AN ANALYSIS OF THE EFFECTS OF RISK MANAGEMENT PROCESSES ON SUPPLY CHAIN PERFORMANCE IN THE INSURANCE INDUSTRY IN KENYA

(A CASE OF KENYA REINSURANCE CORPORATION LIMITED)

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ABSTRACT

Risk Management is defined in the standard (AS/NZS 4360:2004) as the systematic application of management policies, procedures and practices to the tasks of establishing the context, identifying, analysing, assessing, treating, monitoring and communicating. This study sought to find out the effects of risk management process on supply chain performance in insurance industry having Kenya Re as its case study. The main factors that was examined include; monitoring, business planning, resource allocation and risk reduction. The methodology of this study was purely qualitative. The study adopted stratified sampling to pick the respondents from a target population of 105 employees at the Kenya Re, Nairobi office. Data was obtained through primary data sources by means of face to face interviews guided by questionnaires administered to a selected sample. A total of 32 employees sampled from different departments formed the respondents of this study. The questionnaires was administered through drop and pick later method to the respondents. Once collected, the data was presented using tables and figures. Findings from the study revealed that the highest predictor for Supply Chain Performance is Risk Resource allocation with a beta value of 0.635 followed by Risk Planning with a beta value of 0.548 then Risk Reduction with a beta value of 0.355. Risk Monitoring is the least predictor of Supply Chain Performance with a beta value of 0.323. The study concludes that risk planning is very essential in supply chain performance since it reduces possible supply chain risks. This is bearing in mind that results from monitoring should be used in controls the

study also concludes that risk planning indeed reduces disruptions in supply chain and thus mitigates risks in the supply chain which is an essential variable in supply chain performance. The study recommends that In order to ensure that the resources allocation process is efficient; the players in the insurance industry should engage a broad range of stakeholders in order to ensure that the process is reasonable and they are accountable. The study recommends further research on the compatibility of risk management and business process management, including the ability to minimize risks in business processes by design and to mitigate such risks at run time.

KEY WORDS; Monitoring, Performance, Resource Allocation, Supply Chain, Supply Chain Management.

INTRODUCTION

Background of the Study

Risk is a concept that has applications in everything we do. It has several components, not the least of which is the lack of knowledge about the events that may impact us and our ability to manage them. In order to understand risk we first need to define and decompose it, specifically as it pertains to the supply chain. Under these statements, a common sense definition of risk – acknowledged by the International Organization for Standardization (ISO, 2002) – mainly deals with two of its essential components: losses (along with related amounts) and uncertainty of their occurrence.

Another similar definition given by Culp (2008) states that risk can be defined as any source of randomness that may have an adverse impact on a person or a corporation. In the financial

industry, operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events (New Basel Capital Accord, 2009).

As a first attempt of definition, supply chain risk can be divided, according to its source, into demand-side (resulting from disruptions emerging from downstream supply chain operations (Jüttner, 2007), supply-side residing in purchasing, supplier activities, and supplier relationships, and catastrophic risks subsumes supply chain disruptions that, when they materialize, have a severe impact in terms of magnitude in the area of their occurrence (Wagner and Bode, 2008). Treleven and Schweikhart (2009) have classified risks into five categories, connected with disruption, price, inventories and schedule, technology, and quality.

In the actual economic environment, efficiency for manufacturing firms is moving from an internal to a supply chain priority. There leval of fright management of the supply chain is connected to the possibility that it offers to the firms to reach a competitive advantage on the market (Cousins and Spekman, 2003). Several studies on supply chain strategies (Handfield and Bechtel, 2004) and practice generally find that broader integration leads to improved performance, more specifically the investments made in supply chain have allowed to lean the productive process, to increase the level of consumers satisfaction, and to improve the inside productivity. Nowadays the competition is not among single firms, but on the contrary, among supply chains (Caputo et al., 2005).

According to several approaches in managerial literature, before selecting the correct strategy of supply chain, it is necessary, first of all, to understand which are the sources of uncertainty in the network, and in secondly, individualize the most correct way for reduce such level of

uncertainty. At the same time, the individualization of the uncertainty sources is more and more complex due to the increasing complexity of the supply chain (Sadler & Gough, 2005)

Over the past two decades, supply chain management has come to be seen as a key component of organisational competitiveness and effectiveness (Porter, 1985; Womack & Jones, 2005). In the same period, most large, and many small, organisations have put a great deal of effort into improving their own and their suppliers' supply chain performance (Burnes and Dale, 1998; Christopher, 2005; Hines et al., 1999). To a large extent, much of this effort has been aimed at improving the efficiency, i.e. lowering costs, of supply chain operations (Kilgore, 2003; Radjou, 2002).

However, as Hendricks and Singhal (2005) argue, in developing supply chain strategies which focus on cost reduction, organisations have ignored or played down the risks from supply chain disruptions. Cousins et al. (2004) suggest that there are two main types of supply chain risk to which companies can become exposed: technological risk – over-reliance on a single or limited source of a product, process or technology; and strategic risk – over-reliance on a single or limited number of suppliers. Cousins et al. also suggest that some of the measures which companies take to improve the efficiency of their supply base, such as de-listing under-performing suppliers, may increase their exposure to technological and strategic risk by increasing their reliance on the remaining pool of suppliers.

As Hendricks and Singhal (2003) note, the failure to manage supply chain risks effectively can be very costly. They found that, on average, major supply chain disruptions can reduce the stock market value of a company by 10 per cent. Indeed, moving beyond supply chain risks and looking at the risks faced by organisations in general, Hood and Young (2005) maintain that

many organisations may have gone out of business because of their failure to adopt effective risk management strategies (Railtrack, Barings Bank and Enron)

Statement of the Problem

Supply chains have become longer and more complex, while the severity and frequency of supply chain disruptions seems to be increasing. Significant supply chain disruptions reduce the share price of affected companies by as much as 7% on average (WEF, 2012). 80% of companies worldwide see better protection of supply chains as a priority and gives more emphasis on risk sharing through insurance (WB, 2012). A study by Zurich Global Corporate North America done in conjunction with the Business Continuity Institute, found that 70% of the companies undergone some kind of business risk disruption. The data indicates that 40% of companies that experience a supply chain risk disruption of more than a year don't recover. This therefore impacts negatively on supply chain performance (ZGC, 2010).

The insurance industry in Kenya has gone beyond ignorable level with the rising cases of risky disruptions involving major supply chain firms. According to a Standard report dated 19th January, 2013, destruction of the Kenya Medical Supplies Agency (KEMSA) drugs worth of millions shillings by fire in Nairobi, disrupted the drug distribution chains in the entire country. Further on 12th September 2011, a pipeline explosion that destroyed fuel, affected the entire pipeline oil supply chain in Kenya; insurance has played a significant role in resuscitating the companies back and the effect is far reaching (WEF, 2011). It is against this problem statement that the study is carried out so as to come up with viable solutions to the same.

Specific Objectives

This study aimed to achieve the following four under listed objectives:

   i.   To examine the effect of risk monitoring on supply chain performance in insurance industry in Kenya.

   ii.   To establish the effect of risk planning on supply chain performance in insurance industry in Kenya.

   iii.   To determine the effect of risk resource alocation on supply chain performance in insurance industry in Kenya.

   iv.   To ascertain whether risk reduction has an effect on supply chain performance in insurance industy in Kenya.

Conceptual Framework

Conceptual framework is a scheme of variables which the study operationalizes in order to achieve the set objectives. A variable being the measurable characteristic that assumes different values among the subjects, independent variables are the ones that the study manipulates in order to determine their effects on another variable. The dependent variable attempts to indicate the total influence arising from the effects of the independent variables. It therefore varies as a function of the independent variables (Mugenda & Mugenda, 2003)

Independent variable, according to Nachmias & Nachmias (2009) is the presumed cause of changes in the values of the dependent variable; the dependent variable is expected to be

influenced by the independent variable. This is illustrated in figure 2.1 below. The independent variables in this study are risk monitoring, risk planning, risk resource allocation, and risk reduction and how they affect supply chain performance in insurance industry in Kenya.

Independent Variable

Dependent Variable

Risk Monitoring

- Risk Reduction
- Expertise
- Control
- Relevance

Risk Planning

- Emergency contingency
- SC Disruption
- Loss Mitigation

Supply Chain Performance

- Sustainability
- Dependability
- Adaptability

44

Risk Resource Alocation

- Right Resources

- Adequate Supply

- Affordability

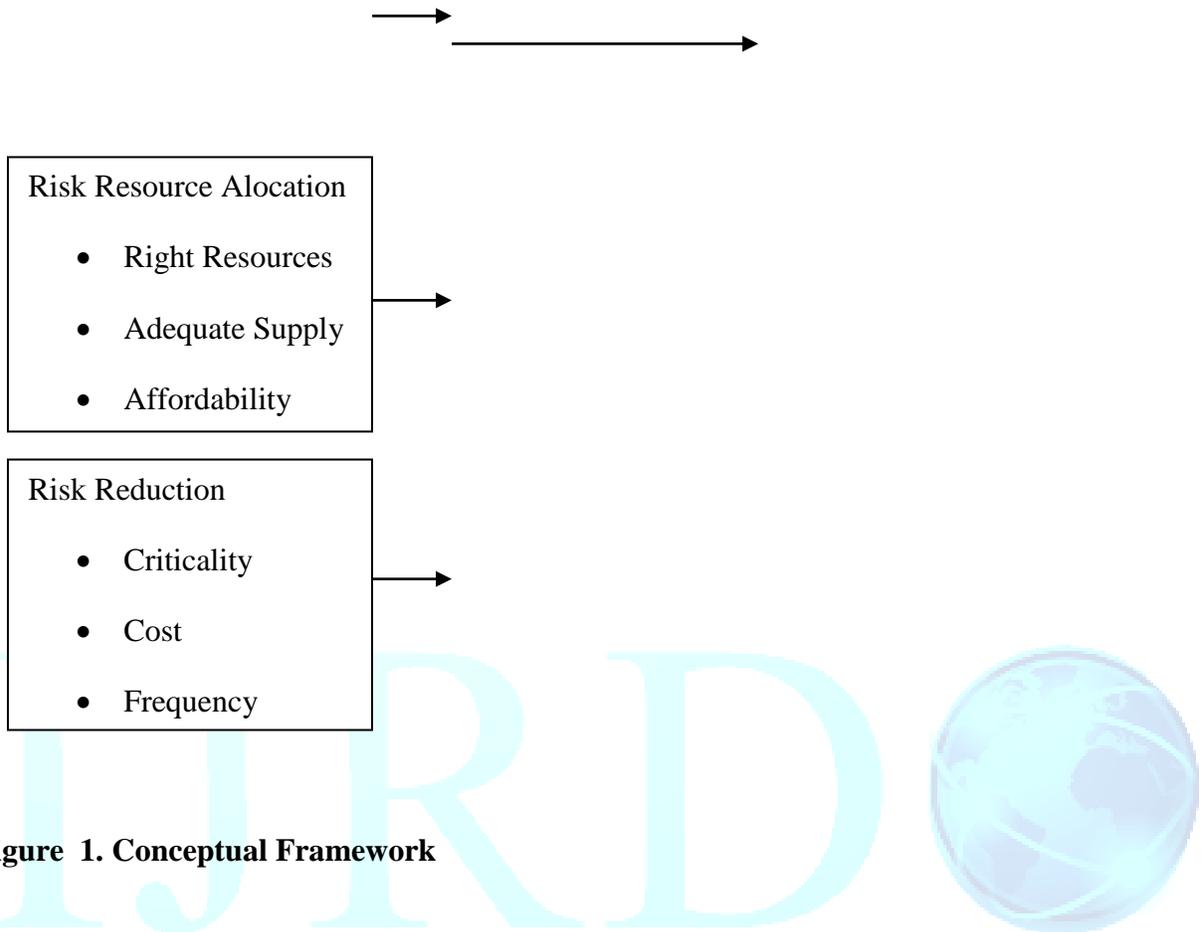Risk Reduction

- Criticality

- Cost

- Frequency

Figure 1. Conceptual Framework

Risk Monitoring

Monitoring is an essential part of the adaptive management cycle. Monitoring involves gathering information on the impacts of actions and progress towards objectives as a basis for future action (Jiggins & Roling 2008). Processes of learning and applying lessons are therefore essential for the improved management of natural resources in the future (Mahanty *et al*. 2007, Smith & Smith 2009). Thus, Mee (2010) describes adaptive management as a process of 'learning by doing'.

The risk monitoring process includes identifying, analyzing, planning, and tracking new risks; constantly reviewing existing risks; monitoring trigger conditions for contingency plans; and

monitoring residual risks . It alsoincludes reviewing the execution of risk responses while evaluating their effectiveness. Risks canbe monitored using routinely collected indicators in the LMIS or using new indicators specifically designed for risk management. Examples are included in the TRAC decision support tool, which is part of this toolkit (Smajgl & Larson 2007).

Creating opportunities to adapt to changing conditions requires not only continual involvement and monitoring, but also explicit incorporation of changing employee values and priorities. The importance of employee engagement in the modern, forward-thinking management system is therefore increasingly acknowledged (O'Riordan 2009). The focus of engagement monitoring is increasingly shifting towards design of processes that facilitate learning and joint action to determine agreed outcomes, rather than designing for a particular outcome (Mahanty *et al*. 2007).

Risk Planning

Supply chain risk management is "the implementation of strategies to manage both every day and exceptional risks along the supply chain based on continuous risk assessment with the objective of reducing vulnerability and ensuring continuity" SCRM 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 and thereby profitability.

Sometimes, it's possible for supply chain logistics techniques such as supply chain optimization to prejudice contingency planning which would otherwise reduce the overall risk level for that particular supply chain.Planning the risks and needs of supply chain has become standard practice in the insurance industry (Upperton & Thompson, 2007) so an understanding of the concepts of risk and need is essential. Indeed, judgments about risk and need factors form the basis for important decisions involving supply chain players (Worling and Langstrom, 2003; Kemshall, 2008). While it is reasonable to assume that practitioners have a shared understanding of risk across the various sectors, Raynor et al (2000) caution that they may have different understandings of risk. Different understandings of the concept can also occur within the same sector (Little et al, 2004).

Criticisms have addressed the the oretical foundations of risk planning, particularly the impossibility of forecasting (Mintzberg, 1994), while empirical evidence both longitudinal case studies (Mintzberg and Pascale, 2009) and investigations of strategic decision making (Burgelman, 2006) points to strategies emerging from the weakly coordinated decisions of multiple organizational members. Increased volatility of the business environment makes systematic risk planning more difficult. Rapid change requires strategies that are flexible and creative characteristics which, according to Hamel, are seldom associated with formallzed planning: 'In the vast majority of companies, risk planning is a calendar-driven ritual which assumes that the future will be more or less like the present' (Hamel, 2006). Eisenhardt's research into 'high velocity environments' points to the advantages of 'semico herent' strategic decision-making processes that are unpredictable, uncontrolled, inefficient, proactive, continuous, and diverse (Brown & Eisenhardt, 2007). If complexity and uncertainity renders decision making

impossible. then self-organization may be more conducive to high performance than hierarchical direction (Pascale, 2009).

Risk Resource Allocation

Risk resource allocation and priority setting are challenging issues faced by insurance policy decisionmakers requiring careful consideration of many factors, including objective such as reason and subjective like empathy elements (Browman, 2009). Criteria used to evaluate insurance interventions and allocate resources are likely to have profound implications, especially regarding ethical aspects. Ethical principles of resource allocation set forth by for example the World Health Organization (WHO) include efficiency (maximizing population health), fairness (minimizing health differences) and utility (greatest good for the greatest number) (Ghaffar, 2007).

Consideration of these often conflicting principles requires pragmatic frameworks and the engagement of a broad range of stakeholders to provide accountability for reasonableness (A4R). Limited resources and inequities in healthcare in both wealthy and developing countries underline the need to allocate optimally (Oncol, 2008). As argued by various authors, choices may not be based on rational and transparent processes highlighting the need for processes that take this into account.

Indeed, if the mechanism employed to guide the distribution of resources is inequitable, the outcome is also likely to be. Thus, how resources are allocated by health policy decisionmakers around the world remains a challenging issue. Priority-setting is defined as the process by which healthcare resources are allocated among competing programs or people. In the context of increasing healthcare costs in many countries around the world, effective approaches to explicit

appraisal and priority setting are becoming critical to allocate resources to healthcare interventions that provide the most benefit to patient health as well as contributing to healthcare systems' sustainability, equity and efficiency(Bowen, 2010).

Indeed, elucidating decision criteria and how they are considered are key to establishing accountability and reasonableness of decisions and fulfils the A4R framework set forth by Daniels and Sabin (2009). Over the past decades, a number of empirical studies have explored systematic approaches to optimize evaluation of healthcare interventions and priority-setting. A number of tools with defined criteria to evaluate and rank interventions have been developed, recognizing the need for such approaches. As part of a larger collaborative endeavour exploring decision criteria, the aim of this study was to analyse the peerreviewed literature to identify criteria reported in empirical studies that involved healthcare decisionmakers and in studies describing multicriteria tools(Bow, 2007)

Risk Reduction

Moral hazard is widely reported as a problem in credit and insurance markets, mainly arising from information asymmetry. Although theorists have attempted to explain how group lending with joint risk can be an important tool for mitigating moral hazard among the poor, empirical studies are rare and sometimes give mixed results (Chapman, 2006).

In Malawi, for example, although, group lending with joint risk has been practiced for nearly four decades, the unwillingness to repay loans remains the single major cause of default. This study examines the extent of occurrence of moral hazard and investigates its determinants of occurrence among joint risk lending programs from Kenya Re. The study seeks to know whether

risk can be reduced by avoiding peer selection, peer monitoring, peer pressure, dynamic incentives and variables capturing the extent of matching problems . The implications are that joint risk lending institutions will continue to rely on social cohesion and dynamic incentives as a means to enhancing their performance which has a direct implication on their outreach, impact and sustainability in the supply chain (Barton, 2008)

Empirical Review

Research on supply chain risk management classifies risks into operational risks and disruptions risks (Tang, 2006) or refers to them as supply-demand coordination risks and disruption risks (Kleindorfer & Saad, 2005). Operational risks include the everyday management of the supply chain whereas disruptions risks are associated with unexpected events including natural disasters (Kouvelis et al., 2006). As a second dimension Tang (2006) suggests structuring the literature on supply chain risk management according to the mitigation approach. Supply management, demand management, product management, and information management can all contribute to a successful mitigation strategy.

Recent research stresses the importance of an integrated and holistic approach in supply chain management because a narrow view on a single focal firm cannot take into consideration the many interrelations of a global supply chain (Buhman, Kekre, & Singhal, 2005; Steele & Court, 1996; Wagner & Bode, 2006).

Research has come up so far with distinct models and management tools for various segments of the supply chain. A common classification is the distinction between upstream and downstream

supply chain initiatives. Likewise risks can occur on the supply side and on the demand side (Kouvelis et al., 2006; Manuj & Mentzer, 2008b; Wagner & Bode, 2008). Tang's (2006) classification of risk management approaches within the supply chain context also distinguishes supply management and demand management.

We follow this argumentation; however, we stress that a holistic view of the supply chain is always necessary. For example, clear knowledge about the demand side impact is necessary when assessing supply side risks regarding a potential negative business impact. Our model focuses on upstream supply chain risk management sometimes also refered to as supply risk management (Wagner & Bode, 2006; Zsidisin, Ellram, Carter, & Cavinato, 2004).

In the previous studies, surveys were sent to 823 companies, namely 594 manufacturing companies and 229 logistics service providers during a pre-study. With an average rate of return of about 10.8%, 50 manufacturing companies and 39 logistics service providers were covered in the sample. In detail, out of the group of manufacturing companies, 22% of the respondents belong to the chemical industry, 17% to the automotive industry, and 15% to the engine building industry sector. 26% of the questioned manufacturing companies consider themselves as an OEM and 30% as a Tier 1 supplier. The sample mainly contains smaller companies - 67% have less than 1000 employees. The interviewed logistics service providers mostly perform classical services such as warehousing (72%), material handling (67%), and transportation (54%). Although 41% of them performs third party logistics services "often" or "always" while even 18% o the logistics service providers perform fourth party logistics services "often" or "always" 57% of the investigated logistics service providers have less than 1000 employees.

Research Gaps

A critical review of past empirical literature shows that several conceptual and contextual research gaps exists in the discourse of the effects of risk management process on supply chain performance in insurance industry (Yang *et al*., 2007). This study covered a relatively small area at the head office of Kenya Reinsurance in Nairobi which does not represent fairly the whole Kenyan perspective having different environment. The risk in one point of supply chain might not be the same in another point. Different organizations have different structures especially in the private sectors, the constrains of one organization would remarkably be different from another therefore the outcomes of the study cannot be conclusively the same (Moe, 2014).

The management of risk in business processes has been the subject of active research in the past few years. While there has been an increasing amount of research aimed at delivering such an integrated system, these research efforts vary in terms of scope, goals, and functionality (Thomas, 2014).

Through the systematic collection and evaluation of relevant literature, this study compares and classifies current approaches in the area of risk-aware business process management in the insurance industry in order to expose and explain current research gaps. It is because of these research gaps that this study shall be carried out to establish the effect of risk management process on supply chain performance in insurance industry of Kenya (Burkhard, 2013).

RESEARCH METHODOLOGY

The design of a study defines the study type that is descriptive (because the main interest is to establish the relationship and analyze how the influencial factors supports matters under analysis in the insurance industry in Kenya), correlational, semi-experimental, experimental, review,

meta-analytic and sub-type such as descriptive-longitudinal case study, research question, hypotheses, independent and dependent variables, experimental design, and, if applicable, data collection methods and a statistical analysis plan (Creswell, 2012).

The target population for this research study was the 105 employees of Kenya Re, Nairobi Headquaters from different functional units. The sample size of the study was 30% of the target population equivalent to 32. According to Mugenda & Mugenda (2003), a sample size of between 10 and 30 % is a good representation of the target population and hence the 30% is adequate for analysis.

The study carryd out a pilot study to pretest and validate the questionnaire and the interview guide using 1% of the population which translated to 2 respondents other than the 32 sampled respondents inorder to test the reliability and validity of the research instruments.

Quantitaive data collected using questionnaires was analyzed by the use of descriptive statistics usning Statistical Package for Social Sciences (Version 26.0) because it has new formulas for statistics and shall be presented through percentanges, means and frequencies.

The study used inferential statistics which involved coefficient of correlation and multiple regression analysis to establish effects of risk management processes on supply chain performance in the insurance industry in Kenya and as well as to establish the nature of the relationship that exists between variables.

DATA ANALYSIS AND PRESENTATION OF RESULTS

The study targeted 32 respondents in the data collection however, 30 of the 32 questionnaires sent out were answered and returned making a response rate of 94%. This response rate is

considered as good and was achieved through the cooperation of the respondents and the anxious efforts made by the researcher to ensure a reliable response.

Table 1. Response rate

Department	Sample	Response
Management Services	11	**10**
Reinsurance Division	10	**10**
Property Division	5	**5**
Finance and investments	6	**6**
Total	**32**	**30**

Summary of Descriptive Statistics of the Constructs

Since a single construct in the questionnaire was measured by multiple items, the average score of the multi-items for a construct was computed and used in further analysis in this linera Regression analysis.To construct the final data set, the researcher merged the aggregated survey data set based on the means of responses.In general, the mean score for the items in the constructs (risk monitoring, risk planning, risk resource allocation and risk reduction) were average ranging from 4.1 to 2.9 on a five point likert scale. To check the validity of the instruments a cronbach alpha test was conducted all the variables had α value of the recommended 0.700 this shows that all the variables were valid.

Table 2. Descriptive Statistics for the constructs

Construct	Cronbach (α)	N	Mean	Std. Deviation
Risk Monitoring	0.899	30	2.98076	.63478
Risk Planning	0.761	30	3.97332	.59485
Risk Resource allocation	0.849	30	4.13390	.63700
Risk Reduction	0.792	30	3.72774	.63805
Supply Chain Performance	0.864	30	3.17764	.52994

Bivariate correlation

Correlation is used to determine the strength of relationship between dependent and independent variables. Correlation value of 0 shows no relationship between the independent and dependent variable whereas when the value is not or equal to 1.0, there is a perfect negative or positive relationship respectively. Values shall be interpreted between 0 (no-relationship) and 1.0 (perfect relationship) (Levin & Rubin, 2008)

The total number of respondents in this study as indicated by the N values was 30. All the tested variables were significant as all of them had a p value of less than 0.05. From the correlation analysis it can be noted that Risk Resource allocation was the highest factor affecting global supply chain performance as it had the highest correlation value of .590, risk reduction had a correlation value of 0.303 and risk planning had a positive correlation value of 0.410. The smallest predictor of supply chain performance was risk monitoring with a correlation value of 0.257

Journal of Business Management Science

Table 3. Relationship between the dependent variable and the independent variables

Variable	Correlation	Significance
Risk Resource allocation	**0.590**	**0.001**
Risk Reduction	**0.303**	**0.000**
Risk Planning	**0.410**	**0.008**
Risk Monitoring	**0.257**	**0.003**

Multiple Regression Analysis between Different Variables and Supply Chain Performance

Table 4. displays R (the correlation between the observed and predicted values of the dependent variable), which is .903. This is a very strong relationship between the observed and predicted values of the dependent variable. The regression was a good fit describing 84.4% of the variance in supply chain performance R^2adj 81.5% this indicates only a slight overestimate with the model

Table 4. Model Summary representing the linear relationship between Different Variables and Supply Chain Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.844	.815	.0048837

Table 5. An ANOVA representing the linear relationship between Different Variables and Supply Chain Performance

ANOVA[b]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.001	4	.000	7.237	.002[a]
	Residual	.000	33	.000		

	Total	.001	37			

a. Predictors: (Constant), Risk Monitoring, Risk Planning, Risk Resource allocation and Risk Reduction

b. Dependent Variable: Supply Chain Performance

The overall relationship was statistically significant ($F_{4, 33} = 7.237$, $p < 0.05$) It has a significant level of 0.041 this means that the chances are almost zero that the result of regression model are due to random events instead of a true relationship

Table 6. below represents coefficients of all the independent variables and the dependent variable. It can be noticed from the significant column that all the predictors are significant since their significant levels are 0.000 this is less than 0.05. From the findings it can be observed that the highest predictor for Supply Chain Performance is Risk Resource allocation with a beta value of 0.635 followed by Risk Planning with a beta value of 0.548 then Risk Reduction with a beta value of 0.355. Risk Monitoring is the least predictor of Supply Chain Performance with a beta value of 0.323

Table 6. Coefficients representing the linear relationship between Different Variables and Supply Chain Performance

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.047	.007		6.681	.000
	Risk Resource allocation	.635	.942	.434	2.241	.000
	Risk Planning	.548	.663	.711	3.220	.005
	Risk Reduction	.355	.162	.653	2.497	.004
	Risk Monitoring	.323	.981	.386	1.992	.004

Summary of the Findings

The study established that risk monitoring is a continuous process which in most cases it is done by a committee of experts whose results are seldom used controls and hence reducing the possibility of supply chain risks. The study also established that the members of staff do not perceive risk monitoring as a thing of the past a factor that made this parameter have the least score of 2.0 in a five point likert scale.

The study ascertained that planning reduces disruptions in supply chain as the parameter had the highest mean score of 4.3 as it enables lean supply chain with less risks the respondents agreed to the fact that risk planning is a strategy to mitigate risks in supply chain as it makes the supply chain more visible scoring a mean on 3.9 in a five point likert scale. The respondents were however not so certain with the fact that planning takes care of emergencies within the supply chain as this parameter scored the least mean of 3.3

As far as resource allocation is concern, the study revealed that resources in place are the right ones required for risk management as the parameter had the highest mean score of 4.3 as the respondents were certain that the resources in place are adequate and the right ones required for risk management. The study also revealed that allocation of resources is an affordable venture as the parameter had a mean score of 4.1. The supply of resources was a bone of contention among the respondents as they were not comfortable about its Constance.

There was a unanimous consent that risk reduction is crucial which should be a continuous process. Even though the study established that it is a somewhat expensive process, the responses obtained pointed out that it is not an impossible process as this parameter had a mean score of 3.1 in a five point scale.

Conclusions

The study concludes that risk planning is very essential in supply chain performance since it reduces possible supply chain risks. This is bearing in mind that results from monitoring should be used in controls. This is in line with the sentiments of Mahanty *et al*. (2007) who indicate that the processes of learning and applying the lessons learned is essential for the improved management of organization resources thus improving supply chain performance.

The study concludes that risk planning indeed is reduces disruptions in supply chain and thus mitigates risks in the supply chain which is an essential variable in supply chain performance. This is in line with a study carried out by Worling and Langstrom, (2003) who indicate that "...an understanding of the concepts of risk and need is essential. Indeed, judgments about risk and need factors form the basis for important decisions involving supply chain players..."

The study concludes that resource allocation is an important process which needs keen consideration first to ensure that the resources allocated are the right once and the allocation process is not expensive. This is in line with a study conducted by Ghaffar, (2007) who indicates that ethical principles of resource allocation set forth by for example the World Health Organization (WHO) include efficiency (maximizing population health), fairness (minimizing health differences) and utility (greatest good for the greatest number)

The study concludes that risk reduction is a very crucial component for supply chain performance as it depends on supply chain visibility. The study is in line with a study carried by Katsicas, (2009) who indicates that the establishment, maintenance and continuous update of a supply chain risk management provides a strong indication that a company is using a systematic approach for reducing risks

The study also concludes that risk can be reduced by avoiding peer selection, peer monitoring, peer pressure, dynamic incentives and variables capturing the extent of matching problems

Recommendations

The insurance industry should use technology to enhance business in the supply chain by monitoring aspects like overspending or late delivery which are some of the earliest indicators of business risk.

The insurance industry should take into keen consideration dynamic risks due to their impact on supply chain performance and their volatility nature which makes them unpredictable and hence difficult to solve. Organizations in the insurance industry should ensure that risk planning is not just another calendar-driven ritual thus keen consideration should be placed on the shifting and sophistication nature of risks. In order to ensure that the resources allocation process is efficient, the players in the insurance industry should engage a broad range of stakeholders in order to ensure that the process is reasonable and they are accountable.

The resource allocation process should be priority based ranging from the most likely risk to the least likely followed by the one with the most impact to the one with the least impact to business continuity. In an aim of reducing risk, the study recommends that the insurance industry should avoid peer selection, peer monitoring, peer pressure, dynamic incentives and variables capturing as this will reduce risks in a large extent.

Recommendations for Further research

Further research should be conducted to establish the effectiveness of decision theory in risk management as this phenomenon is still hypothetical. The study also recommends further research on the compatibility of risk management and business process management, including the ability to minimize risks in business processes by design and to mitigate such risks at run time.

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APPENDICES

Appendix I. Information Request Letter

Jomo Kenyatta University of Agriculture and Technology,

School of Human Resource Development,

Nairobi-Kenya.

September 2014

 Dear Respondent,

RE: REQUEST FOR INFORMATION

I, (Jennifer Sigilai) hereby write to request for your consideration of the subject to enable me conduct a study in your noble company. I am a student in Jomo Kenyatta University of Agriculture and Technology pursuing a master of science degree Procurement and Logistics Management and conducting a research study on the effect of risk management process on supply chain performance in insurance industry. This study is purely for Academic purposes and is being conducted in partial fulfillment of the award of my masters degree.

You are kindly requested to give information with utmost sincerity. All information given will be treated candidly with greatest confidentiality and shall be used for the purposes of this study only.

Thank you in advance for your time and noble information.

Yours sincerely,

Jennifer Sigilai

Appendix II: Research Questionnaire

Introduction

This questionnaire is designed to assist in collection of data on the effects of risk management process on supply chain performance in insurance industry in Kenya. The information revealed by the respondents will be treated with a high degree of confidentiality. The respondents are also assured that this information is meant for academic purposes only.

Kindly fill in the following:

Section A: Respondent Profile

Please fill in the information by ticking appropriately

1. Gender

   F   ( )   M   ( )

2. Department………………………………………………………………………

3. Duration operated in your work place

   Less than 1 Year ( )   1-5Years ( )   5 and above Years ( )

Section B: Independent Variables

i) **Risk Monitoring**

Please tick as appropriate

a. Do you consider Risk Monitoring as a factor that affect supply chain performance in the insurance industry in kenya?

Yes ( )   No ( )

If   yes,   give reasons…………………..………………………………………………………………….

……………………………………………………………………………………………………

b. Please indicate the extent to which the following risk monitoring related issues affect the performance of insurance industry supply chain in Kenya.

Based on a Likert Scale ranging fom 1-5 where 1= Very small extent 2= small extent 3= moderate extent 4= large extent 5= very large extent, place a tick against the most appropriate opinion

No.	Risk Monitoring	1	2	3	4	5
1	Risk monitoring reduces the possible supply chain risks					
2	Risk monitoring process happens continuously					
3	Risk monitoring is done by a committee of experts					

		1	2	3	4	5
4	The results from monitoring are used in controls					
5	Risk monitoring is a practice of the past					

ii) Risk Planning

Please tick as appropriate

a. Do you consider Risk Planning as a factor that affect supply chain performance in the insurance industry in kenya?

Yes ( )   No ( )

If   yes,   give

reasons…………………..………………………………………….………………….

……………………………………………………………………………………………

b. Kindly indicate the extent to which you agree with the following statements on how risk planning affects the performance of supply chain in insurance industry of Kenya.

Based on a Likert Scale ranging fom 1-5 where 1= Very small extent 2= small extent 3= moderate extent 4= large extent 5= very large extent, place a tick against the most appropriate opinion

No.	Risk planning	1	2	3	4	5
1	Risk planning is a strategy to mitigate risks in supply chain					
2	Risk planning makes the supply chain more visible					

3	Risk planning enables lean supply chain with less risks					
4	Risk planning takes care of emergencies withing the supply chain					
5	Risk planning reduces disruptions in supply chain					

iii) Risk Resource allocation

Please tick as appropriate

a. Do you consider Risk Resource Alocation as a factor that affect supply chain performance in the insurance industry in kenya?

Yes ( )   No ( )

If   yes,   give reasons…………………..…………………………………………………….………………

……………………………………………………………………………….…………………

b. Kindly indicate the extent to which you agree with the following statements on how risk resource allocation affects the performance of supply chain in insurance industry of Kenya.

Based on a Likert Scale ranging fom 1-5 where 1= Very small extent 2= small extent 3= moderate extent 4= large extent 5= very large extent, place a tick against the most appropriate opinion

No.	Risk resource allocation	1	2	3	4	5
1	Resources are set aside to take care of supply chain disruptions					
2	Resources are adequate for risk management process					
3	Resources are in constant supply in case of an emergency disruption					
4	Resource allocation is an affordable practice					
5	Resources in place are the right ones required for risk managment					

iv) Risk reduction

Please tick as appropriate

a. Do you consider Risk Reduction as a factor that affect supply chain performance in the insurance industry in kenya?

Yes ( )   No ( )

If   yes,   give reasons…………………..…………………………………………………………………………

………………………………………………………………………………………………………

b. Kindly indicate the extent to which you agree with the following statements on how risk reduction affects the performance of supply chain in insurance industry of Kenya.

Based on a Likert Scale ranging fom 1-5 where 1= Very small extent 2= small extent 3= moderate extent 4= large extent 5= very large extent, place a tick against the most appropriate opinion

No.	Risk Reduction	1	2	3	4	5
1	Risk reduction is crucial for a supply chain					
2	Risk reduction is a continuous process					
3	Risk reduction is an expensive undertaking					
4	Risk reduction is an impossible process					
5	Risk reduction depends on supply chain visibility					

v) Supply Chain Performance

Please tick as appropriate

a. Do you agree that risk management processes affects supply chain performance in the insurance industry in kenya?

Yes ( )   No ( )

If   yes,   give reasons……………………..………………………………………………………………………

………

b. Kindly indicate the extent to which you agree with the following statements on how risk management processes affects the performance of supply chain in insurance industry of Kenya.

Based on a Likert Scale ranging fom 1-5 where 1= Very small extent 2= small extent 3= moderate extent 4= large extent 5= very large extent, place a tick against the most appropriate opinion

No.	Supply Chain Perfomance	1	2	3	4	5
1	Sustainability of risk management process determines SC performance					
2	Dependability on the risk management process affects SC performance					
3	Adaptability on continuous risk management process affects SC performance					
4	Cost implication on risk management process affect SC performance					
5	Consistency in risk management process determines SC performance					

Thanks for your cooperation