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Influence of Supply Chain Resilience Practices On the Performance of Food and Beverages Manufacturing Firms in Kenya: A Survey of Nairobi City County

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ABSTRACT

Food and Beverages Manufacturing Firms in Kenya have been exposed to supply chain vulnerability, which has led to uncertainty in matching demand and supply of their products. Supply chain resilience enables Food and Beverages Manufacturing Firms to manage disruptions. As a result, this study focused on examining the influence of supply chain resilience practices on the performance of Food and Beverages Manufacturing Firms in Kenya. The study adopted cross-sectional survey design using both quantitative and qualitative methods. The target population was 102 Food and Beverages Manufacturing Firms in Nairobi City County and the sample size of the study was 50 Firms. Data was collected using questionnaires. Qualitative and quantitative data was coded and entered in SPSS Version 24 for analysis. A pilot study was conducted. Descriptive statistics were generated. Inferential statistics using linear regression and correlation analysis was carried out. The results were presented using tables and graphs. The study findings indicated that, supply chain risk management, agility, supply chain collaboration and supply chain integration significantly influence the performance of Food and Beverages Manufacturing Firms in Kenya. Food and Beverages Manufacturing Firms should embrace supply chain risk management, agility, supply chain collaboration and supply chain integration as supply chain resilience practices.

Keywords: Risk management, agility, collaboration, integration.

1. Introduction

The current wave of supply chain ruckus can be very austere to the efficiency of Food and Beverages Manufacturing Firms. Sources of interruptions inherent in supply chain can manifest themselves in a number of vulnerabilities (Pettit et al., 2013). The first comprehensive exploration on SCRES emerged in the United Kingdom (UK), following disturbances in transport from fuel protests in 2000 and the Foot and Mouth Disease outbreak in early 2001 (Pettit et al., 2010). Food and Beverages

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Manufacturing Firms in Kenya have been exposed to supply chain vulnerability which has led to uncertainty in matching demand and supply of their products resulting to late delivery, stock outs, high stockholding costs and customer dissatisfaction, (KNBS, 2013; Transparency International, 2013).

Food and Beverages Manufacturing Firms experience difficulties in importation due to punitive import regulations which have resulted to higher import tariffs constraining them in meeting customer demand due to changes in prices of commodities, (Irarrazabal et al., 2015). Likewise, fluctuation in global prices has resulted to high operational cost of Food and Beverages Manufacturing Firms as a result of few commodities exhibiting negative price trends leading to fluctuation in demand of products (Ghosray, 2011).

According to Bode et al. (2011), Food and Beverages Manufacturing Firms in Kenya have always faced with supply chain disruptions as a result of increase in material costs resulting to a sales fall of 7 %, a down of an operating income of 42 % and a fall of return on assets of 35 % hence decline of shareholder return between 7 and 8 %. KNBS (2018) adds that, Food and Beverages Manufacturing sector recorded mixed performance in 2017 which led to a decelerated growth of 1.6% compared to 5.1% growth in 2016. There is a coherent goal to examine how SCRES practices influence Food and Beverages Manufacturing Firms. Resource based view theory, Strategic choice theory, Network theory and Stakeholder theory were explored to give a basic understanding of the phenomenon. According to Whitten et al., (2012), supply chain resilience practices enhance company's performance.

Tukamuhabwa et al. (2015) assert that, the main SCRES practices to improve firms' responsiveness to supply chin disruptions comprise: agility, supply chain collaboration, supply chain integration and supply chain risk management. Murigi (2013) recognized that, adoption of supply chain resilience practices improved the performance of Brookside Limited Company with the benefits of improved flexibility and responsiveness to customer demands, creation of collaborative relationships, and development of a robust agile supply chain that aids in reducing supply chain disruptions hence leading to company growth.

Elleuch et al. (2016), revealed that optimal allocation of resources needs to be more developed for selecting efficient resilient supply chain with the tradeoff between vulnerability reduction and resilience capacities enhancement. Tukamuhabwa et al., (2015) assert that, some Food and Beverages Manufacturing Firms have adopted the supply chain resilience practices though it's not fully known how they are performing. Therefore, the purpose of this study was to examine the influence of supply chain resilience practices on the performance of Food and Beverages Manufacturing Firms in Kenya.

2. Literature review

2.1 Resource based view theory

Wernerfelt (1984) posit that, "resource" means something that can be considered a firm's strength. The theory was developed to complement the Industrial Organization (IO), which concentrated on a company's success factors beyond the company itself, primarily within its industry structure (Clulow, Barry & Gerstman, 2007). Grant, (1991) indicated that firm achieves sustainable competitive advantages by deploying its bundle of resources and capabilities that are unique and core to the organization. Clulow et al. (2007) assert that, vital resources have been recognized as tangible assets or intangible. The viable benefit attained by these main tangible assets and intangible assets replicated in operational abilities and performance enhancements with greater performance frequently measured in financial terms for instance increased level of profits, better sales or market share (Hinterhuber, 2013). Wernerfelt (1984), in an environment of uncertainty and disruptions, organizations can be successful in competition by effectively overcoming threats and uncertainties. Resource based view theory (RBV) advocate mitigating of the disruptions with proper utilization of organizational resources and capabilities (Barney, 2001). RBV is useful for this study, as resources play a vivacious role in improving firms' performance.

2.2 Strategic choice theory

Strategic choice theory takes into consideration the interaction between organizational actions and events (De Rond & Thietart, 2007). Strategic choice theory (SCT) was developed and advanced to underline the inadequacy of deterministic organizational views and stress the importance of managerial choice (Child, 1972), views organizations to be partly influenced by environments and largely affected by

top management choices (Barry, 2004). Nevertheless, the theory relatively sees organizations as flexible, adaptive and learning in contrast to being environmentally determined (Whittington, 1989). This theory is concerned with the incorporating agility in decision-making by managers in organizations for achieving the defined goals (Child, 1972). Manufacturing firms for food & beverages have to find contextual variables as very critical in order for businesses to perform well. For example, managers who make detailed decisions for their companies and agilely embrace new know-hows possibly turn out to be highly robust (Arani et al., 2015). The theory further suggests that managers play a substantial role in producing organizational performance by making decisions or leading organizational changes (Ketchen & Hult, 2007). This study is tailored to the SCT because managers play a significant role in attaining organizational agility through their decision-making (Scholten et al., 2014).

2.3 Network theory

Network theory was first developed between the 1970s and the 1980s with researchers focusing on relationships between two entities, or strategic alliances, towards an approach that entailed multiple relationships between diverse supply chain participants (Wellenbrock, 2013). Lysons and Farrington (2006) argue that, a network as array of partnerships, strategic alliance and outsourcing that organizations form with suppliers, manufacturers and distributors to produce and market a product. McNichols and Brennan (2006), note that network theory focuses on both dyadic relationships and multi-party relationships. Network theory emphasis was on developing durable and intimate relationships among the supply chain participants through partnership, strategic alliance, and outsourcing (Gunasekaran, et al., 2008). The theory is suitable to the study since Networks allows Food and Beverages firms to consolidate resources for long-term purposes, cut costs and improve quality without huge expenses that characterize investing in specialized resources.

2.4 Stakeholder theory

Stakeholder theory was first abutted by Freeman (1984) who described groups and individuals who are affected by, or who affect the organization's activities as that organization's stakeholders. Jones (1995) indicates that, organizations contracts with their stakeholders with an aim that cooperation and mutual trust grant a competitive advantage over those that do not. Frank (1988) assert that, the rationale of instrumental stakeholder theory is to link corporate supply chain accountability to financial performance measures based on stakeholder impact consideration on firm's bottom line. Coombs (1998) adds that, stakeholders function as organizational units in which members share common meaning, influence over, and expectations of the firm. In order to develop continuity of supplies and chain integration, supply chain will achieve expectations about fiscal and ecological aspects (Carter & Rogers, 2008) as the viable supply chain has now become a necessity for customers, suppliers and stakeholders (Seuring & Muller, 2008). Supply chain integration (SCI) enhances the capacity of the organizations hence leading to resilience (Pettit et al., 2010). Freeman (1999) argues that, the main purpose of stakeholder theory is to facilitate managers to comprehend stakeholders and deliberately manage them. The success of stakeholder's exertions relies on managers (Skouloudis et al., 2015). Therefore, integration among supplier, consumer and other stakeholders can bring continuity of organizational output. SCI enhances the capacity of the organizations hence leading to resilience (Pettit et al., 2010). The theory of stakeholders was linked to this study as it dictates that food & beverage companies must take into account the desires of their powerful stakeholders and aim to meet those anticipations thus leading to greater firms' performance.

3. Empirical review

3.1 Supply chain risk management

Mohammaddust et al., (2017) denoted supply chain risk management (SCRM) is critical for supply chain operations due to natural disasters and the risks associated with the process uncertainties. Rafisah et al, (2015) in their study indicated that the information technology enables greater collaboration among supply chain allies and their internal operations. Thus, effective usage of technology and forming good relationships with suppliers over a number of years' leads to uniformly maintaining of high quality final

product. Pournader et al. (2016) assert that, supply chains are fundamentally risky and firms' managers should create adequate risk management practices in order to decrease supply chain distractions.

Wieland and Wallenburg, (2012) conducted an investigation concerning how SCRM influences organizational performance. They identified that control of material risk, knowledge risk and financial risk has a compact desirable influence on customer's value in nets of supply as it controls organizational productivity necessitated by customer's need throughout the linkages of supply and is therefore only indirect. By comparison, achieving robustness has a robust positive direct impact on both the consumer satisfaction and the company results (Wieland & Wallenburg, 2012). According to Wieland and Wallenburg (2012), cooperation, remuneration and postponement are more potential SCRM enablers. Ongisa, (2016) investigated how SCRM tactics affects output in foods and beverage processing organizations in Kenya. From the research it was configured that SCRM together with the organizational performance are directly related, and asserted that supply chain risks affect organization performance in the event they materialize (Ongisa, 2016). Hence, there is a call for organization to identify risk exposure, analyze the risk exposure and have in place risk reduction plans that impact the organization's productivity.

3.2 Agility

Hasan et al., (2018) investigated how agile supply nets influences firm efficiency in Turkey. They established that in competitive environmental setting, the companies need to use their resources in the most accurate agile manner in order to survive. Companies achieve a competitive advantage by responding as quickly as possible to varying consumer demands in different markets. Delivery channel should be flexible in terms of volatility for businesses to achieve a competitive edge (Hasan et al., 2018). Manufacturing firms for food & beverages therefore need to adapt the versatility inside and outside the business to their systems in order to participate in this global market system and to sustain their position in the prevailing markets (Hasan et al., 2018).

Blome et al., (2013) conducted a research on antecedents as well as enhancers of agile supply links and its influence on firm performance. They found out that supply chain agility has beneficial effects on operating efficiency and cost efficiency. Moreover, developed supply chain agility influences positively to the firm's financial performance (DeGroote & Marx, 2013). Ghatari et al., (2013) Agility is the key element which supply chain requires for surviving environmental uncertainties when supply chain managements situation is at risk, and helps firms deliver right products at just in time. Supply chain agility is central for firms to gain strategic advantage (Gligor & Holcomb, 2012). Organizational agility is a pro-active management strategy that targets to prompt response to different markets, safeguarding the organization's resources successfully and attaining the requirements of customers in a suitable manner that influences on firm's financial performance (Gligor et al., 2015).

3.3 Supply chain collaboration

Supply chain collaboration is an important tool for companies to reduce uncertainty and achieve competitive advantage and success (Aggarwal & Srivastava, 2016). Farhad et al., (2018) researched on supply chain collaboration (SCC) and firms' success in Thailand. The study indicated a robust positive correlation between the consumer satisfaction and organizational recital. Soosay and Hyland (2015) assert that, SCC can lead to superior performance in companies due to asset capitalization and competences in supply chain cohorts. Cai et al., (2013) supply chain allies' work together to optimize learning opportunities and acquire new skills, improve market position, and raise dexterity and supply chain considerations.

Aggarwal and Srivastava (2016) found out that, supplier selection and exchange of knowledge are the key precursors of SCC while supply chain efficiency and waste reduction are the major outcomes of collaboration. Similarly, Kache and Seuring (2014) in their research found out that, the creation of collaborative practices would lead not only to benefits for buyers and sellers but also to better and sustainable practices for the industry. McDowell et al. (2013) adds that, improved knowledge sharing between supply chain members may lead to improved confidence levels among supply chain partners and improved working relationships.

Scholten and Schilder (2015) examined how teamwork impacts supply chain resilience. The study established that key specific collaboration activities such as information exchange, collective communication, knowledge collectively produced and joint partnership efforts improve SCRES through increased visibility, speed and flexibility. A study by Ongisa et al., (2016) examined the effect of supply base rationalization strategies on the productivity of firms' in foods as well as beverage production in Kenya. Research findings revealed that supplier base risk rationalization approaches influence firm performance in regard to customer satisfaction.

3.4 Supply chain integration

A study carried out by Msimangira and Venkatraman (2014), on the emerging supply chain integration (SCI) aimed at defining supply chain integration challenges and potential solutions. The study applied an exploratory design where data was collected using open discussions and brainstorming among supply chain personnel in New Zealand. The study recognized investing in exploration of supply manacle analytics to hearten information management thereby improves integrated supply chain. Miguel and Ledur (2011) affirm that, integrated supply chain enhances value creation through improved customer service levels, operational performance and reduced costs.

Wright, (2016) similarly investigated on the SCI linkage and overall firm's performance in Romania. The study found a strong relationship between high operating profit margins and superior firm's performance. Therefore, supporting development of competences is a basis for improving organizational performance (Wright, 2016). Georgise et al. (2012) assert that, to a greater or lesser extent, the productivity of a firm is determined by organization's activities that manage the standards of products and services. Cheruiyot, (2013) explored how SCI impacts supply networks productivity of KTDA. The findings suggested that supply chain integration involving functional, consumer and supplier integration positively influenced supply chain effectiveness.

3.5 Performance of food and beverages manufacturing firms in Kenya

Food and Beverages Manufacturing sector is an important sector for the Kenyan economy like many other developing countries since it employs about workforce (Luper & Kwanum, 2012). In Kenya, Manufacturing industries play an important role in Kenya's economic growth, it accounts for approximately 50% of manufacturing production turnover, which is about 2.8% of Kenyans' GDP (KAM, 2015). Firms involved in processing food as well as beverages accounted for more than a third of 33.4% of overall production and 33.5% of manufacturing employment (KNBS, 2016). Mohamed & Omwenga (2015) found out that, the growing complexity of supply chains, along with incentives to continually develop new products and reduce business costs, has created firms' product safety. Performance measures may be in terms of profit, growth in sales, stakeholders' satisfaction, reliability and competitive position (Christopher et al., 2011).

Efendioglu and Karabulut, (2010) asserted that the indicator for firm's performance is financial expansion which was assessed by; overall sales volume and total profit margin. Imeokparia (2015) recognized that, functional asset administration enhances firm's production efficacy. A study conducted by Vikas et al. (2011) endorsed that, creating reliability value as a primary factor of customer fidelity. Likewise, Walter et al., (2015) found out that, customer involvement management is a viable strategy for driving Food and beverage product efficiency manufacturing companies. Therefore, customer focus leads to firms' effectiveness as well as ensures consumer satisfaction is first put in all aspects of the organization (Walter et al., 2015).

Several studies have been carried out in the attempt to achieve a more resilient supply chain. A case in point; Osaro et al. (2014), premeditated a basis for intensification of resilient chain of supply in the Pharmaceutical sector, Ngera et al. (2018), researched on influence of supply chain resilience on the performance of Categorized Hospitals in Kenya, more stress was on Pharmaceuticals and Medical Equipment firms in Kenya, Amemba (2013), investigated the effect of supply chain productivity on implementation of risk reduction strategies for which it concentrated on the Pharmaceutical Industry and Medical Equipment firms, Aigbogun (2014), studied the Framework to enhance supply chain resilience (SCRES) which was primarily centered on Pharmaceutical industry and Mutua, (2013) examined the factors affecting resiliency in supply of pharmaceutical products in government hospitals in Kenya.

Therefore, it's eminent from the different studies done locally; supply chain resilience aspect have been skewed on the Pharmaceuticals and Medical Equipment sector without focusing on the Food and Beverages manufacturing sector as well. This formed the gap for which this study sought to fill by studying supply chain resilience practices and the role they play on the performance of Food and Beverages Manufacturing firms in Kenya.

4. Research methodology

4.1 Research design

The study employed a cross-sectional survey design that used both quantitative and qualitative methods. Cross sectional survey design provides a virtuous picture of the trends and is expedient for documenting existing study population conditions, characteristics, and their view at a specific point in time (Maninder, 2016). The choice of this design is suitable for this study since it makes use of a questionnaire as a data collection tool.

4.2 Target population

Mugenda and Mugenda (2012) states that, target population is a whole portion of each object possessing identifiable features that the scholar may wish to take a broad view of the research findings. KNBS, (2018) identified that majority of the hardly hit manufacturing sector in the economy is Food & Beverages due to fluctuations in prices of the goods tantamounting to greater cost of operations. The target population of this study therefore was 102 Food and Beverages Manufacturing Firms in Nairobi City County.

4.3 Sampling frame

According to Ajay (2014), a sample frame denotes the list of sample elements in entire population where the sample is obtained. The sample frame for this study was 102 Food and Beverages Manufacturing Firms from Nairobi City County where the respondents were drawn from procurement and risk management sections.

4.4 Sample and sampling technique

4.4.1 Sample size

The sample size was picked using the following formulae adopted from Yamane (1967) at confidence level of 90%.

$$n = \frac{N}{1 + N(e^2)}$$

Therefore, $n = \frac{102}{1 + 102(0.1^2)} = 50$

Where;
n = sample size required
N = total population
e = margin error.

Yamane (1967) indicates that margin of error should range between 5% - 10%. Margin error of 10% was used because from previous studies have used it and have obtained high number of respondent (Wanjala et al., 2017).

Table 1.
Sample size.

Departments	No. companies	No. of respondents	Total(Questionnaires)
Procurement	50	2	100
Risk management	50	2	100

4.4.2 Sampling technique

Sampling techniques is the procedure of selecting a subset of individuals from within a statistical population to estimate characteristics of the whole population (Brase & Brase, 2016). Garg and Kothari (2014) states that, a population is stratified based on specific population features, and a random sample from each stratum is collected. Sampling error with this sampling method is substantially reduced. The study used stratified random sampling in which the subjects were picked in a manner that the actual population subgroups were replicated more or less in the sample (Mugenda & Mugenda, 2012). For this study the strata was procurement and risk management departments derived from the 50 Companies. Four questionnaires were issued per company that gave us a total sample of 200 respondents.

4.5 Data collection instruments

For this study questionnaires were used to collect primary data. The questionnaire had both quantitative and qualitative questions. The qualitative questions were open ended with the essence of capturing the actual facts about the subject matter. Likert scale was adopted for the quantitative questions for which 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

4.6 Data collection procedure

The researcher acquired an introduction letter from the university. The researcher first sought permit from Food and Beverages Manufacturing Firms with the goal of getting permission to collect data. Once the permit was granted the questionnaires were self-administered to the respective respondents.

4.7 Pilot test

According to Cooper and Schindler (2011), pilot test is performed to establish weakness in the design and instruments besides providing precise data for identifying the likelihood of occurrence within the sample. Viechtbauer et al. (2015) adds that, pilot studies are important in detecting ambiguity, evaluating the type of answers given to determine whether they help the researcher to achieve the laid down goals. The methods used in pre-testing the questionnaire were identical to those used during the actual study or collection of data. According to Cohen et al., (2013) indicates that samples of 25-50 respondents are commonly used for pretesting measurement instruments. For this study, 26 respondents were involved in the pilot study. Simple random sampling was used to select Thirteen Food and Beverages firms in Thika Town. Two respondents from each firm were randomly picked.

4.7.1 Validity of data collection instrument

According to Mugenda and Mugenda (2012), validity is to what degree the achieved results from the data analysis precisely elucidate study's aspect. Similarly, validity denotes the extent to which research instrument elucidate exactly what it meant to quantify (Mugenda & Mugenda, 2013). Garg and Kothari (2014) posits that, the two key forms of validity are content validity and criterion-related validity. This study adopted content validity. Drost (2011) in addition, there are essentially two ways of determine content validity, that is, ask a variety of questions about the instrument or test and/or ask expert judges' opinion concerning the topic.

4.7.2 Reliability of data collection instrument

Bryman (2012) posits that, reliability in every research gives the same results on frequent assessment from an experiment or test by using similar methodology. The more variability that you observe, the less reliable is the measure (Kenneth & Bordens, 2010). Similarly, Reliability in research is

influenced by the degree of error. As random error increases, reliability decreases (Mugenda & Mugenda, 2013). The reliability of a scale specifies exactly how free it is from random error. For this study internal consistency was verified using Cronbach's alpha statistic for which a minimum of 0.7 was accepted. This statistic shows the mean association between all the things that make up the scale. Cronbach's Alpha is used to assess score reliability on a psychometric instrument (Bonett & Wright, 2015). Cronbach Alpha coefficient is denoted by 'r' which gives a range of 0-1. A Cronbach alpha of greater than 0.7 indicates that the tools are reliable (Nguyen & Nguyen, 2017).

4.8 Data processing and analysis

Garg and Kothari (2014) posit that, data processing includes; coding, editing, sorting and tabulation data obtained prior to analysis. Analysis involves the use of logic to explain the data collected in order to determine clear trends and to summarize the relevant information discovered in the investigation (Zikmund et al. 2012). According to Gibilisco (2011), statistical analysis is a component of data analytics it involves collecting and scrutinizing every single data sample in a set of items from which samples can be drawn. Data was received and edited, subsequently, coding of quantifiable as well as qualitative data was done and fed into the Statistical Package for Social Sciences (SPSS) version 24. Descriptive statistics were first generated. Inferential statistics using linear regression and correlation analysis was carried out. The results were presented inform of mean and standard deviation and frequency tables. For this study, Linear multiple regressions was used to find out percentage of change on dependent variable influenced by independent variables and the equation was:

$$Y=\beta_0+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3+\beta_4 X_4+\varepsilon$$

Where; Y= Performance of Food and Beverages Manufacturing Firms.

β_0=constant

β_i is the coefficient for Xi (i=1, 2,3,4)

X1= supply chain integration

X2= agility

X3= supply chain risk management

X4= supply chain collaboration

 1 2 3 4 = Regression co-efficients

ε = error term

5. Research findings and discussion

5.1 Pilot study results

For the purposes of endorsing the study instrument, a pilot study was undertaken in Thika Town for which 26 respondents were involved. While different levels of reliability are required, depending on the design and intent of the scale, Nguyen & Nguyen (2017) recommends a Cronbach alpha of greater than 0.7 indicates that the tools are reliable. The researcher identified outliers in supply chain risk management as well as agility variables that were excluded in computation of Cronbach alpha. The aggregated reliability statistics for pilot study were as follows;

Table 2.

Pilot study results.

Variables	No. of Items	Cronbach Alpha	No. of Respondents
Supply Chain Risk Management	9	.701	23
Agility	9	.702	23
Supply Chain Collaboration	9	.701	26
Supply Chain Integration	9	.860	26

5.2 Descriptive analysis of the study variables

According to Julie (2011), once a researcher is certain that there are no errors in the data file then descriptive phase of data analysis can start. Main goal of descriptive statistics is to enable the scholar incorporate indices or statistics to define dissemination of scores or dimensions studiously. The form of

statistics or indices incorporated depends on the variables of the study as well as measurement scale. The research utilized mean average and standard deviations to show the results of the study of supply chain risk management, agility, supply chain collaboration and supply chain integration. Margaret (2017) states that, Likert scale of mean ($\bar{x}$ =1 to 1.8 Strongly Disagree; 1.8 to 2.6 Disagree; 2.6 to 3.4 Undecided; 3.4 to 4.2 Agree; 4.2 to 5 Strongly Agree). Additionally, the study analyzed the descriptive performance statistics of the firms processing food as well as beverages.

5.2.1 Supply chain risk management

Respondents were asked to state the extent to which they concurred to statement on the implementation of supply chain risk management for SCRES in their firms. Five point Likert scale statement questions were set for which the responses are presented in the table 3;

Table 3.

Supply chain risk management.

Statements	Mean	Std. Deviation
Our firm always conducts stock taking	4.9060	.29276
Our firm always maintain accurate inventory records	4.6711	.48551
Our firm always standardizes inputs specification	4.6577	.55473
Our firm frequently share information on status of orders and status of inventory with the supply chain partners	4.4765	.69344
Our firm maintain precise information on delivery of the orders	4.5235	.56454
Inventory data in our firm is constantly monitored and protected	4.6980	.54158
Our firm has a structured hedging policy for imports	4.6913	.61402
We enter into forward contracts with our supplier for highly price volatile goods	4.4430	.60830
We agree on exchange rate before entering into forward contract with suppliers	4.6174	.57654

N= 149

From the above table, the results show that most respondents strongly agreed with the assertion that our firm always conducts stock taking ($\bar{x}$ = 4.9060, SD= 0.29276). For the statement that inventory data in our firm is constantly monitored and protected majority of respondents strongly agreed ($\bar{x}$ = 4.6980, SD= 0.54158). Most respondents agreed strongly with the statement that our firm has a structured hedging policy for imports ($\bar{x}$ = 4.6913, SD= 0.61402). Respondents of ($\bar{x}$ = 4.6711, SD= 0.48551) strongly agreed that our firm always maintain accurate inventory records. A ($\bar{x}$ = 4.6577, SD= 0.55473) of the respondents strongly agreed that our firm always standardizes inputs specification. A ($\bar{x}$ = 4.6174, SD= 0.57654) of the respondents strongly agreed that we agree on exchange rate before entering into forward contract with suppliers. Respondents of ($\bar{x}$ = 4.5235, SD = 0.56454) agreed strongly that our firm maintain precise information on delivery of the orders. Respondents of ($\bar{x}$ = 4.4765, SD = 0.69344) strongly agreed that our firm frequently share information on status of orders and status of inventory with the supply chain partners. Further, respondents of ($\bar{x}$ = 4.4430, SD = 0.60830) strongly agreed that we enter into forward contracts with our supplier for highly price volatile goods.

Using a five-point scale Likert mean more than ($\bar{x}$ = 4.2) it is clear that a major section of the respondents agreed strongly with the statements on supply chain risk management. The findings of the study show that supply chain risk management has a greater impact on the performance of firms processing food as well as beverages. This study findings mirror those of Ongisa, (2016) who observed that material visibility, information sharing and forward contracts as key factors of organization performance. The study confirmed that supply chain risks impact the firms' performance in the event they materialize. Further, Wieland and Wallenburg (2012) recognized that, SCRM has a strong positive influence on the customer interest within the supply chain enhance effective firm performance.

5.2.2 Agility

The study sought to determine the influence of agility practices that were in place and the predictability role on firms performance. The obtained descriptive results of agility are summarized in the table 4 below;

Table 4.
Agility

Statements	Mean	Std. Deviation
We change product quality based on customer needs	4.8725	.37287
Our customer response rate on product has been continually increasing	4.3289	.60898
We have significant additional capacity of materials, equipment and labour to quickly boost customer response	4.6577	.60148
We quickly reallocate orders to alternate suppliers	4.6510	.59191
Our firm has efficient logistics system in demand response	4.4497	.58629
Our firm ensures elastic labour arrangements in demand response	4.6309	.57362
Our firm stock holding policies are dynamic	4.7584	.51532
Our firms' supply base is able to absorb abrupt changes in demand	4.4094	.63686
We have delivery schedule adjustable based on demand fluctuation	4.6913	.53144

N= 149

Table 4 above, clearly show that most respondents strongly agreed with the statement that we change product quality based on customer needs ($\bar{x}$ = 4.8725, SD= 0.37287). For the statement that our firm stock holding policies are dynamic the respondents strongly agreed ($\bar{x}$ = 4.7584, SD= 0.51532). Most respondents strongly agreed with the avowal that we have delivery schedule adjustable based on demand fluctuation ($\bar{x}$ = 4.6913, SD= 0.53144). Respondents of ($\bar{x}$ = 4.6577, SD= 0.60148) strongly agreed that we have significant additional capacity of materials, equipment and labour to quickly boost customer response. A ($\bar{x}$ = 4.6510, SD= 0.59191) of the respondents strongly agreed that we quickly reallocate orders to alternate suppliers. A ($\bar{x}$ = 4.6309, SD= 0.57362) of the respondents strongly agreed that our firm ensures elastic labour arrangements in demand response. A ($\bar{x}$ = 4.4497, SD= 0.58629) of the respondents strongly agreed that our firm has efficient logistics system in demand response. A ($\bar{x}$ = 4.4094, SD= 0.63686) of the respondents strongly agreed that our firms' supply base is able to absorb abrupt changes in demand. Further, A ($\bar{x}$ = 4.3289, SD= 0.60898) of the respondents strongly agreed that our firm customer response rate on product has been continually increasing.

Using a five-point scale Likert mean more than ($\bar{x}$ = 4.2) it is clear that most respondents strongly agreed with avowals about agility. It can be concluded from the findings that agility had a larger effect on the firms' performance. This study results coincide those of Blome et al. (2013) who found out that customer response, demand response and flexibility have positive impacts on firm's operational performance as well as cost performance. Further, Ghatari et al. (2013) stated that, agility is the key element which firm requires for surviving environmental uncertainties when supply chain managements situation is at risk, and helps firms deliver right products at just-in-time.

5.2.3 Supply Chain Collaboration

The research aimed to evaluate the impact of supply chain collaboration practices on firm performance. Five point Likert scale statement questions were set for which the responses are presented in the table 5 below;
Table 5.

Supply chain collaboration.

Statements	Mean	Std. Deviation
We embrace strategic alliance with third party logistics providers	4.8859	.44312
Our firm shares resources with supply chain partners	4.3490	.64647
Our firm synchronized product development decision with suppliers	4.5839	.62710
Our firm aligns on-time delivery schedule with customers	4.6980	.56598
We have joint accurate inventory visibility with our partners	4.4899	.62187
Our firm embrace partnership with our suppliers	4.5839	.60517
We synchronized demand forecasting with our outsourced partners	4.7047	.58706
We frequently monitor performance with our outsourced partners	4.3691	.67131
We maintain quality standards with our outsourced partners	4.5638	.64012

N= 149

From the above table, the results show that most respondents strongly agreed with the statement that we embrace strategic alliance with third party logistics providers ($\bar{x}$ = 4.8859, SD= 0.44312). For the statement we synchronized demand forecasting with our outsourced partners majority of respondents strongly agreed ($\bar{x}$ = 4.7047, SD= 0.58706). Most respondents strongly agreed that our firm aligns on-time delivery schedule with customers ($\bar{x}$ = 4.6980, SD= 0.56598). Respondents of ($\bar{x}$ = 4.5839, SD= 0.60517) strongly agreed that our firm embrace partnership with suppliers. Respondents of ($\bar{x}$ = 4.5839, SD= 0.62710) strongly agreed that our firm synchronized product development decision with suppliers. A ($\bar{x}$ = 4.5638, SD= 0.64012) of the respondents strongly agreed that we maintain quality standards with our outsourced partners. A ($\bar{x}$ = 4.4899, SD= 0.62187) of the respondents strongly agreed that we have joint accurate inventory visibility with our partners. A ($\bar{x}$ = 4.3691, SD= 0.67131) of the respondents agreed strongly that we frequently monitor performance with our outsourced partners. Further, A ($\bar{x}$ = 4.3490, SD= 0.64647) of the respondents strongly agreed that our firm shares resources with supply chain partners.

Using a five-point scale Likert mean greater than ($\bar{x}$ = 4.2) clearly show that most respondents strongly agreed with supply chain collaboration avowals. From study findings, it can be established that supply chain collaboration has a greater effect on the firm's performance. The study findings concur with Zhou and Piramuthu (2013) who found out that partnership, outsourcing and strategic alliance between enterprises enhance firms performance as a result of increased costs reduction and flexibility in responding to market requirements. Further Cai et al. (2010) stated that, supply chain collaboration enabled effective streamline of supply chain processes to eliminate duplication, improve communications and adjust operations to attain productivity.

5.2.4 Supply chain integration

The research aimed to measure the influence of supply chain integration practices on firm performance. Five point Likert scale statement questions were set for which the responses are presented in the table 6 below;

Table 6.

Supply chain integration.

Statements	Mean	Std. Deviation
Our firm prudently select group of specialists from different departments	4.8456	.44608
Regular interaction among departments is indispensable in our firm	4.4430	.49841
Our firm frequently conduct departmental performance appraisal	4.7383	.55013
We create new product value with our suppliers	4.6577	.66548

We maintain communication systems with our suppliers	4.3557	.66854
We monitor inventory control systems with our suppliers	4.7114	.59611
We involve our customer in product marketing	4.8188	.43579
We involve our customers in monitoring product quality	4.4228	.55970
We involve our customers in new product development	4.5168	.66377

N= 149

Table 6 above, indicates that most respondents strongly agreed with the statement that our firm prudently select group of specialists from different departments ($\bar{x}$ = 4.8456, SD= 0.44608). For the statement that we involve our customer in product marketing majority of respondents strongly agreed ($\bar{x}$ = 4.8188, SD= 0.43579). Respondents of ($\bar{x}$ = 4.7383, SD= 0.55013) strongly agreed that our firm frequently conduct departmental performance appraisal. Respondents of ($\bar{x}$ = 4.7114, SD= 0.59611) strongly agreed that we monitor inventory control systems with our suppliers. A ($\bar{x}$ = 4.6577, SD= 0.66548) of the respondents strongly agreed that we create new product value with our suppliers. Respondents of ($\bar{x}$ = 4.5168, SD= 0.66377) strongly agreed that we involve our customers in new product development. A ($\bar{x}$ = 4.4430, SD= 0.49841) of the respondents strongly agreed that regular interaction among departments is indispensable in our firm. A ($\bar{x}$ = 4.4228, SD= 0.55970) of the respondents strongly agreed that we involve our customers in monitoring product quality. Further, A ($\bar{x}$ = 4.3557, SD= 0.66854) of the respondents strongly agreed that we maintain communication systems with our suppliers.

Using a five-point scale Likert mean greater than ($\bar{x}$ = 4.2) study findings clearly show that most respondents strongly agreed with the statements regarding supply chain integration (SCI). The findings clearly reveal that SCI had a larger influence on the firms' performance. The study findings concur with Miguel and Ledur (2011), who acknowledged that functional integration, supplier integration and customer integration creates value through improved customer service levels, operational performance and reduced costs. Equally Wright, (2016) recognized that supply chain integration creates a strong relationship between high operating margins and greater organizations' productivity, therefore protecting the food and beverages manufacturing firms from turbulent environment.

5.2.5 Performance of food and beverages manufacturing firms in Kenya

The study sought to determine the rate of customer service, market share and profitability of firms as a result of having resilient supply chains. Respondents were requested to state to what extent they agreed with the declarations of opinion about the rating performance of their manufacturing firms. Table 7 below, shows a five point Likert scale statement questions set for which the responses are presented.

Table 7.

Performance of food and beverages manufacturing firms in Kenya

Statements	Mean	Std. Deviation
Flexible inventory control has reduced our firms stock out costs.	4.9396	.23903
Material visibility management has increased our firms sales revenue	4.4631	.52664
Forward contracts with our suppliers has minimized operational costs	4.7383	.52500
Information sharing with our suppliers has improved product differentiation	4.6107	.56606
Integration with our customers has enhanced better sales conditions	4.3624	.57204
Strategic alliance with our suppliers has enhanced competitive advantage	4.7114	.52370
Information sharing with our customers has improved quality service delivery	4.7181	.49430

Partnership with our customers has improved complaints response time	4.5168	.56478
Excellent customer response to our customers has enhanced customer retention	4.6107	.62289

N= 149

Table 7 above, indicates that most respondents strongly agreed with the statement that flexible inventory control has reduced our firms stock out costs. ($\bar{x}$ = 4.9396, SD= 0.23903). For the statement that forward contracts with our suppliers has minimized operational costs majority of respondents strongly agreed ($\bar{x}$ = 4.7383, SD= 0.52500). Respondents of ($\bar{x}$ = 4.7181, SD= 0.49430) strongly agreed that information sharing with our customers has improved quality service delivery. Respondents of ($\bar{x}$ = 4.7114, SD= 0.52370) strongly agreed that strategic alliance with our suppliers has enhanced competitive advantage. A ($\bar{x}$ = 4.6107, SD= 0.62289) of the respondents strongly agreed that excellent customer response to our customers has enhanced customer retention. A ($\bar{x}$ = 4.6107, SD= 0.56606) of the respondents strongly agreed that information sharing with our suppliers has improved product differentiation. A ($\bar{x}$ = 4.5168, SD= 0.56478) of the respondents strongly agreed that partnership with our customers has improved complaints response time. A ($\bar{x}$ = 4.4631, SD= 0.52664) of the respondents strongly agreed that the material visibility management has increased our firms sales revenue. Further, A ($\bar{x}$ = 4.3624, SD= 0.57204) of the respondents strongly agreed that the integration with our customers has enhanced better sales conditions.

Using a five-point scale Likert mean greater than ($\bar{x}$ = 4.2) evidently indicates that most respondents strongly agreed with the declarations concerning performance of firms processing food as well beverages in Kenya. Consequently it can be established that; profitability, market share and customer service had great influence on firms performance. The findings of the study concur with Giunipero et al. (2015) who established that, organizations with high profit margin are considered to be more resilient than those firms whose profit margin are low. Hutchinson et al. (2015) assert that, increased market share and keeping customers are more critical to the growth of a firm. Further, Terho et al. (2012) adds that, good customer service, leads to adequate customer satisfaction thus resulting to increased sales.

5.3 Regression Results

Linear multiple regressions analysis were done to find out the percentage of change on dependent variable influenced by independent variables. The regression results are presented in tables below:

Table 8.

Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.320[a]	.102	.096	.18106

Table 8 depicted that supply chain risk management elucidates 9.6% of the total variation in performance of food and beverages manufacturing firms in Kenya.

Table 9.

Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.369[a]	.136	.131	.17759

Table 9 showed that agility elucidates 13.1% of the total variation in performance of food and beverages manufacturing firms in Kenya.

Table 10.

Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.308[a]	.095	.089	.18180

Table 10 illustrate that supply chain collaboration elucidates 8.9% of the total variation in performance of food and beverages manufacturing firms in Kenya.

Table 11.

Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.440[a]	.194	.188	.17159

Table 11 show that supply chain integration explains 18.8% of the total variation in performance of food and beverages manufacturing firms in Kenya.

Table 12.

Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.508[a]	.258	.238	.16632

The results presented in table 12 present the model summary used of the regression model in clarifying the study phenomena. Supply chain risk management, agility, supply chain collaboration and supply chain integration were found to be satisfactory variables in influencing the performance of food and beverages manufacturing firms in Kenya. This is confirmed by coefficient of determination also known as the Adjusted R Square of 23.8%.This means that supply chain risk management, agility, supply chain collaboration and supply chain integration explain 23.8% of the variations in the dependent variable which is performance of food and beverages manufacturing firms in Kenya. The findings further indicate that the model applied to link the relationship of the variables was suitable.

5.4 Correlation analysis

Cooper & Schindler (2011) asserts that, correlation coefficients enable a researcher to quantify the strength of the linear relationship between two or more variables. Pearson correlation coefficients (r) range from –1 to +1. The sign at the front indicates whether there is a positive or a negative correlation. Rubin and Babbie (2010) postulates that, the size of the absolute value provides information on the strength of the relationship where; (r=.1 to .29 Small; r=.30 to .49 Medium; r=.5 to 1.0 Large). A value of 0 mean that the variables are perfectly independent that is no relationship exists, a value of +1 represents a perfect positive correlation and a value of -1 represents a perfect negative correlation (Ken, 2010). For this study Pearson Product Moment Correlation was used and the results obtained are summarized in the below;

Table 13.

Pearson Product-Moment Correlations between supply chain resilience practices and performance of food and beverages manufacturing firms in Kenya.

Variable		Supply chain risk management	Agility	Supply chain collaboration	Supply chain integration	Performance
Supply chain risk management	Pearson Correlation	1	.287**	.384**	.369**	.320**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	149	149	149	149	149
Agility	Pearson Correlation	.287**	1	.339**	.411**	.369**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	149	149	149	149	149

Supply chain collaboration	Pearson Correlation	.384**	.339**	1	.467**	.308**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	149	149	149	149	149
Supply chain integration	Pearson Correlation	.369**	.411**	.467**	1	.440**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	149	149	149	149	149
Performance of food and beverages manufacturing firms	Pearson Correlation	.320**	.369**	.308**	.440**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	149	149	149	149	149

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation between supply chain resilience practices and performance of food and beverages manufacturing firms in Kenya was investigated using Pearson product-moment correlation coefficient. There was positive correlation between the dependent and the set of independent variables ($r>0.2$, $p<.001$ in all cases). The strength of the relationship between the independent variables and the dependent variable (performance of food and beverages manufacturing firms) was medium. Supply chain risk management ($r= 0.320$, medium), Agility ($r= 0.369$, medium), Supply chain collaboration ($r= 0.308$, medium), and Supply chain integration ($r= 0.440$, medium).

The findings obtained for supply chain risk management are in line with Ongisa, (2016) who found in there research that there was a positive correlation between supply chain risk management and performance of food and beverages manufacturing firms. Conversely the strength of the relationship between supply chain risk management and performance of food and beverages manufacturing firms in their study was small (weak) compared to medium as obtained from this study findings.

The findings obtained for agility coincide with Hasan et al. (2018) findings that there was positive medium (moderate) relationship between agility and performance of food and beverages manufacturing firms. The findings obtained for supply chain collaboration, agree with those of Kache and Seuring (2014) who noted that, supply chain collaboration had a positive medium correlation with firms' performance. For supply chain integration, the results obtained are similar to those of (Wube et al., 2016) who established that there was medium (moderate) relationship between supply chain integration and performance of food and beverages manufacturing firms.

6. Summary, conclusions and recommendations

6.1 Conclusions

6.1.1 Supply chain risk management

The study concludes that supply chain risk management had a positive significant influence on the firms' performance. The study showed that there was a strong relationship between supply chain risk management on the performance of food and beverages manufacturers and therefore it is therefore worth concluding that supply chain risk management embraced by firms' management, influence the performance of food and beverages manufacturing firms in Kenya.

Based on the findings the study concluded that food and beverages manufacturing firms in Kenya frequently mitigate supply chain risks through various methods such as monitoring of product quality standards, evaluation of potential suppliers, dispute resolution, product tracking, and monitoring of product quantity standards. Further, the study concluded that food and beverages manufacturers in Kenya had already put to action the application of supply chain risk management for achieving better organizational performance. Therefore, material visibility, information sharing and forward contracts

forms a very important part of supply chain risk management and influence the performance of food and beverages manufacturing firms in Kenya.

6.1.2 Agility

The study established that agility influenced the performance of food and beverages manufacturing firms in Kenya. This can be explained using Pearson product moment correlation coefficient which revealed that the influence was positive significant. Thus, agility helped food and beverage manufacturers respond with minimal time to the rising needs of their industry. Further, the study concluded that food and beverages manufacturing firms in Kenya had embraced agility through the various methods like supplier engagement, product standardization, establishment of preferred suppliers, demand forecasting, and investment in product branding. Therefore, the study concluded that, customer response, demand response and flexibility form the integral part of agility and it influence the performance of food and beverages manufacturers in Kenya.

6.1.3 Supply chain collaboration

The study concluded that supply chain collaboration had a positive significant influence on the performance of food and beverages manufacturing firms. It was established that there was a strong relationship between supply chain collaboration on the performance of manufacturers of food and beverages; hence, the study settled that SCC influenced the performance of food and beverages manufacturers in Kenya. In addition, the study concluded that food and beverages manufacturers in Kenya frequently establish supply chain collaboration with their main supply chain partners through different methods such as sharing of resources, product development, demand forecasting, quality standards and monitoring of performance. Based on the study findings, food and beverages manufacturers in Kenya had adopted supply chain collaboration for effective performance. Therefore, the study concluded that strategic alliance, partnership and outsourcing forms the essential part of supply chain collaboration and it influence the performance of food and beverages manufacturing firms in Kenya.

6.1.4 Supply chain integration

The study concluded that supply chain integration had a positive significant influence on the performance of food and beverages manufacturing firms in Kenya. There was a strong relationship between supply chain collaboration on the firms' performance and as a result, the research concluded that supply chain integration influenced the performance of food and beverages manufacturing firms in Kenya. Further, the study concluded that manufacturers of food and beverages in Kenya regularly create supply chain integration with their main supply chain partners through several methods, such as creation of new product value, maintaining of communication system, monitoring of inventory control systems, product marketing, monitoring of product quality, and development of new product. Equally, the study settled that food and beverages manufacturing firms in Kenya had adopted supply chain integration for effective performance. Therefore, the study concludes that, functional integration, supplier integration and customer integration form the integral part of supply chain integration and it influence the performance of food and beverages manufacturing firms in Kenya.

References

Aggarwal, S., & Srivastava, M. K. (2016). Towards a grounded view of collaboration in Indian agro-food supply chains. British Food Journal, 118(5), 1085-1106.

Aigbogun, O., Ghazali, Z., & Razali, R. (2014). A Framework to Enhance Supply Chain Resilience: The case of Malaysian Pharmaceutical Industry. An International Journal Global of Business and Management Research, 6(3), 219-229.

Ajay, S. S., & Micah, M. B. (2014). Sampling Techniques & Determination of Sample Size in Applied Statistics Research: An Overview. International Journal of Economics, Commerce and Management, 2(2), 1-22.

Amemba, C. S. (2013). The Effect of Implementing Risk Management Strategies on Supply Chain Performance: A Case of Kenya Medical Supplies Agency. European Journal of Business and Management, 5 (14), 1 – 15.

Arani, W., Mukulu, E., Waiganjo, E., & Musyoka, J. (2015). Enhancers for Building Supply Chain Resilience in Manufacturing Firms in Kenya. The Strategic Journal of Business & Change Management, 2 (71), 709-749.

Barney, J. B. (2001). Is the Resource-Based "View" a Useful Perspective for Strategic Management Research? Yes. The Academy of Management Review, 26 (1), 41-56.

Barry, J. (2004). Supply chain risk in an uncertain global supply chain environment. International Journal of Physical Distribution and Logistics Management, 34 (9), 695- 697.

Blome, C., Schoenherr, T., & Rexhausen, D. (2013). Antecedents and enablers of supply chain agility and its effect on performance: A dynamic capabilities perspective. International Journal of Production Research, 51(4), 1295-1318.

Bode, C., Wagner, S. M., Petersen, K. J., & Ellram, L. M. (2011). Understanding responses to supply chain disruptions: insights from information processing and resource dependence perspectives. Academy of Management Journal, 54 (4), 833 - 856.

Bonett, D. G., & Wright, T. A. (2015). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. Journal of Organizational Behavior, 36(1), 3-15.

Brase, C. H., & Brase, C. P. (2016). Understandable Statistics: Concepts and Methods, Enhanced. Boston, MA: Cengage Learning.

Bryman, A. (2012). Social research methods (4th ed.). New York: Oxford University Press.

Cai, S., Goh, M., de Souza, R., & Li, G. (2013). Knowledge sharing in collaborative supply chains: Twin effects of trust and power. International Journal of Production Research, 51(7), 2060-2076.

Cai, S., Jun, M., & Yang, Z. (2010). Implementing supply chain information integration in China: The role of institutional forces and trust. Journal of Operations Management, 28(3), 257-268.

Carter, C. R. (2008). A framework of sustainable supply chain management: moving toward new theory. International journal of physical distribution and logistics management, 38(5), 360-387.

Cheruiyot, K. (2013). Impact of integrated supply chain on performance at Kenya Tea Development Agency. International Journal of Social Sciences and Entrepreneurship, 1(5), 194-203.

Child, J. (1972). Organizational structure, environment and performance: the role of strategic choice. Sociology, 6(1), 1-22.

Christopher, M., & Holweg, M. (2011). Supply Chain 2.0: Man¬aging supply chains in the era of turbulence. International Journal of Physical Distribution & Logistics Management, 41(1), 63 -82.

Clulow, V., Barry, C., & Gerstman, J. (2007). The resource-based view and value: The customer-based view of the firm. Journal of European Industrial Training, 31(1), 19-35.

Cohen, L., Manion, L., & Morrison, K. (2013). Research methods in education. Abingdon: Routledge.

Coombs, W. (1998). An analytic framework for crisis situations: Better responses from a better understanding of the situation. Journal of Public Relations Research, 10(3) 177-191.

Cooper, D. R., & Schindler, P. S. (2011). Business Research Methods. (11th ed.). New York: McGraw-Hill.

De Rond, M., & Thietart, R. A. (2007).Choice, chance, and inevitability in strategy. Strategic Management Journal, 28(5), 535-551.

DeGroote, S. E., & Marx, T. G. (2013). The impact of IT on supply chain agility and firm performance: An empirical investigation. International Journal of Information Management, 33(6), 909-916.

Drost, E.A. (2011). Validity and Reliability in Social Science Research. Education Research and Perspectives, 38(1), 105-123.

Efendioglu, A. M., & Karabulut, A. T. (2010). Impact of Strategic Planning on Financial Performance of Companies in Turkey. International Journal of Business and Management, 5(4), 3 – 12.

Elleuch, H., Dafaoui, E., Elmhamedi, A., & Chabchoub, H. (2016). Resilience and Vulnerability in Supply Chain: Literature review. IFAC, 49(12), 1448 – 1453.

Farhad P., Byrne P.J., Mohammad A. S., & Cathal, H. (2018). Supply chain collaboration and firm's performance: The critical role of information sharing and trust. Journal of Enterprise Information Management, 31(3), 358-379.

Frank, R. (1988). Passion within reason. New York: W. W NORTON.

Freeman, R. E. (1999). Divergent stakeholder theory. Academy of Management Review, 24(2), 233-236.

Freeman, R.E (1984). Strategic Management: A stakeholder Approach. Boston, MA: Pitman Books.
Garg, G., & Kothari, C. R. (2014). Research Methodology. Methods and Techniques. New Delhi: New Age International Publishers.
Georgise, F.B., Thoben, K.D., & Seifert M. (2012). Adapting the SCOR Model to Suit the Different Scenarios: A Literature Review & Research Agenda. International Journal of Business and Management, 7(6), 1-17.
Ghatari, A. R., Mehralian, G., Zarenezhad, F., & Rasekh, H. R. (2013). Developing a model for agile supply: An empirical study from Iranian pharmaceutical supply chain. Iranian Journal of Pharmaceutical Research, 2, pp. 193-205.
Ghosray, A. (2011). A reexamination of trends in primary commodity prices. Journal of Development Economics, 95 (2), 242-251.
Gibilisco, S. (2011). Statistics demystified. (2nd.ed). New York: McGraw-Hill.
Giunipero, H. L., Nils-Ole H., & Edda F. E. (2015). Research on the phenomenon of supply chain resilience: A systematic review and paths for further investigation. International Journal of Physical Distribution and Logistics Management, 45(1/2), 90-117.
Gligor, D. M., Esmark, C. L., & Holcomb, M. C. (2015). Performance outcomes of supply chain agility: When should you be agile? Journal of Operations Management, 33(34), 71-82.
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.
Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. California Management Review, 33(3), 114-135.
Gunasekaran, A., Lai, K., & Cheng, T. (2008). Responsive supply chain: A competitive strategy in a networked economy. Omega, 36(4), 549-564.
Hasan, M., Murat, Ç., & Mustafa E. C. (2018). The effect of Supply Chain Agility on Firm Performance. Journal of International Trade, Logistics and Law, 4(2), 25-34.
Hinterhuber, A. (2013). Can competitive advantage be predicted? Towards a predictive definition of competitive advantage in the resource-based view of the firm. Management Decision, 51(4), 795-812.
Hutchinson, K., Donnell, L.V., Gilmore, A. and Reid, A. (2015). Loyalty card adoption in SME retailers: The impact upon marketing management. European Journal of Marketing, 49 (3/4), 467-490.
Imeokparia, L. (2015). Working Capital Management and Performance of Food and Beverage Industry in Nigeria. Research Journal of Finance and Accounting, 6 (4), 196 – 202.
Irarrazabal, A., Moxnes, A., & Opromolla, L. D. (2015). The tip of the Iceberg: A Quantitative Framework for Estimating Trade Costs. Review of Economics and Statistics, 97(4), 777-792.
Jones T. (1995). Instrumental Stakeholder Theory: A Synthesis of Ethics and Economics", Academy of Management Review, 20 (2), 404-437.
Julie .P. (2011). SPSS Survival Manual: A step by step guide to data analysis using SPSS for Windows. Australia: Allen & Unwin.
Kache, F., & Seuring, S. (2014). Linking collaboration and integration to risk and performance in supply chains via a review of literature reviews. Supply Chain Management: An International Journal, 19(5/6), 664-682.
Ken, B. (2010). Business Statistics For Contemporary Decision Making (6th ed.). USA: John Wiley & Sons, Inc.
Kenneth, S. & Bordens, B. (2010). Research design and methods: a process approach (8th ed.) UK: McGraw-Hill.
Kenya Association Manufacturers, (2015). Kenya manufacturers and Exporters Directory. (11th ed.). Nairobi: Kenya Association of Manufacturers.
Kenya National Bureau of Statistics (2013). Economic Survey. Nairobi: Government Printer.
Kenya National Bureau of Statistics (2016). Economic Survey. Nairobi: Government Printer.
Kenya National Bureau of Statistics (2018). Economic Survey. Nairobi: Government Printer.
Ketchen Jr., G., & Hult, T.M. (2007). Bridging organization theory and supply chain management: The case of best value supply chains. Journal of Operations Management, 25(2), 573-580.
Luper, I., & Kwanum, I. M. (2012). Capital structure and firm performance: Evidence from manufacturing companies in Nigeria. Research Journal of Finance and Accounting, 3 (5), 151-158.

Lysons, K., & Farrington, B. (2006). Purchasing and Supply Chain Management. Pearson Education, London.

Maninder, S. S. (2016). Methodology Series Module 3: Cross-sectional Studies, Indian Journal of Dermatology, 61(3), 261–264.

Margaret, E. A. (2017). The March of Scientific Knowledge in Social Work. Advances in Social Work, Fall 2017, 18(2), 415 – 436.

McDowell, W. C., Harris, M. L., & Gibson, S. G. (2013). The influence of communication and information quality on trust in the small business supply chain. Journal of Applied Management and Entrepreneurship, 18(2), 21-38.

McNichols, T., & Brennan, L. (2006). Partner Suitability for Collaborative Supply Networks. Int. J. Networking and Virtual Organizations, 3(2), 220–237.

Miguel, P. L. S., & Brito, L. A. L. (2011). Supply chain management measurement and its influence on operational performance. Journal of Operations and Supply Chain Management, 4 (2), 56 – 70.

Mohamed, K. S., & Omwenga, J. (2015). Supply chain risks mitigation strategies adopted by manufacturing firms in Kenya: A case of Coca Cola Company (K). International Academic Journal of Procurement and Supply Chain Management, 1 (4), 45-65.

Mohammaddust, F., Rezapour, S., Farahani, R. Z., Mofidfar, M., & Hill, A. (2017). Developing lean and responsive supply chains: A robust model for alternative risk mitigation strategies in supply chain designs. International Journal of Production Economics, 183, (1), 632-653.

Msimangira, K., & Venkatraman, S. (2014). Supply Chain Management Integration: Critical problems and solutions. Operations and supply chain management, 7(1), 23-31.

Mugenda, O. M., & Mugenda, A. G. (2012). Research Methods: Quantitative and Qualitative Approaches. Nairobi: Acts Press.

Mugenda, O. M., & Mugenda, A. G. (2013). Qualitative research methods: Introduction. Nairobi: Africa Center for Technology Studies (Acts) Press.

Murigi, J. M. (2013). Strategies of minimizing the effects of supply chain disruption caused by natural disasters in Kenya: A case study of Brookside Dairy Limited. Prime Journal of Business administration and Management, 3(4), 971–978.

Mutua, D. M. (2013). Factors Affecting Consistency in Supply of Pharmaceutical Products in Government Hospitals in Kenya: A Case Study of Maragua District Hospital. The International Institute for Science, Technology and Education, 3(13), 21 – 52.

Ngera, J. K., Karanja, N., & Odhiambo, R. (2018). Influence of Supply Chain Resilience on Performance of Categorized Hospitals in Kenya. European Journal of Logistics, Purchasing and Supply Chain Management, 6(1), 38-52.

Nguyen, P. V., & Nguyen, L. T. (2017). Performance measurement of supply chain integration in Manufacturing firms' of Southeast Vietnam. European Journal of Economic and Management, 6(2), 23-32.

Ongisa, F. N. (2016). Influence of Supply Chain Risk Control Strategies on Performance of Food and Beverage Manufacturing Firms in Kenya. Journal of Research in Business and Management, 4(3), 01 - 09.

Ongisa, F. N., Rotich, G., & Karanja, G. N. (2016). Influence of Supply Base Rationalisation Strategies on Performance of Food and Beverage Manufacturing Firms in Kenya. (IOSR) Journal of Business and Management, 18(5), 09 – 18.

Osaro, A., Zulkipli, G., & Radzuan, R. (2014). A Framework to Enhance Supply Chain Resilience the Case of Malaysian Pharmaceutical Industry. An International Journal of Global Business and Management Research, 6(3), 219 – 228.

Pettit, T. J., Croxton, K. L., & Fiksel, J. (2013). Ensuring supply chain resilience: Development and Implementation of an Assessment Tool. Journal of Business Logistics, 34(1), 46-76.

Pettit, T. J., Fiksel, J., & Croxton, K. L. (2010). Ensuring Supply Chain Resilience: Development of a Conceptual Framework. Journal of Business Logistics, 31(1), 1- 21.

Pournader, M., Rotaru, K., Kach, A. P., Hossein, S., & Hajiagha, R. (2016). An analytical model for system-wide and tier-specific assessment of resilience to supply chain risks. Supply Chain Management: An International Journal, 21 (5), 589 - 609.

Rafisah, M. R., Intan, M. S., & Nadzri, A. G. (2015). Overcoming barriers of food supply chain in Malaysia by Japanese food companies. Research Journal of Business and Management, 2(3), 380 – 400.

Rubin, A. & Babbie, E.R. (2010) Research Methods for Social Work, Brooks Cole: Belmont.

Scholten, K., & Schilder, S. (2015). The role of collaboration in supply chain resilience. Supply Chain Management, 20(4), 471-484.

Scholten, K., Sharkey, S., & Fynes, B. (2014). Mitigation Processes – Antecedents for Building Supply Chain Resilience. Supply Chain Management: An International Journal, 19(2), 211–228.

Seuring, S. (2008). From a literature review to a conceptual framework for sustainable supply chain management. Journal of cleaner production, 16(15), 1699-1710.

Skouloudis, A., Avlonitis, G.J., Malesios, C., Evangelinos, K. (2015). Priorities and perceptions of corporate social responsibility: Insights from the perspective of Greek business professionals. Manag. Decis, 53(2), 375–401.

Soosay, C. A., & Hyland, P. (2015). A decade of supply chain collaboration and directions for future research. Supply Chain Management: An International Journal, 20(6), 613-630.

Terho, H., Haas, A., & Eggert, A. (2012). It's almost like taking the sales out of selling' – Towards a conceptualization of value-based selling in business markets. Industrial Marketing Management, 41(1), 174–185.

Transparency International, (2013). Corruption Perceptions Index 2013. Accessed March 30, 2015. Retrieved from http://www.transparency.org/cpi2013/

Tukamuhabwa, R.B., Stevenson, M., Busby, J. & Zorzini, M. (2015). Supply chain resilience: definition, review and theoretical foundations for further study. International Journal of Production Research, 53 (18), 5592-5623.

Viechtbauer, W., Smits, L., Kotz, D., Bude, L., Spigt, M., Serroyen, J., & Crutzen, R. (2015). A simple formula for the calculation of sample size in pilot studies. Journal of clinical epidemiology, 68(11), 1375-1379.

Vikas, K., Luciano, B., & Roger, M. (2011). The Impact of Operations Performance on Customer Loyalty. Service Science, 3(2), 158-171.

Walter, A. B., & Iruka, C. H. (2015). Investigating the Relationship between Customer Involvement Management and Marketing Performance in the Manufacturing Industry. International Journal of Research in Business Studies and Management, 2 (9), 22-34.

Wanjala, Y. M., Iravo, A. M., Odhiambo, R., & Shalle, I. N. (2017). Influence of Monitoring Tools on Project Performance in Kenyan State Corporations. European Scientific Journal, 13(19), 1857 – 7881.

Wellenbrock, M. (2013). Theoretical Basis of Supply Management the Network Theory in Supply Management. University of Twente, Netherlands.

Wernerfelt, B. (1984). A Resource-Based View of the Firm. Strategic Management Journal, 5(2), 171-180.

Whitten, G. D., Green, K. W. Jr., & Zelbst, P. J. (2012). Triple-A supply chain performance. International Journal of Operations & Production Management, 32(1), 28-48.

Whittington, R. (1989). Corporate strategies in recession and recovery: Social structure and strategic choice. London: Unwin Hyman.

Wieland, A. & Wallenburg, C.M. (2012). Dealing with supply chain risks: Linking risk management practices and strategies to performance. International Journal of Physical Distribution and Logistics Management, 42(10), 887-905.

Wright, R. (2016). Supply chain integration and performance: Evidence from Romania. Journal of economics and business, 19(1), 11-30.

Wube, A. D., Frank, E., & Birhanu, B. A. (2016). Supply Chain Integration for Improving Performance on Manufacturing Industries: J Global Engineering. Global Journal of Researches in Engineering, 16(4), 21-34.

Yamane, T. (1967). Statistics: An Introductory Analysis (2nd ed.). New York: Harper and Row.

Zhou, W., & Piramuthu, S. (2013). Technology regulation policy for business ethics: An example of RFID in supply chain management. Journal of Business Ethics, 116(2), 327-340.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2012). Business Research Methods (9th ed.). New York: The Free Press.