# Analysis of the Significance of Risk Management Practices in Supply Chain Performance in Kenya: A Case Study of County Government of Kericho

Cherono Winny<sup>1</sup>, Juma Wagoki<sup>2</sup>

Jomo Kenyatta University of Agriculture and Technology, School of Human Resources Development P.O. Box 1069 – 20100, Nakuru, Kenya

Abstract: The study analysed the significance of risk management on supply chain performance specifically in County Government of Kericho. Descriptive research design was utilized this ensured the data collected was a representative of the entire population. The data was analyzed using both descriptive and inferential statistics. The study concluded that the major risk management technique and policies that was adopted by majority of the supply chains in the County was the reactive approach and the outcome was rated as good as reported by the findings of the study.

Keywords: Risk Management techniques, Risk management Policies. Risk Managers, Supply Chain Performance.

# **1. Introduction**

The idea of improving products and services through Supply Chain Management (SCM) entails the reduction of the production time and cost without compromising the product quality. The supply chain managers have to work cooperatively with other organizations in the SC (Handfield & Nichols, 2009). Eventually, through mutual understanding between them and ability to reduce the risks of uncertainties in production processes, higher degree of efficiency can be achieved. Though originally it was used mainly in manufacturing industry to improve responsiveness and flexibility, it has been found to also improve organizational competitiveness (Gunasekaran, 2009), SCM has now been recognized by many to be an important strategic tool for organization's efficiency and to gain competitive advantage.

Interestingly, Cox (2009) argues that the SCM practice at present day is merely a representation of what has been done by Toyota to minimize their waste production, although it may appear in various forms of products or services SC. The approach taken by Toyota for external resources management (commonly accepted as the 'lean consists of eight main characters. Whatever happened, management today now realized that the way to survive is to prepare oneself a strong and responsive SC; because it will no longer be company against company, but SC against SC. The strongest competitors (Monczka & Morgan, 2009) are therefore those who could provide the leadership as well as management to the fully integrated SC; including external customers as well as suppliers, the prime, their suppliers and their supplier's supplier.

Risk management on the other hand is the identification, assessment, and prioritization of <u>risks</u> followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities. Risk management in supply chain is the implementation of strategies to manage both everyday and exceptional risks along the <u>supply chain</u> based on

continuous risk assessment with the objective of reducing vulnerability and ensuring continuity. Supply chain risk management is aimed at managing risks in complex and dynamic supply and demand networks (Wieland & Wallenburg, 2011).

Risk has always been an inherent feature of human existence, and the field of risk research started when people started reflecting on the possibility of their own death and contemplating actions to avoid dangerous situations (Renn, 2008). However, the systematic scientific attempts to study risks in society, is more recent (Hale & Hovden, 2008). Multiple academic disciplines such as technology, economy, psychology, sociology, and anthropology have contributed to the evolution of risk research and provided new knowledge on improving the management of risk. Yet, no common definition of risk exists, neither in the sciences nor in the public (Renn, 2008).

Nevertheless, Renn (2008) argues that all risk concepts have one aspect in common: the distinction between reality and possibility. Risk management in supply chain attempts to reduce supply chain vulnerability via a coordinated holistic approach, involving all supply chain stakeholders, which identifies and analyses the risk of failure points within the supply chain. Mitigation plans to manage these risks can involve logistics, finance and risk management disciplines; the ultimate goal being to ensure supply chain continuity in the event of a scenario which otherwise have interrupted normal business (Ballou, 2007).

According to Kenya Constitution (2011) the functions of the county Government are; to promote democratic and accountable exercise of power; to foster national unity by recognising diversity; to give powers of self-governance to the people and enhance, the participation of the people in the exercise of the powers of the State and in making decisions affecting them; to recognise the right of communities to manage their own affairs and to further their development; to protect and promote the interests and rights of minorities and marginalised communities; to promote social and

### International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Impact Factor (2012): 3.358

economic development and the provision of proximate, easily accessible services throughout Kenya; to ensure equitable sharing of national and local resources throughout Kenya; to facilitate the decentralisation of State organs, their functions and services, from the capital of Kenya; and to enhance checks and balances and the separation of powers

Studies in supply chain management indicate that there are risks which pertain to purchasing of goods and services. The supply chain has become increasingly more global and complex which presents greater challenges and risks. Customers present ever-changing requirements and emerging market penetration often times requires a completely different segmentation approach - not only to products and services, but also to associate cultural, environmental, and governmental influences. With the constantly shifting geographical sourcing of supply and the movements towards outsourced/contracted manufacturing, supply shortages and quality control are increasing costs in many cases, and decreasing predictability and reliability. Recent studies of supply chain risk discuss the elasticity of supply chain performance. Indeed, the level of performance is a function of many variables. However, the research in this domain is limited; many research projects concentrate the role of tangible resources that a firm could mobilize to gain success in SCM, however no research on significance of risk management practises on supply chain performance

# 2. Theoretical Background

Agency theory is based on the premise that agents have more information than principals and that this information asymmetry adversely affects the principals' ability to monitor effectively whether their interests are being properly served by agents. It also assumes that principals and agents act rationally and that they will use the contracting process to maximize their wealth. This means that because agents have self-seeking motives they are likely to take the opportunity to act against the interests of the owners of the firm, for example by not acting on the risks as required (Eccles & Holt, 2008).

For instance, to minimize the risk of shirking by agents, principals will incur monitoring expenditures, for example the costs of materials and equipments to be bought. Agents, on the other hand, incur bonding costs, for example the cost of materials, in order to signal to principal/owners that of employment. Such action also helps managers to secure their positions in the firm and to protect their salary levels. Indeed, Agrawal, & Chadha (2005) argues that the principal's expenditures for monitoring agents' actions are reflected in the salary paid to the agent. Therefore, it is in the agents' interest to demand monitoring services, like risk management, in order to reduce the risk of principals making adverse adjustments to executive compensation.

# 2.1 Risk Management Techniques and Supply Chain performance

According to (Hovden & Larsson, 2007; Rasmussen, 2007) topic in prominent supply chain management reflects the magnification of the role of risk management techniques in supply chain management has been playing in over the past

has been done especially in public organisation. Thus, there was a need to inquire into this aspect with specific reference to County Government of Kericho.

## **1.1 Research Objectives**

The general objective of this study was to analyze the significance of risk management practices in supply chain performance in Kenya. Specifically to: to evaluate the role of risk management techniques on supply chain performance in County Government of Kericho, to establish the influence of Risk Management policy on supply chain performance in County Government of Kericho and to determine the influence of competency of risk managers on supply chain performance in performance in County Government of Kericho.

## **1.2 Research Questions**

To achieve the objectives the following research questions were conceptualized to guide the study. What is the role of management techniques on supply chain performance in County Government of Kericho? What is the influence of risk management policy on Supply Chain Performance in County Government of Kericho? In what ways do competency of risk managers influence supply chain performance in County Government of Kericho?

decade. Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies" (Frankel *et al.*, 2008). The outcome of risk management is varied from resource efficiency, economic and social responsibility. Notably, more recently these outcomes became more encompassing and drove attention to "supply chain sustainability" according to Frankel. That is why this study will go a long way in addressing risk management in public organisation.

Nagy, (2010) in his study noted that Supply Chain Management systems make contributions to determine the occurrence frequency of risks, the efficiency of taken precautions and how precautions can be improved for future. They provide information for both the identification and controlling processes of risk management. Differently from the example above, in supply chains also unplanned risks, whose effects can be monitored, recorded and notified through risk management, can occur (Rajamani, et al., 2006).

Although measures against these risks cannot be fixed ex ante and their negative effects cannot be prevented, the identified risks are expanded through these unplanned risks within the context of risk identification and the identified measures are expanded through actions against unplanned risks. Thereby on the basis of experiences chain reflexes can be improved for future risks according to Rajamani, which calls for further research on how it can be done. Rasmussen, (2007) pointed previous studies in the relevant literature it was determined that risk management techniques contribute substantially in capturing operational risks in supply chains and notify decision makers about these risks as well as to provide information to determine the occurrence frequency of risks, the efficiency of taken precautions and how precautions can be improved for the future.

Organizations need to have the ability to understand and manage risk to be willing to act on decisions about the future with confidence. Unfortunately, many of the models created to analyze potential outcomes and probabilities were based on past performance and failed to prepare companies for the current economic situation. For companies to regain confidence in making risk-informed decisions for the future there needs to be a realization that risk management models are only as good as the decisions that are made based on the models (Chikán, 2008). Therefore, the risk management mindset is just as important as the model and that is where this study comes in.

# **2.2 Risk Management policy and Supply Chain Performance**.

Bowden et al., (2007) defines risk management policy statement as a formal, written policy statement is essential for communicating the organization's risk management mission and objectives typical policy statement establishes: what risk management encompasses, risk managements position in the port organization, scope of authority and responsibility of risk management department, ports tolerance and capacity for bearing risk and insurance procedures.Corporations operate in a dynamic environment. Hence the future remains uncertain to a large extent, allowing for fate to play a part in the results that are achieved by the companies. That calls for further study on how organisations are preparing for such uncertainty.

Vlahos (2005) noted that a number of cases have occurred in the recent past which very well brings to light the lack of foresight and pro-activity on the part of the management in managing risk. 'Risk management' therefore is an integral part of managing a business. Companies face various types of risks. Some may be external in nature, which are not under the direct control of the management, like the political environment, the changes in exchange rates or the changes in interest rates (Büssing et al., 2006). A company would need to identify the risks that it faces in trying to achieve the objectives of the firm. Once these risks are identified, the risk manager would need to evaluate these risks to see which of them will have critical impact on the firm and which of them are not significant enough to deserve further attention according to Bussing. Further investigation is necessary to check how other organisation deals with risks.

The critical risks that could have adverse impact on the firm's business are then given maximum importance and strategies are formulated to deal with them or hedge against them (Bernardes, 2010). The entire process of identifying, evaluating, controlling and reviewing risks, to make sure that the organisation is exposed to only those risks that it needs to take to achieve its primary objectives, is known as 'risk management. Risk management is a proactive process, not reactive (Büssing et al., 2006). As much as the risk

management in public institutions are proactive, risks usually occur in supply chain and that is why this study is important.

However Thun and Hoening (2008) argued that risk management policy also provide information necessary for the risk manager to review and identify loss exposures, and it ensure that the Supervisors must be aware of their role in the prevention of loss and be accountable to follow procedures, attend risk control meetings, and, when appropriate, provide any recommended training. Despite the fact that risk management policy is in place in public organisation, risks related to supply chain occurs and that is why this study is necessary. An organization risk management policy should set out its approach to and appetite for risk and its approach to risk management especially in supply chain performance (Frankel et al,2008). The policy should also set out responsibilities for risk management throughout the organization. Furthermore, it should refer to any legal requirements for policy statements for instance for Health and Safety (Bowden et al, 2007). Attaching to the risk management process should be an integrated set of tools and techniques for use in the various stages of the business process which calls for further study on how risk management policy works.

In a constantly changing world, which requires flexible responses, with strong competition from nearly every continent, due to increased globalization, it is important for organizations to have some kind of risk management policy which can guide it in dealing with risks which occur in the organization (Chikán, 2008). Especially in the service industry, but more generally spoken throughout every industry, the risk management policy is the most contributing factor to being competitive and making a difference to customer satisfaction and general organizational performance (Bowden et al., 2007). There is a need to study how public organizations ensure that their policies are implemented.

# 2.3 Risk Managers Competency and Supply Chain Performance

Prior research has shown that firms whose risk managers participate in SCM activities reveal different levels of performance (Hsu et al. 2009). Indeed, the level of performance is a function of many variables. However, the research in this domain is limited; many research projects concentrate the role of tangible resources that a firm could mobilize to gain success in SCM (Hafeez et al. 2010), and a limited number of studies consider intangible resources (Williams, 2006). Moreover, the focus of most of the existing theories is primarily on large companies, and the literature has less to do with the theories at the SME level (Bayraktar et al. 2010). In fact, SMEs has less accessibility to many resources, and do not have enough resources to successfully engage in a SCM (Ren et al. 2010). Instead, they rely on their advantages and competences to overcome their constraints (Bayraktar et al. 2010). This is why there is a need to further study how SMEs and large organization deals with their day to day risks.

### International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Impact Factor (2012): 3.358

According to the literature, managers with a strong innovative orientation tend to possess distinctive competences (Quintana & Velasco, 2005). These businesses are characterized by a managerial vision and innovative culture that looks for achieving the firm's goals through a sound SCM (Gonzalez, 2008). They further revealed that an innovation orientation implies active exploration of new businesses through the supply chain. Moreover, an innovation orientation is supposed to give rise to processes, practices, and decision making activities associated with supply chain management and as a result possibly will contribute to firm's performance (Shin, 2000). In particular, Kaminski et al. (2008) show that collaboration with suppliers can contribute to innovativeness of business and improve their performance which calls for further study.

A risk manager should be in a position to take risk (Morash & Clinton, 2008). The significant role of risk taking characteristics appears in almost all parts of the literature associated with SMEs. Risk taking activities stimulate organizational performance for business with entrepreneurial approach. Firms in compound supply chains require seamless coordinated flows of goods, services, information, and cash; or else they face considerable supply risk (Harland, 2004). Moreover, SMEs with risk taking business characteristics are likely to seek strategies to maximize their profit in which they leverage SCM applications. Indeed, taking more risk would lead in more outcomes. Therefore, organizations are more prone to take advantage of their flexibility in order to gain more profit. In sum, modern business incorporates risk taking. Here, risk taking is considered as a critical element in our model. That is why there is a need to study further how public organizations consider their risks.

According to (Chopra & Sodhi, 2004), most risk managers in organizations are highly proactive with respect to their industry, product category, and how they compete in the supply chain. In other words, pro-activeness entails a firm's capability to amalgamate supply chain information and form its environment by introducing new products, technologies, and administrative techniques (Zsidisin & Richie, 2009). When boundary spanners offer transparency to decision makers, which influence entrepreneurial and learning actions within the supply chain, Supply chain risks come in a variety of forms: disruptions to material flows, product quality problems, information systems breakdowns, and economic instability according to Zsidisin and Richie. Further research is required on the forms of risks public organizations encounters.

The recent literature in supply chain management recognizes the importance of managing such risks in the age of global supply chains. Various researchers have discussed firms' increasing exposure to risks and the resulting, potentially severe negative impact on the firms' financial performances (Hendricks & Singhal, 2005). One such risk to the supply chain, disruption of supply flows, can occur suddenly due to a number of unpredictable events. Even more unpredictable, however, is the ripple effect caused by the disruption (Zakaria, 2011). A risk manager should have superior capabilities over bar codes and promises many supply chain benefits, such as reductions in shrinkage, efficient handling of materials, increased product availability, and improved asset management (Angeles, 2005; Li & Visich, 2006; Taghaboni, 2006). This calls for further study on competence of risks managers in public organization generally.

# 2.4 Public Procurement and Oversight Authority (PPOA)

It was created in 2005 after the Public Procurement and Disposal Act 2005 was enacted. It is mandated with the responsibility of ensuring that procurement procedures established under the Act are complied with, monitoring the procurement system and reporting on its overall functioning, initiating public procurement policy and assisting in the implementing and operation of the public procurement system (PPOA, 2008). Public entities should draft procurement policies that are compatible with procurement regulations and all employees should be made aware of the formulated policies. The PPOA directives should be put into consideration while formulating policies. The PPOA directives should be put into consideration while formulating and so as to avoid inconsistency with the Public Procurement Act. The level of stakeholders' involvement should be improved by application of monitoring and supervisory mechanism to oversee if all procurement processes are in line with the procurement regulations guidelines (Elizabeth et al.2013). It therefore follows that Public entities should therefore draft risk management practices that are compatible with procurement regulations.

# **3. Research Methodology**

According to Kothari (2004) a research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Descriptive research design a case study of Kericho County was used. Of the target population the researcher worked with a sample size of 59 employees. Stratified random sampling was used which ensured proportionate representation of the subcouties in the sample size. Structured questionnaires were used in the collection of primary data. Using both descriptive and Inferential Statistics the collected data analyzed thus establishing the relationship between independent variables and the dependent variables.

# 4. Research Findings and Analysis

This presented the findings and critical analysis of the results. The study sought to investigate the significance of risk management practices in supply chain performance in Kenya. Risk management techniques had an r-value of .306 indicating a significant relationship between risk management techniques and supply chain performance. This is satisfactory to the first objective of the study; to evaluate the role of risk management practices on supply chain performance in Kericho County. Moreover this relationship is positive. The p (.046) value was below .05 thus indicating that there is a relationship between risk management techniques and supply chain performance at 5% level of significance. Therefore risk management techniques are

positively correlated with supply chain performance in Kericho County.

It was established that risk management policies have an rvalue of .253 indicating a weak relationship between risk management policies and supply chain performance. This is satisfactory to the second objective of the study; to evaluate the role of risk management policies on supply chain performance in Kericho County. Moreover this relationship is positive. The p (.102) value was above .05 thus indicating that the relationship between risk management policies and supply chain performance is not significant at 5% level of significance.

The study further revealed that competence of risk managers has an r-value of .425 indicating a significant relationship between the competence of risk managers and supply chain performance. This is satisfactory to the third objective of the study; to determine the influence of competency of risk managers on supply chain performance in Kericho County. Moreover this relationship is positive. The p (.001) value was below .05 thus indicating that there is a significant relationship between the competence of risk managers and supply chain performance at 5% level of significance. Therefore the competence of risk managers is positively correlated with supply chain performance in Kericho County.

## **Correlation Matrix**

The study indicates is a significant positive relationship (.306) between risk management techniques and supply chain performance. Moreover there is a positive weak relationship (.253) between risk management policies and supply chain performance. However there is a significant positive relationship (.425) between competence of risk managers and supply chain performance in Kericho County. All the three components of risk management practices have a positive correlation with supply chain performance.

# 5. Summary of Findings and Conclusions

The findings were organized according to the study objectives. The specific objectives of the research were: to evaluate the role of risk management techniques on supply chain performance in County Government of Kericho, to establish the influence of Risk Management policy on supply chain performance in County Government of Kericho and to determine the influence of competency of risk managers on supply chain performance in County Government of Kericho.

## 5.1 Summary of Findings

The study established that respondents were conversant with the role played by risk management techniques in the supply chain performance. It was further revealed that most employees in Kericho County understand the role played by risk management practices. It was overwhelmingly reported by respondents that risk management practices play an important role in enhancing supply chain performance. It was also revealed that the role of risk management was rated as very important among the respondents in Kericho County. Respondents were also asked whether they have been trained on risk management, the findings showed that training was conducted among the respondents on the role of risk management especially in enhancing supply chain performance. The competency of risk management was rated as good by the employees as and further reported most appropriate risk management approach in Kericho County was the reactive approach.

The study established that the existence of risk management policies is important in enhancing supply chain performance as overwhelmingly supported by majority of the respondents. In this regard, it was revealed that there were risk management policies in the various respondent organizations. Further, the organization's policies on risk management regarding an enhanced supply chain performance were rated to be efficient in the various organizations. Respondents were asked to rate the implementation of risk management policies for an enhanced supply chain performance within the organization.

It was established that implementation of risk management policies was rated as good among the various organizations. The study sought to investigate the influence of competency of risk managers on supply chain performance. It was revealed that the competency of a risk managers influences supply chain performance to a great extent. The findings further established that supply chain risk managers were not trained in attempts to enhance their capacity as risk managers. In addition, the respondents rated as important to train risk managers in attempts to enhance supply chain performance. By this the respondents argued that the value added by risk managers in the supply chain was good.

The findings of the study showed that supply chain performance is usually measured in the respective organizations within Kericho County. It was also established that the various supply chain performance can be measured by the value represented by the product or service offered to the end customer. It was further revealed that risks affect overall supply chain performance. Consequently, it was established that effective supply chain management is associated with reduced risks. On the other hand, it was also revealed that the major risks experienced among the various organizations with regard to their supply chain performance was disruptions in the supply chain and poorly perceived quality of products. The study also reported that supply chain risk management would help to significantly reduce uncertainty of demand.

## 5.2 Conclusion

The conclusions were derived from the results.

#### 5.2.1 Risk management Techniques

There is a significant positive relationship between risk management techniques and supply chain performance in Kericho County. The study further concluded that risk management practices play an important role in enhancing supply chain performance. In addition, the findings led to the conclusion that the major risk management that was adopted by majority of the supply chains in Kericho County was the reactive approach and the outcome was rated as good as reported by the findings of the study.

#### 5.2.2 Risk management Policies

It was concluded that that risk management policies had weak but positive relationship with supply chain performance in Kericho County. It was further concluded based on the findings of the study that there were risk management policies in the various respondent organizations in Kericho County. Consequently, the findings led to the conclusion that the organizations' policies on risk management regarding enhanced supply chain performance were efficient in Kericho County.

### 5.2.3 Competency of Risk Managers

The study concluded that there is significant relationship between the competence of risk managers and supply chain performance in Kericho County. It was concluded that the competency of a risk managers influences supply chain performance to a great extent. On the other hand, it was concluded that supply chain risk managers were not trained in attempts to enhance their capacity as risk managers as much the value added by risk managers were good considering the various organizations within Kericho County as targeted by the study.

# **5.2.4 Supply chain performance**

The study also concluded that there was a positive relationship between risk management techniques, risk management policies, competence of risk managers and supply chain performance in Kericho County. It was concluded that supply chain performance is usually measured in the respective organizations within Kericho County. The study further concluded that the various supply chain performance can be measured by the value represented by the product or service offered to the end customer. Further, risks affect overall supply chain performance. Consequently, it was concluded that effective supply chain management is associated with reduced risks. It was also concluded that the major risks experienced among the various organizations with regard to their supply chain performance was disruptions in the supply chain and poorly perceived quality of products.

#### **Background information of the respondents**

Variable	Category	Frequency	Percent (%)
Duration of work	0-3	11	25.6
	4-7	12	27.9
	8-11	9	20.9
	over 12 years	11	25.6
Education level	Certificate	1	2.3
	Diploma	16	37.2
	Degree	20	46.5
	Masters	6	14.0

### **Risk management Techniques**

	N	Minimum	Maximum	Mean	Std.
Understanding the role of Risk management techniques	43	1	2	1.14	0.351
To what extent do you agree with understanding risk management	43	1	5	1.7	0.741
Importance of Risk management in Supply chain performance	43	1	3	1	0
Rate the importance of risk management	43	1	5	1.42	0.499
Trained on the role of risk management	43	1	2	1.44	0.502
Rate on competency on the role of Risk management	43	1	5	2.16	0.998
Most appropriate approach to risk management	43	1	3	1.65	0.72
Valid N (list wise)	43				

## **Risk Management Policies**

	Ν	Minimum	Maximum	Mean	Std. Deviation
Importance of RP in enhancing supply chain performance	43	1	2	1.00	.000
To what extent	43	1	5	1.56	.502
Awareness of any RM policies	43	1	3	1.30	.638
How efficiency is rated	43	1	5	2.00	.845
How implementation is rated	43	1	5	2.16	.721
Valid N (list wise)	43				

#### **Competency of risk managers**

BB							
	Ν	Minimum	Maximum	Mean	Std. Deviation		
Whether competency of a risk manager influences performance	43	1	3	1.00	.000		
Extent agreed	43	1	5	1.35	.482		
Trained on the job on skills to enhance capacity	43	1	2	1.53	.505		
Rating the importance of training		1	5	1.77	1.020		
Rating value addition in supply chain		1	5	1.98	.740		
Valid N (list wise)	43						

## **Supply Chain Performance**

Table 4.1: Risk management and supply chain performance

	Ν	Minimum	Maximum	Mean	Std. Deviation
Measuring Supply Chain Performance	43	1	5	2.49	.985
Measuring performance by product or service value	43	1	5	2.09	.811
Risk affects overall supply chain Performance	43	1	5	2.49	.985
Effective supply chain management is associated with reduced risks	43	1	5	1.42	.794

# Volume 3 Issue 11, November 2014

<u>www.ijsr.net</u>

Licensed Under Creative Commons Attribution CC BY

# International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Impact Factor (2012): 3.358

Risks are associated with disruptions and poorly perceived quality of products	43	1	5	2.43	.979
Supply chain risk management helps to reduce uncertainty of demand	43	1	5	2.42	.982
Valid N (list wise)	43				

#### The relationship between risk management techniques and supply chain performance

		Risk	Supply
		Management	Chain
		Techniques	Performance
Risk	Pearson Correlation	• 1	.306*
Management	Sig. (2-tailed)		.046
Techniques	N	43	43
Sumply Chain	Pearson Correlation	.306*	1
Supply Chain	Sig. (2-tailed)	.046	
renormance	N	43	43
*. Correlation	is significant at the 0.	05 level (1-tailed	d).

# The relationship between Risk management Policies and supply chain performance

	Risk	Supply Chain					
	Management	Performance					
	Policies						
Pearson Correlation	1	.253					
Sig. (2-tailed)		.102					
N	43	43					
Pearson Correlation	.253	1					
Sig. (2-tailed)	.102						
N	43	43					
	Pearson Correlation Sig. (2-tailed) N Pearson Correlation Sig. (2-tailed) N	Risk Management PoliciesPearson Correlation1Sig. (2-tailed)43Pearson Correlation.253Sig. (2-tailed).102N43					

#### The relationship between the Competence of Risk Managers and Supply chain performance

		Competence	Supply Chain
		of Risk	Performance
		Managers	
Competence of Risk Managers	Pearson Correlation	1	. 425*
	Sig. (2-tailed)		.001
	N	43	43
Supply Chain Performance	Pearson Correlation	. 425*	1
	Sig. (2-tailed)	. 001	
	N	43	43

\*. Correlation is significant at the 0.05 level (1-tailed).

## **Correlation Matrix**

		Risk Management	Risk Management	Competence of	Supply Chain		
		Techniques	Policies	Risk Managers	Performance		
	Pearson Correlation	1	.496**	.376*	.306*		
Risk Management Techniques	Sig. (2-tailed)		.001	.013	.046		
	Ν	43	43	43	43		
Risk Management Policies	Pearson Correlation	.496**	1	.548**	.253		
	Sig. (2-tailed)	.001		.000	.102		
	Ν	43	43	43	43		
	Pearson Correlation	.376*	.548**	1	. 425*		
Competence of Risk Managers	Sig. (2-tailed)	.013	.000		.001		
	Ν	43	43	43	43		
Supply Chain Performance	Pearson Correlation	.306*	.253	. 425*	1		
	Sig. (2-tailed)	.046	.102	.001			
	N	43	43	43	43		
	*. Correlation is s	ignificant at the 0.05	i level (1-tailed).				

# References

- Agrawal, A., & S. Chadha. (2005). Agency Theory in Financial Management. *Journal of Financial Management* (48): 371-406.
- [2] Angeles, P. D. (2005). The alignment of appropriate firm and supply strategies for competitive advantage. *International Journal of Operations & Production Management*, 25(5/6), 403-430.
- [3] Ballau, K., (2007). "Supply chain management: a structured literature review and implication for future research," *International Journal of Operation & Production Management, vol. 26, no. 7, pp. 703-723.*
- [4] Bayraktar, E., Lenny, S., Tatogulu, E., & Selim, Z., (2010) "The impact of supply chain management practices on performance of SMEs," *Industrial Management & Data Systems*, vol. 107, no. 1, pp. 103.

- [5] Bernardes, E.S. (2010). The effect of supply management on aspects of social capital and the impact on performance. *Journal of Supply Chain Management*. 46(1), 45-66.
- [6] Bowden, A., Lane, M. and Martin, J. (2007) Triple Bottom Line Risk Management. New York, Capstone Publishing Limited.
- [7] Bussing, C. Tan, S. Lyman., & J. D. Wisner, (2006)"Supply chain management: a strategic perspective," *International Journal Operation & Production Management*, vol. 22, pp. 614-31.
- [8] Chopra, M., & Sodhi, M. S. (2004). Managing Demand Risk in Tactical Supply Chain Planning for a Global Consumer Electronics Company. *Production and Operations Management* 14(1), 69–79.
- [9] Chikan, A. (2008). Measuring the Efficiency of Decision Making Units. European *Journal of Operational Research* 2, 429-444.

- [10] Cox, P.D. (2009), "The implications of socialization and integration in supply chain management", *Journal* of Operations Management, Vol. 24, pp. 604-20.
- [11] Eccles, T. & Holt, A. (2008), Agency Theory, Journal of Financial Management, Vol. 19 No.5, pp. 321-32.
- [12] Elizabeth, M., Mike, I., Shadrack, M., (2013) "Effect of Procurement Regulations adherence on Administration of the Procurement Process in Kenyan Public Entities," : A case study of Kenya Rural Roads Authority. 505.
- [13] Frankel, Y. A. Bolumole, R. A. Eltantawy, A. Paulraj, G. Gundlach, (2008) The domain and scope of SCM's foundational disciplines: Insights and issues to advance research. *Journal of Business Logistics*.
- [14] Handfield, Taylor, & Nichols Paul (2009), "Supply chain improvement: the lean approach," *Logistic Focus* vol. 7, pp. 14-20.
- [15] Gonzalex, T., Padron, B., (2008). 'Analytical Framework for the Management of Risk in Supply Chains'. *IEEE Transactions on Automation Science and Engineering*, 4(2): 265-273.
- [16] Hale, Y., & J. Horden (2008). Random yield risk sharing in a two-level supply chain. *International Journal of Production Economics* 112, 769–781
- [17] Horden, M. & Larsson, H.(2007). 'Managing Risk in the Supply Chain A Quantitative Study',23.04.2009.
- [18] Hendricks, B. K., & R. V. Singhal (2005). An Empirical Analysis of the Effect of Supply Chain Disruptions on Long-Run Stock Price Performance and Equity Risk of the Firm. Production and Operations Management 14(1), 35–52.
- [19] Hafeez, M., Hammond, J., Obermeyer, W., & Ananth, R. (1997), "Configuring a Supply Chain to Reduce the Cost of Demand Uncertainty," Production and Operations Management, Vol. 6, No. 3, pp. 211-225.
- [20] Harlord M. (2004), "Association Between Supply Chain Glitches and Operating Performance," Management Science, Vol. 51, No. 5, pp. 695–711.
- [21] Kenya Constitution (2011).
- [22] Kothari C. R. (2009). Research Methodology Methods and Techniques, (2<sup>nd</sup> Ed.),New Delhi, New Age International.
- [23] Li, D. R, & Visich, R. D. 2006. Special topic forum on sustainable supply chain management: Introduction and reflections on the role of purchasing management. *Journal of Supply Chain Management*, 45(4), 18-25.
- [24] Monczka, R.M., K. J. Morgan. (2009), "Success factors in strategic supplier alliances: the buying company perspective," *Decision Science*, vol. 29, no. 3, pp. 5553-5577.
- [25] Morash, R., & Clinton, R. M., (2008) Cooperative buyer/seller relationship and a firm's competitive posture, *Journal of Purchasing and Material Management*, 9-18.
- [26] Nagy, J. (2010). Types of Supply Chains and tools for management. *Doctoral dissertation*, Corvinus University of Budapest
- [27] PPOA (2008). Procurement Reforms in Kenya. Journal of Purchasing, 6(1), 5-15.
- [28] Quintana, J., & Velasco, F.(12005) Strategic Outsourcing. *Sloan Management Review*, pp 43 – 55.
- [29] Rajamani, D., Sriskandarajah, C., Pickens T. & Hameed, S. (2006). 'A Framework for Risk Management in Supply Chains'. 23.04.2009

- [30] Renn, B.(2008). An Emergent Framework for Supply Chain Risk Management and Performance Measurement. Journal of the Operational Research Society, 58, 11, 1398-1411
- [31] Taghaboni, P. (2007). 'The Impact of Pervasive Computing on the Concept of Supply Chain Event Management'. *Proceedings of the 5th International Logistics and Supply Chain Congress*, 8th - 9th November, İstanbul, 97-104.
- [32] Thun S., & Hoenig P. I., (2008) Embracing sustainability; Information technology and the strategic leveraging of operations in third-party logistics. *International Journal of Operations & Production Management.* 30(3).
- [33] Vlahos M., (2005) Logistics and Supply Chain Management-Creating Value-Adding Networks, Financial Times, Prentice Hall.
- [34] Wieland, K. & Wallenburgl, (2011), "An Empirical Analysis of the Effect of Supply Chain Disruptions on Long-Run Stock Price Performance and Equity Risk of the Firm," Production and Operations Management, Vol. 14, No. 1, pp. 35–52.
- [35] Zsidisin, G. A. & Ritchie, B. (2001). Supply Chain Risk Management- Developments, Issues and Challenges. *In:* Zsidisin, G. A. & Ritchie, B (eds). Supply Chain Risk: A Handbook of Assessment, Management, and Performance. Springer, New York, 1-12.
- [36] Zsidisin, G. A., & Ritchie, B. (2009). Supply Risk Perceptions and Practices: An Exploratory Comparison of German and US Supply Management Professionals. *International Journal of Technology, Policy and Management*, 8, 4, 401-419.
- [37] Zakaria, P. D., (2005) The alignment of appropriate firm and supply strategies for competitive advantage. *International Journal of Operations & Production Management*, 25(5/6).