become a hotspot for research. Competitiveness came about due to rivalry among the business environment. Alderson (1965)

was one of the first scholars to admit that for a firm to distinguish itself from its rivals, it should attempt to create unique attributes which will eventually give it a competitive advantage with customers. On the same note, Elahi (2013) acknowledged that firms could go ahead of the performance of their rivals through coming up with new ideas that make them go a step ahead. In addition, scholars like Hall (1980) and Henderson (1993) disputed that the exclusivity of an organization is what can make it thrive in a competitive business environment. Porter (2006) came up with concept describing the different types of competitive strategies a firm is supposed to own to be able to achieve their long term goals. He developed the five force analysis model in which he outlined five major areas that strategic planners and marketers should consider when scrutinizing competitiveness in any dynamic business environment. These forces include: competitive rivalry, the power of buyers, threat of entry, the threat of substitutes as well as the power of suppliers.

Businesses can enhance their competitiveness through effective mitigation of current risks, any unforeseen risks (Gilbert & Eyring, 2010). Tushman and Nadler (1986) recognized people's visionary leadership, values, and structures as major indicators to determine whether a firm will be competitive as a result of proper risk management experienced in supply chain. Ndungu (2008) noted that for an organization to achieve its competitive advantage, it should offer value to consumers at a cost that produces economic performance superior to their competitor. Organizations must then defend this position from competition. He concluded that the two key elements of competitiveness are: defending the sources of this market position against rivals and positioning the product line more effectively than their competitors'. Competitiveness can be measured based on the role of domestic producers, changes over time in the pattern of competition, accounting for the newly-established firms in determining competitiveness, and

comparing the indicators of competitiveness constructed by a firm and other organizations (Wieland & Wallenburg, 2012). Regardless of increased awareness among stakeholders, the concept of supply chain risks and its managerial approaches remain in their infancy (Wu & Olson, 2010; & Singhal, Agarwal, & Mittal 2011).

1.1.3 Automotive Tyre Retailers in Nairobi City County

The African continent is the highest development markets for the world automotive tyre industry. The demand for automobiles from the expanding middle class in the African countries has resulted to generation of high return hence rising the business environment for tyres of different types including: agricultural tyres, off-the-road tyres, trailer tyres industrial tyres, passenger car tyres, bus tyres, truck tyres and bicycle and motorcycle tyres. The demand of tyres has brought about tight competition between the emerging African markets and established manufacturers of tyre (Africa Business Pages, 2016).

In Kenya, the competition in the tyre industry and specifically in Nairobi city county is among various brands chains which flood the market. Nevertheless, this has benefited the consumers since they are left with more freedom to choose hence reduced monopoly (Seroney & Mwangangi 2014). However, the problem facing most tyre retailers operating within Nairobi County is that they do not pay much attention to risk control in their supply chain management yet they are large scale distributors to resellers of tyres in other parts of the country (Kinoro, 2013). This kind of performance is attributed to both inside as well as outside aspects influencing the success of the business. Some of the internal factors include firm's resources, technical support, product offering, promotion programs and distribution whereas external factors include competition, tariffs and regulations.

The only local tyre manufacturing company operating in Kenya is Sameer Africa, alongside other top international tyre players such as Apollo, Pirelli, Dunlop, Michelin, CEAT, and Kumho which operate via the import route in Kenya. Sambo (2015) acknowledges that there is rise of vehicle sales in Kenya and that government policies favour the automotive sector, thus resulting to an increase of tyre market over the last five years. He further stated that the motorization rate of vehicle is estimated to be 28 vehicles per 1,000 people. This means that Kenya has a high potential of selling new vehicle over the coming five years, which is a good prospect to the country's tyre industry as well. Therefore, the management of the tyre businesses can gain their competitiveness enhanced the capacity to co-ordinate or harmonize their firm's activities together with those of suppliers, channels, or customers by use of SCRM best practices (Porter, 2006). Competitiveness in the tyre business in Nairobi can be estimated through the value that retailers deliver to the clients, as well as the margin to which these firms are able to reach a great percentage of segmented market as well as the competition basis that change from price to quality and product differentiation.

1.2 Research Problem

Scholars of supply chain suppose that firms are able to moderate risk of supply chain but the avoidance of damage and loss in cases of accidents is not possible (Blos, Quaddus, Wee & Watanabe, 2009). Nonetheless, in the recent years, SCRM has become an effective tool to reduce loss and damage (Bhattacharya, Mukhopadhyay & Giri, 2014). The enhanced complexity in supply chain can be a hindrance to feasibility as well as final results to companies being less competitive and therefore can easily be outdone by their competitors (Mohamed & Omwenga, 2015). Supply chains in the automotive industry face challenges from globalization, product variants and increasing outsourcing activities, as well as supplier default which pose great threat

to the firm's image in terms of flow of finished product or material supplies (Hudin & Hamid 2015). Managing risks conveys a strategic competitiveness to businesses, enabling them achieve market share from competitors who are not prepared well in case of risk strike. A supply chain which embraces risk management spots risk faster, responds to it, and claims competitive advantage through these capabilities (Ambastha & Momaya, 2004).

Kenya is among the most progressive and largest economies in both East and Central Africa region. The growth of tyre business in Kenya specifically Nairobi has been reported in the past few years and this has been brought about by the growth in the entire automotive industry (Seroney & Mwangangi, 2014). The Kenya Tyre Market Forecast and Opportunities, 2020 report given by TechSci Research (2015), states that two wheelers, passenger cars, as well as three wheelers were able to account to about 70% of the total sales of tyre in Kenya in the year 2014. The supremacy of this automotive sector is predicted to be competitive for the next five years. Notably, Nairobi which is the capital city of Kenya, accounts for the greater part of the entire tyre demand in Kenya, and this tendency is presumed to continue systematically for the period forecasted.

A research done by Blos, Quaddus, Wee and Watanabe (2009) on management of supply chain risks in Brazil's automotive and electronic industries, indicated that good communication in supply chain, business continuity and SCRM planning of training program, as well as the chief risk officer position creation in management of the supply chain risks, were significant practices to implementation of SCRM. Bhattacharya, Mukhopadhyay and Giri (2014) researched on supply chain management in the Indian automobile industry. The findings of their study revealed that the supply chain standards followed by developed countries were not matched in the Indian

automobile industry. Similarly, Hudin and Hamid (2015) conducted a study on supply chain risk management in the Malaysian automotive small and medium enterprises. The findings indicated that the companies were able to implement automotive mode of failure and effect analysis (FMEA), recovery planning, aspect-impact study, as well as 5 why analysis in the mitigation of risks in supply chain.

Wanjiku (2010) carried out a study on the response strategies adopted by multinational corporations to cope with barriers of entry into the Kenyan Market, the findings of this study indicated that the linkages between motor vehicle industry and supply chain risk management can enhance organizational growth. Seroney and Mwangangi (2014) conducted a study was on the supply chain management impact on the motor vehicle industry's competitiveness in Kenya. The findings of their research revealed that distribution channels, inventory management, procurement policies and information flow had a great influence on determining the competitiveness on motor vehicle industry in Kenya. On the other hand, Mohamed and Omwenga (2015) researched on mitigation of supply chain risks strategies and their adoption in Kenyan manufacturing firms. The findings showed that organizations are faced with risks of supply chain.

Despite the widely acknowledged vulnerability of modern day complex supply chains, there are inadequate empirical studies and managerial approaches used to minimize the risks faced by many organizations. The implementation of the SCRM practices still poses a major threat and there has been inadequate attention on how the mitigation of risks in supply chain affects competitiveness in the automotive tyre industry specifically, tyre retailers. This study therefore, sought to examine the supply chain risk management practices and their influence on

competitiveness in automotive tyre retailers in Nairobi City County. The research questions that guided this research were: Are there supply chain practices used by tyre retailers in Nairobi? What influence does supply chain risk management practices has on competitiveness of automotive industry in Nairobi?

1.3 Research Objectives

The major purpose of this research was to investigate the supply chain risk management practices and competitiveness in automotive tyre retailers in Nairobi City County (NCC).

1.3.1 Specific Objectives

The specific objectives of this research were as follows:

- i. To establish the supply chain risk management practices used by tyre retailers in NCC.
- ii. To establish the effect of supply chain risk management practices on competitiveness of automotive tyre retailers in NCC.

1.4 Value of the Study

The study on the SCRM practices and competitiveness in automotive tyre retailers shall enable firms to discover the need to generate new strategies and comprehensive approaches to manage their SCRM. The outcomes of this study are of great importance to the entire players in automotive tyre industry in Kenya. They shall benefit from the findings of this research as it brings out the knowledge of the SCRM practices used and where to focus to improve the performance of firms in order for them to be more competitive.

This study is essential to the tyre retailers since they are able to gain understanding on the best SCRM practices and procedures which are used to promote competence and performance among businesses. The findings of this study are of great benefit to the government in that, they shall enable the policy makers to put in place measures that can strengthen the execution of the SCRM practices which are helpful and geared towards realization of Vision 2030.

The research contributed to the empirical literature and therefore academicians will find the basis for further research in the role of SCRM practices on the competitiveness of organizations. Thus, the research gives way for more academic researches on the topic under investigation based on Kenyan context and globally, hence, contributing in filling the knowledge gaps found in this discipline.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter has the presentation of the theoretical foundation for this research based on the supply chain risk management and competitiveness among the organizations. Besides it also provides the literature on the challenges posed by SCRM to firms. The chapter as well narrates the empirical literature review and illustrates the study's conceptual framework.

2.2 Theoretical Foundation

This study is embedded on the theory of strategic choice and theory of constraints. These models will be useful for this research since they will assist in explaining the behaviours of SCRM practices on the organizations as well as suggest how to develop more effective ways to influence and change those behaviors.

2.2.1 Strategic Choice Theory

According to Chicksand and Johnston (2012), Strategic Choice Theory (SCT) enhances research and practice since it assists in making sense of challenging and dynamic situations. The theory regards the relations linking organizational events and actions. The integrative approach of this theory is essential and valuable for strategic management (Jemison, 1981). SCT begins with consideration of appropriate forces in the external setting which influence the relationships of organizations employment. Altering this external environment persuade owner managers to adjust based on their competitiveness (DeRond & Thietart, 2007). The variety of choices under consideration are filtered and constrained in the process of making these adjustments, to ensure consistency in the values, philosophies, and beliefs encompassed by key decision-makers of an organization.

Strategic choice resource dependence model has the ability to promote the interdependence of tyre retailers and their business environment in regards of strategic choices, actions and overall firm performance. In an integrative view, SCT will be used by this study to underline the outlook of tyre retailers in Nairobi as accommodative businesses, with strategic choices that can lead to activities directed by the management. Thus, processes and outcomes of these businesses can be established through an ongoing environmental pressures interaction and responses of organizations to challenges. This theory is used by this study to show the linkage of choices of management as well as performance of a particular firm together with the general communication between organizations and environment. Thus, tyre businesses in Nairobi tend to be partly affected by their top management choices as well as the environment.

2.2.2 Agency Theory

Agency theory was developed by Jensen and Meckling in the year 1976. It states that an agent's actions tend to be based on his/her own interest rather than the principal's. The aim of a principal is largely in making profits which might not be the same situation in the case of the agents who tend to act in their own best interest. The theory further explains that the management and shareholder's interests always conflict, and therefore arising conflicts among them. According to Nieuwenhuizen (2007), this situation arises simply because most managers seem to be more concerned with their private interests of the management, since by doing so it may add costs to the organizations, thus reducing the perceived benefits. The conflict of interest between managers and shareholders can be reduced through a monitoring mechanism which can be used to adjust the related interest (Rummell, Schendel & Teece, 1991).

This theory is essential for this study as it will help the owner managers of tyre retailers to be able to create contracts when dealing with agents, employees or workers. Agency theory will help tyre retailers to be able to deal with problems that come about when the goals and desires of the agent-principal conflict since it is expensive and difficult for principal ascertain that the agent has behaved appropriately. The rise of risk mitigation dilemma comes in the picture when agent and principal's attitudes are different towards risk. The theory emphasizes that organization should create and maintain relationships with its agents to ensure that both their needs are met, since it regards agent-principal relation as critical to an organizations success.

2.3 Supply Chain Risk Management

Wieland and Wallenburg (2012) asserted that SCRM is a process of implementing strategies which aid in managing exceptional as well as daily risks faced in the supply chain based on constant assessment of risks with the aim of vulnerability reduction and continuity enhancement. Therefore, SCRM is said to be an idea of collaborating with supply chain partners or on their own, through the application of process of managing risks to deal with uncertainties and risks that impact on activities of logistics and supply chain resources. There are four major aspects of SCRM as follows: identification of risk, risk assessment, risk mitigation in the supply chain and tracking risk drivers (Juttner et. al., 2003). Tang (2006b) categorized strategic plans and tactics for supply chain risk management in to four groups which relied on processes of managing of firms: information risk management, production risk management, demand risk management, as well as supply risk management. This research investigated management of supply chain risk in line with these four groups.

The relationship of risks to demand can be on actual disturbances or potential product flow, cash, information and originating in the internal network of the given organization in the market. The risks to demand can be a failure on either the low or high level to the accommodation of the demand. Risks to demand can be brought about by two major sources which include managing internal customer requirements and fluctuations in external customer requirements (Tang, 2006a). Many a times, forecasting general supply and demand chain flexibility can basically be an art more than a science, specifically in environmental markets differentiated by short product lifecycles and high volume. Overall, in most markets, managers of supply are supposed to recognize the repercussion to ask for more than is required. Furthermore, on demand risk management, risks to finance management (like the possibility of customer being bankrupt) might be essential. Nevertheless, the evidence to the flow of integrating or linking SCRM practices in reviewed literature is not clear, this might be due to its complexion (Tang & Musa, 2011).

Risks to supply can be equivalent to risk to demand, as its a relationship on prospective and real disturbances to product flow, cash, information and originating in the internal network of the given organization in the market (Levary, 2007). These risks are linked to suppliers of a given company, or the failure of material delivery by a supplier then there is need for company to meet its demand forecasts/production requirements effectively (Faisal, Banwet & Shankar, 2007). Among the essential changes in supply chain management is the stressing on activities that are integrate into main processes of supply chain management apart from individual functions. Based on SCRM, the aspect of management might be different in consideration of the internal and external sides. For example, given the discussion of supplier selection risks, one should major on the sustainability of raw material distribution (Tang & Musa, 2011).

Information risk management (IRM) are the policies, procedures, and technology that a firm adopts in order to reduce the threats, vulnerabilities, and consequences that could arise if data is not protected (Tang & Musa, 2011). The ever growing internet usage assists the growth of supply network and the information sharing visibility (Agrell, Lindroth, & Norrman, 2004). Activities that help in value addition in supply chain can be activated through the flow of information on product, capacity status, order fulfillment, demand, process design changes, as well as inventory status. The aspect of flow of information is the bonding agent connecting flow of materials and flow of finance management. Accuracy of information, information system disruption and security, information outsourcing and intellectual property risk are obtained (Tang & Musa, 2011). Lee (2002) explained that the accuracy of information risks comes about through accessibility, efficiency and accuracy of information.

Tang and Musa (2011) limited complexions in production was experienced in previous years, as there was only one way flow of goods from suppliers of raw materials, to accompany that is manufacturing and thereafter distribution to markets. However, in present days, an increase in demand as well as short lifecycle of products can also pose to complicate the entire supply chain. This is caused by competitive advantages and cost pressure through which firms are adopting outsourcing and globalization strategies (Christopher and Lee, 2004). An expansion in network of supply chain is a requirement which can assist to increase the nodes in the system. To add on that, various firms have introduced the concept of lean production with intention of avoiding wastage in a supply chain, for example, through reduction of suppliers (Pilkington & Meredith 2009). This could aid in operations smoothening however, it could be accompanied by problems of unpredictable activities that are within the supply chain.

Management of risks associated to employees provides a simple, legally-grounded process which enables employers to recognize, mitigate and lessen the possible risks which are related to employees or with any human resource who works for a specific institution, including volunteers, contractors, temps and interns. It covers the entire risks that can emerge right from recruitment and selection throughout to the end of the employment relationship. Through proper employee management, employers are able to safeguard their firms from risks diversity which include: management of employee usage of social media, remote working risks, frail and ageing workforce, data protection and data security (Rideout, 2014).

2.4 Firm Competitiveness

Taking into account of competitiveness of a firm, its nature can be termed as “multi-faceted” through several variables which are jointly used in estimation (Bobillo, Rodriguez & Gaité, 2006). Literature on economy normally looks at competitiveness from two major levels. These include: microeconomic level – entails firms/ industries’ competitive advantage and macroeconomic level – looks at competition of countries economies (Becker-Blease, Kaen & Baumann, 2005). In his initial definition of competitiveness, Porter (1999) described it as the product or company’s ability to compete in the market and the aspiration of success. Factually, the description of the term is the capability of the companies and industries to remain competitive, and in turn, show the improvement ability and protection of their current position related to rivalries active with the same market. For that reason, firm’s competitiveness is the capacity to perform better as compared to others in terms of market shares, profitability and sales (Lall, 2001). Competitiveness could be described from geographic area choice, time as well as product (Cook & Bredahl 1991). Becker-Blease, Kaen and Baumann (2005) stated that the

interpretation of competitiveness should be based on the firm's ability to survive in structural change.

Measures of different financial performance are usually adopted in estimating the firms' competitiveness. For instance return on sales shows the amount earned by a firm as pertains to sales, on other hand, return on assets is used to determine the ability of an organization utilize its assets while return on equity displays investors' return for investments. Tangen (2003) argued that the benefits of measures of financial performance include: definitions being agreed worldwide and calculation being made easy. In previous years, the manufacturing system success used to be measured through financial measures.

2.5 SCRM and Competitiveness

In Kenya, there is lucrative and vibrant business of automotive tyre due the fact that presently, a large number of people possess cars (Seroney & Mwangangi 2014). Navickas and Kontautiene (2012) asserted that the tremendous competitiveness experienced by many dealers, tends to be on the brink of generating catalytic change in the automobile industry around the globe. Tyre business in Kenya specifically in Nairobi County is experiencing high competition with the presence of various chains of brands in the market (Ndungu, 2008; & Sambo, 2015). Competitiveness can be determined by the value delivered to the customers, and the level to which a company access a great number of market segments (Kwon & Suh, 2005). The linkage between core competencies and performance among motor vehicle companies in Kenya is wide spread and is not specific to any industry (Kenya Motor industry, 2015).

2.6 Empirical Literature Review

This part presents the summary of the empirical studies' done by a number of scholars reviewed for the purpose of this study. There are various illustrations of empirical findings on the risks involved in the SCM on their competitiveness available in the literature. Li, Rao, Ragu-Nathan, and Ragu-Nathan (2006) did a research on the supply chain management practices and how they affected competitiveness of performance of an organization. Their study conceptualized and developed five dimensions of SCM practice namely, quality of information sharing, strategic customer relationship, supplier partnership, postponement as well as level of information sharing. It also tested the linkage of practices of SCM, competitiveness, and performance of organization. They used structural equation modeling to test the relationship of data which was collected from a sample of 196 organizations. The findings of their study revealed that the enhancement of competitive advantage as well as improved performance of any given organization is influenced by higher levels of SCM practice. Their research further revealed that competitive advantage can have a direct, positive impact on organizational performance. However there was no mention of risk involved in the SCM. This study will add to the scope to include risk management.

A research done by Blos, Quaddus, Wee and Watanabe (2009) on management of supply chain risks in Brazil's automotive and electronic industries, indicated that good communication in supply chain, business continuity and SCRM planning of training program, as well as the chief risk officer position creation in management of the supply chain risks, were significant practices to implementation of SCRM. This study used exploratory study methodology in the automotive and electronic industries, taking in consideration of the SCRM phase of initiation. Their case study upholds that readiness in an industry management can assist in risk mitigation.

Nevertheless, the study discloses shortcoming of many respondents not knowing SCRM and thus misinterpreted the information about SCRM. These findings would apply in the case of tyre retailers in Nairobi, most of whom may not have knowledge on the ways to mitigate risks.

Bhattacharya, Mukhopadhyay and Giri (2014) researched on supply chain management in the Indian automobile industry. The findings of their study revealed that the supply chain standards followed by developed countries were not matched in the Indian automobile industry. Their study investigated trends such as collaboration and supply networks; visibility and innovation, as well as leadership involvement roles that impact effectiveness of supply chain. From this observation this study finds a need to continually study supply chain practices in the automotive industry in a modern point of view to enable the identification of major aspects of differentiation that can eventually present competitiveness especially, in the Kenyan context.

On a study carried out in Toyota Kenya Limited Company in Nairobi, Seroney and Mwangangi (2014) argued that distribution channels, inventory management, procurement policies and information flow had a great influence on determining the competitiveness on the motor vehicle industry in Kenya. This study did not give the evidence on the views of the retail shops specifically, those in the tyre business. They suggested that there was need for the automotive industry to conduct a market survey in order to establish the optimal performance which would reach out to more customers and hence achieve great competitiveness within the industry. This study will conduct a market survey on the automotive tyre industry to establish the SCRM practices used by tyre retailers operating within Nairobi to enhance competitiveness.

Using a sample size of 33 respondents and a case study of Kenya Postbank, Kimechwa (2015) examined the adoption of the supply chain management practices on the performance of Banks.

The study revealed that outsourcing was an important factor to the banks only when the appropriate methods were employed. It further found out that, ICT had a major role in determining the performance of banks as it dictated the mode of transaction and data they displayed to clients. Strategic partnerships were presented as important based on what was intended to achieve in enhancing the performance of banks. Conversely, the study did not include the concept of risk. This study will be testing how the tyre retailers in Nairobi deal with risks related on supply chain.

Hudin and Hamid (2015) did an assessment on the SCRM practice of automotive industry in Malaysia. They studied a case study on supply chain risk management automotive manufacturers SMEs and relied on three variables of SCRM model, which were: techniques of minimizing risks, tools used in SCRM and SCRM process. Their findings indicated that the companies were able to implement automotive mode of failure and effect analysis (FMEA), recovery planning, aspect-impact study, as well as 5 why analysis in the mitigation of risks in supply chain. This study further revealed that techniques of brainstorming, expert and experienced judgment were majorly applied as tools for identifying and assessing risks and that many of the threats that come about in the operations were tackled through immediate strategies like suppliers' back-up and an increase in buffer stocks. Despite all these, the room for improvements is still wide in the effort of identifying risks as well as tools for assessing risks since very limited quantitative techniques were evidenced.

Mohamed and Omwenga (2015) researched on supply chain risks mitigation strategies adopted by manufacturing firms in Kenya with focus of Coca Cola Company. Descriptive research design was applied targeting 83 respondents who were in top management and lower level managers at

the Coca Cola Company. The findings showed that the organization were faced with the problem of mitigating risks in supply chain at the present business environment. They recommended that there was need for attention to risks and their management especially, in new technologies, regulatory requirements, consumer demands, and potential disruptions combine creates complexity in SCRM.

2.7 Summary of Literature Review and Knowledge Gaps

The table below summarizes analysis of the studies done by a number of authors in relation to SCRM and its relation to competitiveness in general.

Table 2.1: Summary of Literature Review and Knowledge Gaps

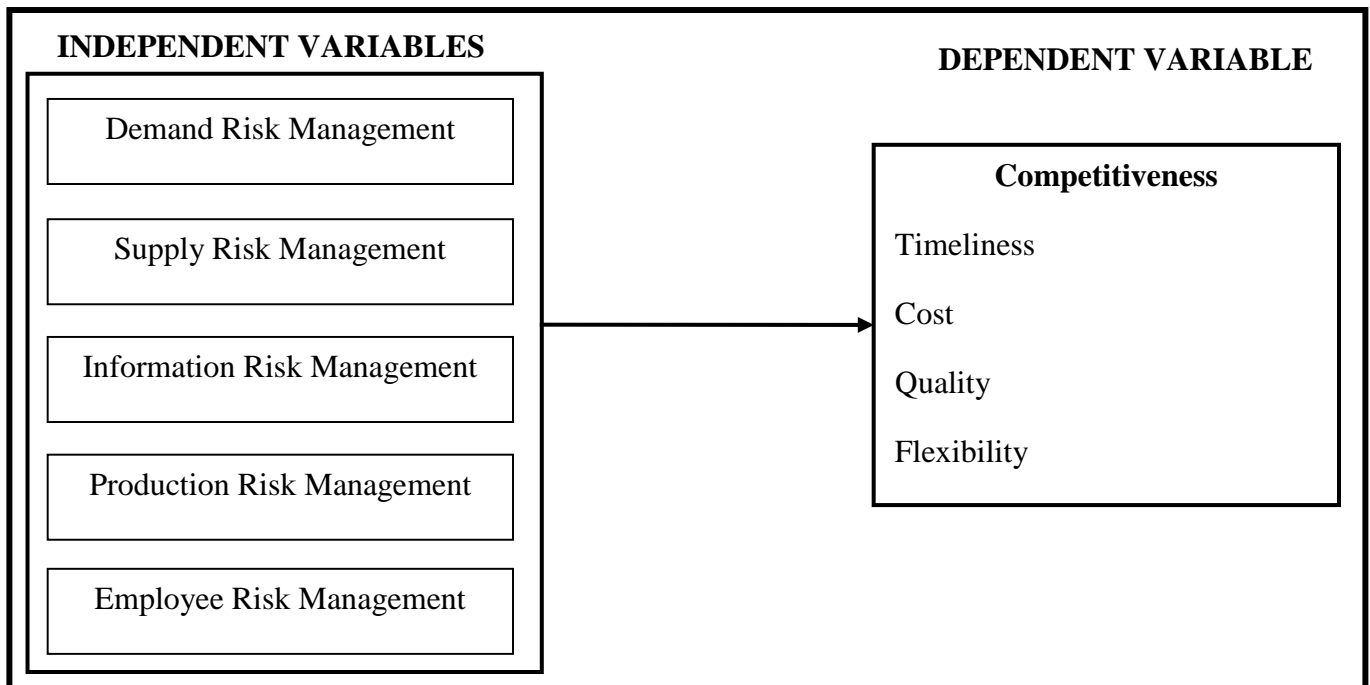
| Scholars | Study | Major Findings | Knowledge Gap(s) |
|--|---|--|---|
| Li et al (2006) | The impact of supply chain management practices on competitive advantage and organizational performance | Higher levels of SCM practice can lead to enhanced competitive advantage and improved organizational performance. | Development and conceptualization of five SCM practice dimensions and test of the association competitive advantage, SCM practices, and performance of organizations. |
| Blos, Quaddus, Wee & Watanabe (2009) | Supply chain risk management in the automotive and electronic industries in Brazil. | The major practices influencing implementation of SCRM were better supply chain communication, SCRM and business continuity planning training program, and the creation of a chief risk officer position to manage the supply chain risks. | Challenges in implementing of SCRM. |
| Bhattacharya, S., Mukhopadhyay D. & Giri S. (2014) | Supply chain management in Indian automotive industry. | The Indian industry was yet to match the supply chain standards of developed countries and tremendous potential exists for national level integration of supply chains. | The unique operations of automotive industry further pose threat to existing complexions in supply chain of automobile. |
| Seroney A. & Mwangangi P. (2014) | The influence of supply chain management on the competitiveness of the motor | Distribution channels, inventory management, procurement policies and information flow had a great influence | The need to conduct a market survey in order to establish the optimal performance to reach out to more customers and hence |

| | | | |
|--------------------------------------|---|--|--|
| | vehicle industry in Kenya. | on determining the competitiveness on motor vehicle industry in Kenya. | achieve great competitiveness within the industry |
| Hudin N. S., & Hamid A. B. A. (2015) | Supply chain risk management in automotive small and medium enterprises in Malaysia | Automotive companies had implemented failure mode and effect analysis (FMEA), 5 why analysis, aspect-impact study, and recovery planning to manage their supply chain risks. | Supply chain in automotive industry is still faced with many risks which come along with heavy dependencies of local automotive component manufacturers with foreign and established global producers. |
| Mohamed, K. S. & Omwenga, J. (2015). | Supply chain risks mitigation strategies adopted by manufacturing firms in Kenya: a case of Coca Cola Company | The company faces supply chain risks in the current business environment. | More attention to risks and their managing is critical citing new technologies, regulatory requirements, consumer demands, and potential disruptions combine creates complexity in SCRM. |
| Kimechwa V. K. (2015) | Impact of supply chain management practices on the performance of banks in Kenya: a case of Postbank | Appropriate outsourcing, strategic partnership and ICT had a major role in determining the performance of banks | Lack of conception of risk aversion despite the use of correct ICT methods to promote the competitiveness to better performance. |

2.8 Conceptual Framework

This research aimed at examining how supply chain risk management practices relate to competitiveness in automotive tyre retailers in Nairobi. Figure 2.1 shows the conceptual framework of the study informed by the literature reviewed. The model indicates that for firms to maintain their competitiveness they can mitigate risks based on five groups namely, demand risk management, supply risk management, information risk management, production risk management as well as employee risk management and these are used as independent variables of this study while competitiveness is used as dependent variable.

Figure 2.1: Conceptual Model



Source: Researcher (2016)

2.9 Research Hypothesis

This research is based on the hypotheses that:

H_0 Supply chain risk management practices have no effect on competitiveness of a firm

The findings of this study indicated that we reject the null hypothesis that supply chain risk management practices have no effect on competitiveness of a firm since it provided the p – value of 0.019 which was found to be less than the recommended threshold margin for failing to reject.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter entails the research design, target population and sampling, data collection instrument, data collection procedure as well as data analysis and presentations.

3.2 Research Design

This study adopted survey research design. Survey research requires a representative sample that reflects major characteristic of the population that one would want to represent in this case tyre retailers in Nairobi. Trochim (2006) stated that a survey research design is a valuable instrument used in evaluating trends and opinions. It involves the observation and description of variables as distributed in the population with the basic goal being the collection of information about phenomena or variables within a population through the use of questionnaires.

3.3 Target Population

The population under study comprised of all the automotive tyre retailers operating in Nairobi City County. This research covered two major locations in Nairobi where most tyre retailers operate from, and they included: Kirinyaga road and industrial area.

3.4 Sampling Design and Procedure

Since the population of tyre retailers in these two locations was not known, the study estimated the sample size by use of cluster sampling technique as proposed by Handcock, Gile and Corinne (2014). They suggested that in the absence of a sampling frame and respondents are not identified easily or recruited based on a larger sampling frames, researcher can employ use of

cluster sampling technique. Thus, this study based on clusters from the above-mentioned locations within NCC where tyre business is vibrant. Therefore, the study focused on 25 tyre retailers operating from each of the two targeted locations bringing the total number of 50 respondents.

3.5 Data Collection

This research used primary data. The data collection instrument used in this study was a questionnaire. This was designed using the variables identified as important for meeting the objectives of the study. The questionnaire comprised of open and closed-ended questions to be administered to the respondents of this study. Section A of the question comprised demographic information. Section B entailed questions on SCRM practices. Section C had information on competitiveness. The data collection instrument was administered to tyre firms' agents and/or owner managers by use of drop-off and pick later method. The method was found to be effective in reduction of bias of potential non-responses by increasing the response rate of study (Allred & Ross-Davis, 2010). The research questionnaire was given to 50 tyre retailers operating along Kirinyaga road and industrial area.

3.6 Data Analysis

This research used descriptive analysis and embedded on quantitative technique in the analysis of the data. Statistical Package for Social Sciences (SPSS) aided in scrutiny of the collected data. Demographic information was analyzed by use of descriptive statistics. Objective one, which is to establish the supply chain risk management practices used by tyre retailers in NCC, was analyzed in form of frequencies, means and standard deviations where output of data analyzed

was presented diagrammatically. Objective two, which was to establish the effect of supply chain risk management practices on competitiveness, was analyzed by use of regression analysis. This study used the following regression equation:

$$CO = \alpha + \beta_1 DRM_1 + \beta_2 SRM_2 + \beta_3 IRM_3 + \beta_4 PRM_4 + \beta_5 ERM_5 + \varepsilon$$

Where: CO = Competitiveness (Timeliness, Cost, Quality and Flexibility)

α = Constant

DRM₁ = Demand risk management

SRM₂ = Supply risk management

IRM₃ = Information risk management

PRM₄ = Production risk management

ERM₅ = Employee risk management

β_1, \dots, β_5 are regression coefficients of the variables.

ε = Error term.

Table 3.1: Summary of Data Collection and Analysis

| Objective | Section | Analysis |
|---|---------|------------------------|
| Demographic Information | A | Descriptive statistics |
| Obj. 1: The SCRM practices used by tyre retailers in Nairobi | B | Descriptive statistics |
| Obj. 2: Effect of SCRM practices on competitiveness of automotive tyre retailers | C | Regression analysis |

Source: Author(2016)

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The chapter underscores the information on findings of the study. Data analysis was done in reference to the methods outlined in chapter three of the research project. The findings are presented in the following order: response rate, descriptive statistics, and regression analysis.

4.2. Response Rate

The study's intention was to collect data from a sample of 50 tyre retailers operating Nairobi City County. The study was able to gather information from 43 responded translated to a response rate of 86 percent, the remaining 7 questionnaires which represented 14% of the sample population were either not returned or filled appropriately. The response rate reported by this study was adequate for the study. This is in line with Mugenda & Mugenda (2003) who observes that any rate of response above 70% is excellent for analysis and reporting.

4.3 Demographic Information

The demographic information analyzed by this study was based on the determination of the respondents' highest level of education and the duration of time they have served in their respective workplaces.

4.3.1 Highest Level of Education

The study required to ascertain the respondents' education level and the results are as given in table 4.1. The findings show that 58.2 percent of the respondents had attained diploma as their highest education level. 39.5 percent of them indicated that their highest level of education was

secondary school certificate, while only 2.3 percent of the respondents had achieved undergraduate degree. However, none of them had a postgraduate degree. The findings indicate that the employees in tyre retail firms had the necessary competence to give feedback for this study

Table 4.1 Highest Level of Education

| Response | Frequency | Percent (%) |
|-----------------|------------------|--------------------|
| A/O Level | 17 | 39.5 |
| Diploma | 25 | 58.2 |
| Undergraduate | 1 | 2.3 |
| Total | 43 | 100 |

Source: Research Data (2016)

4.3.2 Work Experience

The research sought to determine the duration in years of which the respondents had in the tyre business. The findings are as provided in table 4.2. From the estimation given, it can be figured out that 44.2 percent of the respondents had worked in tyre business for a period of between 6 to 10 years. 27.9 had worked in their respective workplace for duration of between 11 to 15 years. Those who had worked for a period ranging from 1 to 5 years accounted for 16.3 percent. 9.3 percent had a working experience of between 16 to 20 years, while 2.3 percent reported to have worked in their respective tyre firms for more than 20 years. This is an implication that the

respondents seem to have dealt with tyre business long enough to comprehend the business operations. Thus they were able to give reliable information required by the study.

Table 4.2 Work Experience

| Work Experience in Years | Frequency | Percent (%) |
|---------------------------------|------------------|--------------------|
| 1 - 5 | 7 | 16.3 |
| 6 - 10 | 19 | 44.2 |
| 11 - 15 | 12 | 27.9 |
| 16 - 20 | 4 | 9.3 |
| Above 20 | 1 | 2.3 |
| Total | 43 | 100 |

Source: Research Data (2016)

4.4 Supply Chain Risk Management Practices Used By Tyre Retailers

The first objective of this research was to establish the supply chain risk management practices used by tyre retailers in NCC. The research sought the respondents' opinion on strategies which they used in mitigating risks in demand management, supply management, information management, production management, and employee management.

4.4.1 Extent of Demand Risk Mitigation

The study further required the respondents to give their opinion on the extent to which they thought that their respective tyre businesses had managed to mitigate risks connected to demand. The responses shown in table 4.3 was based on a Likert scale of 1 – 5 where mean of between 1 – 1.9 = very low extent, mean of 2 – 2.9 represented low extent, mean of 3 – 3.9 = moderate extent, mean ranging from 4 – 4.9 represented high extent and mean of 5 and above represented very high extent.

Table 4.3 Extent of Demand Risk Mitigation

| Responses | N | Mean | Std. Deviation |
|--|----------|-------------|-----------------------|
| Financial risk | 43 | 4.6047 | .76031 |
| Fluctuations in external customer requirements | 43 | 4.2093 | .88797 |
| Risk to flow of product | 43 | 3.9767 | .85880 |
| Risk to flow of information | 43 | 3.7442 | .78961 |
| Managing internal customer requirements | 43 | 2.8140 | 1.07473 |

Source: Research Data (2016)

From the results given, it can be presumed that to a high extent tyre firms mitigated demand by observing risks in finance (Mean = 4.6) and fluctuations in external customer requirements (Mean = 4.2). Risk to flow of product to flow of products and risk to flow of information were moderately mitigated as they reported a mean of 3.9 and 3.7 respectively. On other hand, managing internal customer requirements was mitigated to a low extent (Mean = 2.8). This implies that tyre businesses operating with Nairobi City County are much alert to financial risks and fluctuations in external requirements of customer, without the internal requirements management of customers.

4.4.2 Extent of Supply Risk Mitigation

There was requisition for respondents show the extent at which their firms had managed to mitigate risks related to supply and the outcomes are as illustrated in table 4.4. To a high extent (Mean = 4.5), firms mitigate supply risks by focusing on demand forecasts. Risk of delay in deliver of materials is mitigated to a moderate extent (Mean = 3.8), that of supplier selection provided a mean of 3.7, risks of demand, inventory status and order fulfillment was also mitigated to a moderate extent (Mean = 3.3), while that which relate to changes in process and product designs and capacity status gave a mean of 3.0. On contrary, mitigation of risks associated with production requirements risks was done to a low extent. This is an indication that many tyre businesses operating in Nairobi City County mitigate supply risks basing on demand forecasts. Nonetheless, production requirements risks is not an issue since tyre firms under investigation were found not to be involved in production or manufacturing of tyres but just sale of readymade.

Table 4.4 Extent of Supply Risk Mitigation

| Responses | N | Mean | Std. Deviation |
|--|----------|-------------|-----------------------|
| Risk of demand forecasts | 43 | 4.5581 | .79589 |
| Risk of delay in deliver of materials | 43 | 3.8837 | 1.00497 |
| Risk of supplier selection | 43 | 3.7674 | .94711 |
| Risks of demand, inventory status and order fulfillment | 43 | 3.3488 | .75226 |
| Risk to product and process design changes and capacity status | 43 | 3.0930 | .83990 |
| Production requirements risks | 43 | 2.8372 | 1.17372 |

Source: Research Data (2016)

4.4.3 Extent of Information Risk Mitigation

On the question of the extent of information risk mitigation, the following were observed from the tyre firms as displayed in table 4.5. The study established that the risks related to information are controlled to a moderate extent through information system security (Mean = 3.8), firms reducing threats posed by changes in technology (Mean = 3.5), information accuracy (3.4), organizations putting in place procedures to be followed in managing information risks (Mean = 3.2), companies having policies to manage information risk and risks posed by use of internet

had a mean of 3.1 each. While risks of unprotected data and that of intellectual property with information outsourcing were mitigated to a low extent as they provided a mean of 2.9 and 2.7 respectively.

Table 4.5 Extent of Information Risk Mitigation

| Responses | N | Mean | Std. Deviation |
|--|----------|-------------|-----------------------|
| Information system security | 43 | 3.8837 | 4.61472 |
| My firm reduce the threats posed by changes in technology | 43 | 3.5814 | .95699 |
| Information accuracy | 43 | 3.4186 | .87919 |
| My organization has put in place procedures to be followed in managing information risks | 43 | 3.2558 | .75885 |
| My company has policies to manage information risk | 42 | 3.1667 | .62143 |
| Risks posed by use of internet | 43 | 3.1163 | .98099 |
| Risk of unprotected data | 42 | 2.9286 | .94721 |
| Intellectual property & information outsourcing risk | 43 | 2.7674 | .89542 |

Source: Research Data (2016)

4.4.4 Extent of Human Resource Risk Mitigation

There are some risks which are also associated with employees at any given business and this study sought to establish the extent to which the management of tyre firms takes to control such risks.

Table 4.6 Extent of Human Resource Risk Mitigation

| Responses | N | Mean | Std. Deviation |
|--|----|--------|----------------|
| Selection risks | 43 | 5.4419 | 7.78369 |
| Recruitment risks | 43 | 4.1163 | 1.05129 |
| Risk associated with ageing workforce | 43 | 3.6512 | .99723 |
| Risk associated with use of social media | 43 | 3.3023 | 1.30082 |
| Remote working risks | 43 | 3.2326 | .94711 |
| Data protection risk | 42 | 2.8095 | .99359 |
| Risk to data security | 43 | 2.7674 | 1.19198 |

Source: Research Data (2016)

The findings illustrated in table 4.6 show that to a very high extent (Mean = 5.4) the tyre business in NCC control threats which comes along with the selection procedures. Recruitment risks have been managed to a high extent as it provided a mean of 4.1. Risks associated with

ageing labourers, use of social media at work place and remote working risks were mitigated to a moderate extent with a mean of 3.6, 3.3 and 3.2 respectively. On contrary, risks associated to data security is managed but to a low extent (Mean = 2.7). This indicates that tyre firms operating in Nairobi City County are more sensitive to controlling employee risks especially, when performing recruitment and selection.

4.4.5 The Extent at which Competitiveness is Affected by Timeliness in SCRM Practices

The respondents were also asked to indicate the extent at which timeliness influenced competitiveness of firms in their efforts to mitigate risks in demand management, supply management, information management, production management and employee management.

Table 4.7 The Extent at which Competitiveness is Affected by Timeliness in SCRM

Practices

| Responses | N | Mean | Std. Deviation |
|-----------------------------|----------|-------------|-----------------------|
| Supply Risk Management | 43 | 4.2093 | .98942 |
| Demand Risk Management | 43 | 4.0698 | .79867 |
| Information Risk Management | 42 | 3.7857 | 4.65144 |
| Employee Risk Management | 43 | 3.0233 | .91257 |
| Production Risk Management | 42 | 1.5476 | .77152 |

Source: Research Data (2016)

The results disclosed in table 4.7 shows that most tyre firms apply timeliness to a high extent in mitigating risks associated to supply and demand as they gave a mean of 4.2 and 4.0 respectively. Timeliness is used to mitigate information risk management and employee risk management to a moderate extent (Mean = 3.7 and 3.0) respectively. However, timeliness does not seem to help tyre retail firms in controlling risks associated to production management as this was only practiced to a very low extent (Mean = 1.5).

4.4.6 The Extent at which Cost of Products Affects Competitiveness in SCRM Practices

After finding out that cost of products affect competitiveness of tyre firms, the research sought to determine the extent at which the influence of cost of product on competitiveness based on strategic chain risk management practices under study.

Table 4.8 The Extent at which Cost of Products Affects Competitiveness in SCRM Practices

| Responses | N | Mean | Std. Deviation |
|-----------------------------|----------|-------------|-----------------------|
| Demand Risk Management | 43 | 4.4651 | .95988 |
| Supply Risk Management | 43 | 4.3256 | .83726 |
| Information Risk Management | 43 | 3.1395 | .70984 |
| Employee Risk Management | 43 | 2.8837 | .79310 |
| Production Risk Management | 38 | 1.4737 | .79651 |

Source: Research Data (2016)

The output of results in table 4.8 indicate that cost of products contribute to competitiveness of tyre firms through mitigation of demand risks to a high extent (Mean = 4.4). Similarly, cost of products affect competitiveness to a high extent (Mean = 4.3) in supply risk management. Cost of production and mitigation of information risks contribute to competitiveness of the tyre firms to a moderate extent (Mean = 3.1), employee risk management to a low extent mean of 2.8 and in production risk management to a very low extent which provided a mean of 1.4.

4.4.7 The Extent at Which Quality of Products Affects Competitiveness in SCRM Practices

The results figured in tabled 4.9 are on the question of the extent of which quality affects the competitiveness of the tyre firms in mitigation of risks associated to strategic chain risk management practices.

Table 4.9: The Extent at Which Quality of Products Affects Competitiveness in SCRM Practices

| Responses | N | Mean | Std. Deviation |
|-----------------------------|----------|-------------|-----------------------|
| Demand Risk Management | 41 | 4.4634 | 1.02707 |
| Supply Risk Management | 42 | 4.4048 | 1.01356 |
| Employee Risk Management | 41 | 3.1463 | .96335 |
| Information Risk Management | 42 | 3.1190 | .94230 |
| Production Risk Management | 41 | 1.6098 | .89101 |

Source: Research Data (2016)

To a high extent, respondents reported that quality of products affected competitiveness of their respective tyre firms in the areas of demand risk management and supply risk management as each was represented by a mean of 4.4. Quality was applied to increase competitiveness through mitigation of risks related to employee management and information management by a mean of 3.1 each. While quality of goods in production risk management was found not to affect the competitiveness of the tyre firms with Nairobi City County.

4.4.8 The Extent at Which Flexibility Affects Competitiveness in SCRM Practices

On the question of the extent at which flexibility affects competitiveness in SCRM practices the results are as indicated in table 4.10.

Table 4.10 The Extent at Which Flexibility Affects Competitiveness in SCRM Practices

| Responses | N | Mean | Std. Deviation |
|-----------------------------|----------|-------------|-----------------------|
| Supply Risk Management | 42 | 3.9286 | 1.04515 |
| Demand Risk Management | 42 | 3.8810 | 1.01699 |
| Information Risk Management | 42 | 3.1190 | .94230 |
| Employee Risk Management | 41 | 2.8293 | 1.24303 |
| Production Risk Management | 36 | 1.7222 | 1.00317 |

Source: Research Data (2016)

Flexibility was found to affect competitiveness in supply risk management to a moderate extent (Mean = 3.9). Likewise, flexibility contributed to competitiveness in demand risk management to

a moderate extent (Mean = 3.8). In addition, flexibility aided in maintaining competitiveness of a firm in mitigation of information risk to a moderate extent (Mean = 3.1). On contrary, application of flexibility to determine the competitiveness of the tyre firms and mitigation of risks associated to employees was practiced to a low extent (Mean = 2.8). Nevertheless, flexibility did not affect competitiveness of the tyre firms through mitigation of production risks since it provided a mean of 1.7.

4.5 The Effect of Supply Chain Risk Management Practices on Competitiveness

Objective two was to establish the effect of supply chain risk management practices on competitiveness of automotive tyre retailers in NCC. The effect of supply chain risk management practices on competitiveness of firms was tested by use of regression analysis where relationship between the independent and the dependent variables was estimated. Demand risk management, supply risk management, information risk management, employee risk management and production risk management were used in this study as independent variables while competitiveness of the tyre firms was the dependent variable and was proxied by timeliness, cost and quality of products as well as flexibility.

4.5.1 Coefficients

Initially, the study used the following independent variables in the model: demand risk management, supply risk management, information risk management, employee risk management and production risk management, however, production risk management was dropped from the model and was not used as a unit of analysis in this study. The study sought to

determine the effect of each independent variable on dependent variable and the findings are as indicated in table 4.11. This regression equation given in chapter three was as below:

$$CO = \alpha + \beta_1 DRM_1 + \beta_2 SRM_2 + \beta_3 IRM_3 + \beta_4 PRM_4 + \beta_5 ERM_5 + \varepsilon$$

Where: \hat{Y} is competitiveness (CO), α is the constant, X_1 is demand risk management (DRM), X_2 is supply risk management (SRM), X_3 is information risk management (IRM), X_4 is production risk management (PRM) while X_5 is employee risk management (ERM). $\beta_1 - \beta_5$ are regression coefficients of the variables, and ε is the error term.

Table 4.11 Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t/z | Sig. <i>P</i> - value |
|-----------------------------|-----------------------------|------------|---------------------------|--------|--------------------------|
| | B | Std. Error | Beta | | |
| (Constant) | .587 | .162 | | 3.629 | .001 |
| 1 Demand risk management | .330 | .120 | .394 | 2.739 | .009 |
| Supply risk management | -.087 | .115 | -.110 | -.752 | .457 |
| Information risk management | .377 | .148 | .506 | 2.553 | .015 |
| Employee risk management | -.244 | .155 | -.327 | -1.580 | .122 |

a. Dependent Variable: Competitiveness

Source: Research Data (2016)

The coefficients of regression results show that mitigation of risks associated to demand has a positive significant effect on the competitiveness of firms since it produced a coefficient value of 0.394 ($t = 2.739$) with a p – value of 0.009. On the same note, information risk management seem to have a significant impact on the competitiveness of a firm as it provided a coefficient of 0.506 ($t = 2.553$) and a p – value of 0.015. Mitigation of risks related to supply and employees were found to have an insignificant influence on the competitiveness of a firm with a coefficient value of -0.110 ($t = 0.752$) with a p – value of 0.457 and -0.327 ($t = 1.580$) with a p – value of 0.122 respectively. Therefore, the study adopted a new equation model as below:

$$\text{Competitiveness} = 0.587 + 0.394 \text{ DRM} - 0.110 \text{ SRM} + 0.506 \text{ IRM} - 0.327 \text{ ERM} + \varepsilon$$

From the findings, it can be assumed that tyre firms operating in Nairobi City County mostly base on demand risk management and information risk management, partly corroborating findings from the literature review.

4.5.2 Goodness of Fit

The goodness of fit was estimated as shown in model summary in table 4.12. The test of regression was done to find out the relationship between the independent and dependent variables. From the findings given, the model gives an R of 0.510 and an R^2 of 0.260. This means that all the independent variables used in the model can account for 26% of the variation of competitiveness of the firm. The residual percentage (74%) can be explained by other factors not used by this study.

Table 4.12 Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .510 ^a | .260 | .182 | .26578 |

a. Predictors: (Constant), Demand risk management, Employee risk management, Supply risk management, Information risk management.

Source: Research Data (2016)

4.5.3 Test of Hypothesis

The hypothesis of the study was tested by use of analysis of variance (ANOVA) as illustrated in table 4.13.

Table 4.13 Analysis of Variance

| Model | Sum of Squares | Df | Mean Square | F | Sig. (P - Value) |
|--------------|----------------|----|-------------|-------|---------------------|
| 1 Regression | .944 | 4 | .236 | 3.339 | .019 ^b |
| Residual | 2.684 | 38 | .071 | | |
| Total | 3.628 | 42 | | | |

a. Dependent Variable: Competitiveness

b. Predictors: (Constant), Demand risk management, Employee risk management, Supply risk management, Information risk management.

Source: Research Data (2016)

The ANOVA estimation provided regression sum squares of 0.944 (mean = 0.236) with a residual sum square of 2.684 (mean = 0.071). The outcome of the p – value of F -statistics was 3.339(0.019). This means that the null hypothesis that supply chain risk management practices have no effect on competitiveness of a firm is rejected as the error made is less than the threshold of 0.05. An implication that the model is significant in determining the relationship between independent variables and dependent variable used in this study

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter sums up the outline of the findings which were found major in the study, provides conclusion based on the analysis and proposes for the recommendations of the study together with suggestions for further study.

5.2 Summary of the Key Findings

The study provided a summary of the key findings based on the research objectives and these included: to establish the supply chain risk management practices used by tyre retailers in Nairobi City County and to establish the effect of supply chain risk management practices on competitiveness of automotive tyre retailers in Nairobi City County.

The research reported a response rate of 86 percent. Most of the respondents 58.2 percent had attained diploma as their highest education level while 39.5 percent of them had secondary school certificates as highest level of education. The average duration of which the respondents had worked in tyre business was 9 years where the highest number of years in service was 24 while the lowest was 2 years.

86 percent of the respondents agreed that their respective tyre firms had some strategies in place that enable them lessen the risks that are related to demand. On the same note, tyre firms mitigated risks in demand by observing risks in finance (Mean = 4.6) and fluctuations in external customer requirements (Mean = 4.2). 83.7 percent indicated that their respective firms had strategies to mitigate the risks related to supply of goods. To a high extent (Mean = 4.5), firms

mitigate supply risks by focusing on demand forecasts. 87.7 percent of the respondents observed agreed that their firms had put in place some strategies to mitigate risks associated to information. The study established that the risks related to information are controlled through information system security and firms reducing threats posed by changes in technology.

All of the respondents under study confessed that their respective firms did not have any strategy in place to deal with production risks. This was because the firms were only involved in retailing tyres but not producing. 81.4 percent of the respondents revealed that their firms had some strategies which they apply in reducing the risks associated with workforce. The tyre retailers in Nairobi City County were able to control threats which comes along with the selection procedures (Mean = 5.4) and that they were also keen on recruitment risks (Mean = 4.1). 88.4 percent of the respondents acknowledged that timeliness affect the competitiveness of their firms and that most tyre firms apply timeliness to a high extent in mitigating risks associated to supply and demand as they gave a mean of 4.2 and 4.0 respectively.

90.7 percent of the respondents agreed that the cost of products affected competitiveness of their respective tyre firms as it contributed to competitiveness of tyre firms through mitigation of demand risks (Mean = 4.4) and supply risk management (Mean = 4.3). 85.7 percent felt that quality affected competitiveness of their firms in area of demand risk management and supply risk management. 90.2 percent of the respondents indicated that their respective tyre firms competition was affected by flexibility. Flexibility was found to affect competitiveness in supply risk management and in demand risk management.

The effect of supply chain risk management practices on competitiveness of firms was tested by use of regression analysis where relationship between the independent and the dependent variables was estimated. Initially, the study used the following independent variables in the model: demand risk management, supply risk management, information risk management, employee risk management and production risk management, however, production risk management was dropped from the model and was not used as a unit of analysis in this study. From the findings given, the model reported an R of 0.510 and an R^2 of 0.260. The model produced a p – value of 0.019 which meant that the null hypothesis that supply chain risk management practices have no effect on competitiveness of a firm was rejected.

The coefficients of regression results indicated that mitigation of risks associated to demand had a positive significant effect on the competitiveness of firms since it produced a coefficient value of 0.394 ($t = 2.739$) with a p – value of 0.009. In addition, information risk management had a significant influence on the competitiveness of a firm as it provided a coefficient of 0.506 ($t = 2.553$) and a p – value of 0.015. Based on this revelation, it can be assumed that tyre firms operating in Nairobi City County mostly base on demand risk management and information risk management.

5.3 Conclusion

From the findings it can be concluded that tyre retailers operating within Nairobi City County have some strategies in place that enable them mitigate risks in order to remain competitive. This research produced empirical validation to theories that that are used identify the magnitude of supply chain risk management practices and was able to explain the relationship between supply

chain risk management practices and competitiveness of a firm. This study was guided by two research questions where were as follows: what are the supply chain practices used by tyre retailers in Nairobi? And what is the effect of supply chain management practices on competitiveness of automotive industry in Nairobi? The research gave an empirical support to conceptual framework as well as assertive testimonials in the literature on the subject of strategic chain risk management practices.

The variable of production risk management was not considered critical in determining the competitiveness of a retail tyre firms as the unit being investigated was not involved in production but rather selling of readymade products. However, most of the tyre retail firms observed risks posed in demand, supply, information and employees. Integration of risks brought about by demand and information was an area of concern in this sector as they were found to be critical in influencing the completion of firms. Therefore, the model used in this study has identified the main items that contribute to a higher impact on the supply chain risk management, and this could necessitate tyre firms to take corrective measures to mitigate these risks which seem to affect supply chain risk management performance of tyre retail businesses.

5.4 Recommendation from the Study

From the findings, the study recommends that the tyre retail firms should look up on the ways to mitigate risks associated with supply and employees. This can be done through application of appropriate strategies which are in line with the firms' goals and objectives. For tyre retail firms to remain competitive there is need for them to intensify the measure applied in controlling risks through the application of risk aversion strategies.

5.5 Limitations of the Study and Suggestion for Further Research

The study was confined on the supply chain risk management practices applicable to automotive tyre retailers operating in Nairobi City County. The study only focused on two major areas namely, industrial area and Kirinyaga Road. Therefore, it is recommended that a national survey should be done on supply chain risk management and competitiveness of automotive tyre retailers in order to cover the national geographical diversity.

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APPENDIX I: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC INFORMATION

Please tick where appropriate

1. Name (optional).....
2. Business location
3. What is your highest level of education?
 A/O Level () Diploma () Undergraduate () Postgraduate degree ()
 Others.....
4. Please indicate your work experience in the tyre business years

SECTION B: THE SCRM PRACTICES

5. Indicate the extent to which your firm has managed to mitigate risks related to demand.
 (Please tick where appropriately).

| Demand Risks | Very low | Low | Moderate | High | Very high |
|--|----------|-----|----------|------|-----------|
| Risk to flow of product | | | | | |
| Risk to flow of information | | | | | |
| Financial risk | | | | | |
| Fluctuations in external customer requirements | | | | | |
| Managing internal customer requirements | | | | | |

6. Indicate the extent to which your firm has managed to mitigate risks related to supply.
(Please tick where appropriately).

| Supply Risks | Very low | Low | Moderate | High | Very high |
|--|-----------------|------------|-----------------|-------------|------------------|
| Risk of supplier selection | | | | | |
| Production requirements risks | | | | | |
| Risk of demand forecasts | | | | | |
| Risk of delay in deliver of materials | | | | | |
| Risks of demand, inventory status and order fulfillment | | | | | |
| Risk to product and process design changes and capacity status | | | | | |

7. Indicate the extent to which your firm has managed to mitigate risks related to information. (Please tick where appropriately).

| Information Risk Management | Very low | Low | Moderate | High | Very high |
|--|-----------------|------------|-----------------|-------------|------------------|
| My company has policies to manage information risk | | | | | |
| My organization has put in place procedures to be followed in managing information risks | | | | | |
| My firm reduce the threats posed by changes in technology | | | | | |
| Risk of unprotected data | | | | | |
| Risks posed by use of internet | | | | | |
| information accuracy | | | | | |
| information system security | | | | | |
| intellectual property & information outsourcing risk | | | | | |

9. Indicate the extent to which your firm has managed to mitigate risks related to production. (Please tick where appropriately).

| Production Risks | Very low | Low | Moderate | High | Very high |
|---|-----------------|------------|-----------------|-------------|------------------|
| Shorter product lifecycle | | | | | |
| Risks in increasing demand | | | | | |
| Cost pressure risks | | | | | |
| Threats from competitors | | | | | |
| Risks to reduction of number of suppliers | | | | | |

10. Indicate the extent to which your firm has managed to mitigate risks related to human resource or employees. (Please tick where appropriately).

| Employee Risk | Very low | Low | Moderate | High | Very high |
|--|-----------------|------------|-----------------|-------------|------------------|
| Recruitment risks | | | | | |
| Selection risks | | | | | |
| Remote working risks | | | | | |
| Risk associated with use of social media | | | | | |
| Risk associated with ageing workforce | | | | | |
| Data protection risk | | | | | |
| Risk to data security | | | | | |

SECTION C: EFFECT OF SCRM PRACTICES ON COMPETITIVENESS

11. Indicate the extent at which timeliness has influenced competitiveness of your firm in the mitigation of risks in the following areas

| SCRM PRACTICES | Very low | Low | Moderate | High | Very high |
|-----------------------------|-----------------|------------|-----------------|-------------|------------------|
| Demand Risk Management | | | | | |
| Supply Risk Management | | | | | |
| Information Risk Management | | | | | |
| Production Risk Management | | | | | |
| Employee Risk Management | | | | | |

12. Indicate the extent at which cost of products has influenced competitiveness of your firm in the mitigation of risks in the following areas

| SCRM PRACTICES | Very low | Low | Moderate | High | Very high |
|-----------------------------|-----------------|------------|-----------------|-------------|------------------|
| Demand Risk Management | | | | | |
| Supply Risk Management | | | | | |
| Information Risk Management | | | | | |
| Production Risk Management | | | | | |
| Employee Risk Management | | | | | |

13. Indicate the extent at which quality of products has contributed to competitiveness of your firm in the mitigation of risks in the following areas

| SCRM PRACTICES | Very low | Low | Moderate | High | Very high |
|-----------------------------|-----------------|------------|-----------------|-------------|------------------|
| Demand Risk Management | | | | | |
| Supply Risk Management | | | | | |
| Information Risk Management | | | | | |
| Production Risk Management | | | | | |
| Employee Risk Management | | | | | |

14. Indicate the extent at which flexibility has influenced competitiveness of your firm in the mitigation of risks in the following areas

| SCRM PRACTICES | Very low | Low | Moderate | High | Very high |
|-----------------------------|-----------------|------------|-----------------|-------------|------------------|
| Demand Risk Management | | | | | |
| Supply Risk Management | | | | | |
| Information Risk Management | | | | | |
| Production Risk Management | | | | | |
| Employee Risk Management | | | | | |

THANK YOU