



Strathmore
UNIVERSITY

Strathmore University
SU+ @ Strathmore
University Library

Electronic Theses and Dissertations

2015

Effect of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya

Gaicuhie Charles Thuo
Strathmore Business School
Strathmore University

Follow this and additional works at: <https://su-plus.strathmore.edu/handle/11071/2474>

Recommended Citation

Gaicuhie, C. T. (2015). *Effect of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya* (Thesis). Strathmore University. Retrieved from <http://su-plus.strathmore.edu/handle/11071/4722>

This Thesis - Open Access is brought to you for free and open access by DSpace @ Strathmore University. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of DSpace @ Strathmore University. For more information, please contact librarian@strathmore.edu

**Effect of Inland Petroleum Transport Risk Management Strategies on
Financial Performance of Oil Marketing Companies in Kenya**

Gaicuhie Charles Thuo

**Submitted in partial fulfilment of the requirements for the degree of Master of
Business Administration at Strathmore University**



This thesis is available for Library use on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Student's Name: **Gaicuhie Charles Thuo**

Student's Signature.....

Date.....

Approval

This thesis of Gaicuhie Charles Thuo was reviewed and approved by the following:

Dr. Fredrick Onyango Ogola

Senior Lecturer

Strathmore Business School

Strathmore University

Dr. George Njenga

Dean, Strathmore Business School

Strathmore University

Professor Ruth Kiraka

Dean, School of Graduate Studies

Strathmore University

ABSTRACT

Risk management is an integral part of day-to-day business activities in the energy industry. Oil and gas companies face a myriad of risks in today's global marketplace. Uncertainty in the inland oil transport is expensive, and its impact affects the way its customers are served. Despite increase in use of risk management strategies in oil marketing companies' management, there have been scanty empirical studies that have focused on determining the effect of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya. The objective of this study was to establish effect of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya. The study adopted descriptive survey research design to describe the general characteristic of the study population and show the relationship between the dependent and independent variables. The descriptive research design was deemed fit to establish the effects of inland transport risk management strategies on financial performance of oil marketers in Kenya. The target population was 50 oil marketing companies in Nairobi with activities on transporting and marketing petroleum products in Kenya. The study had a sample size of 75 respondents who were managers, risk management officers, depot managers, financial officers and operation officers selected using stratified sampling technique. The study collected primary data using questionnaires. The data was then analyzed using descriptive and inferential statistics. Descriptive statistics included frequency, percentages, means and standard deviations. For qualitative data, which was mainly gathered from open ended questions a qualitative data checklist was developed. Inferential statistics involved multiple regression model which was applied to determine effects of inland transport risk management strategies on the financial performance of oil marketing companies in Kenya. The study established that there existed a significant positive relationship between risk based internal audit and financial performance of Oil marketers companies. The study found that risk identification had a significant positive impact on financial performance of Oil marketers. Assessment of risks and internal audit annual plans are significant risk based audit items in inland oil transport to the achievement of financial goals. The study revealed that there existed a significant positive relationship between risk planning and financial performance of Oil marketers and a significant positive relationship between portfolio quality and financial performance of Oil marketers.

TABLE OF CONTENTS

DECLARATION.....	ii
ABSTRACT.....	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATION AND ACROMNYS	x
DEDICATION.....	xii
CHAPTER ONE	1
INTRODUCTION.....	1
1.0 Introduction.....	1
1.1 Background of the Study	1
1.2 Statement of the Problem.....	3
1.3 Research Objectives.....	4
1.3.1 General Objective	4
1.3.2 Specific Objectives	5
1.3.3 Research Questions.....	5
1.4 Significance of the study.....	5
1.5 Limitations of the Study.....	6
1.6 Scope of the Study	7
1.7 Definition of Terms.....	7
CHAPTER TWO	8
LITERATURE REVIEW	8
2.1 Introduction.....	8
2.2 Theoretical Review	8
2.2.1 Partnership Theory on Supplier relationship	8
2.2.2 Portfolio theory	10
2.2.3 SCOR theory.....	11
2.2.4 Lean theory on Transportation.....	12
2.3 Overview of Oil Marketing in Kenya	13

2.4 Determinants of Financial Performance of Petroleum Companies.....	14
2.4 .1 Profitability Measure	15
2.4.4 Market Share.....	17
2.5 Risk management Strategies in Petroleum Oil Transportation.....	17
2.5.1 Risk assessment	18
2.5.2 Risk Based Internal Audit.....	19
2.5.3 Risk Identification.....	20
2.5.4 Risk Planning.....	21
2.5.5 Portfolio Risk management.....	23
2.6 Risk Factors Facing Transportations of Petroleum Products.....	25
2.7 Empirical Review.....	28
2.8 Conceptual Framework.....	32
2.9 Research Gap	33
2.10 Summary of the Literature.....	33
CHAPTER THREE.....	34
RESEARCH METHODOLOGY	34
3.1 Introduction.....	34
3.2 Research Design.....	34
3.3 Population of the Study.....	34
3.4 Sample Design	35
3.5 Data Collection	36
3.6 Reliability and Validity of Data.....	36
3.7 Data Processing and Analysis.....	37
CHAPTER FOUR.....	39
DATA ANALYSIS, PRESENTATION AND INTERPRETITION.....	39
4.1 Introduction.....	39
4.1.1 Reliability and validity results	39
4.1.2 Validity Outcomes	40
4.2 General information.....	40
4.2.1 Gender of the Respondents	40
4.2.2 Age of the Respondent.....	41

4.2.3 Highest level of education	41
4.2.4 Business operation period	41
4.3 Risks facing inland oil transportation	42
4.4 Inland oil transport risk assessment	43
4.4.1 Level of inland oil transport risk assessment undertaken	43
4.4.3 Influence of inland oil transport risk assessment	44
4.5 Significance of the risk based audit	45
4.5.1 Significance of the risk based audit items in inland oil transport	45
4.5.2 Risk base Internal Audit Affect Financial Performance	46
4.6 Risk Identification On Inland Transportation	47
4.6.1 Level of risk identification on inland transportation of petroleum product	47
4.6.2 Importance of risk identification practices	48
4.6.3 Influence of Risk Identification on Financial Performance	49
4.7 Risk Planning for transportation risks influence Financial achievement	50
4.7.1 Influence of Risk Planning on Financial achievement	50
4.7.2 Risk planning influences financial performance	52
4.8 Portfolio Risk management	53
4.8.2 Portfolio risk management influences financial performance	54
4.9 Regression Analysis	55
4.9.1 Model Summary	55
4.9.2 Analysis of variance	56
4.9.3 Coefficients Estimate of the Variance	57
CHAPTER FIVE	60
SUMMARY, CONCLUSION AND RECOMMENDATION	60
5.1 Introduction	60
5.2 Summary of Findings	60
5.3 Conclusion	63
5.4 Recommendations	64
5.5 Recommendation for Further Study	65
REFERENCES	66
APPENDICES	72

Appendix I: Letter of Introduction..... 72
Appendix II: Questionnaire: 73
Appendix iii: List of Oil Marketers 78



LIST OF TABLES

Table 3. 1: Sampling frame.....	35
Table 3. 2: Sample size.....	36
Table 4. 1: Reliability Results.....	39
Table 4. 2: Rating the extent to which the risks are faced by company	42
Table 4. 3: Inland oil transportation risk evaluation influence on financial performance	43
Table 4. 4: Influence of inland oil transport risk assessment.....	44
Table 4. 5: Risk based auditing in inland oil transport	45
Table 4. 6: Risk base Internal Audit Affect Financial Performance.....	46
Table 4. 7: Risk Identification Practices.....	48
Table 4. 8: Risk Identification and Financial Performance	49
Table 4. 9: Influence of Risk Planning on Financial Achievement	51
Table 4. 10: Risk Planning Influences financial performance.....	52
Table 4. 11: Regular Transport Risk Evaluation	53
Table 4. 12: Portfolio Risk Management Influences Financial Performance.....	54
Table 4. 13: Model Summary	55
Table 4. 14: ANOVA (b):.....	56
Table 4. 15: Coefficients (a) of Variables.....	57

LIST OF FIGURES

Figure 2. 1: Conceptual Framework	32
Figure 4.2: Gender of the Respondents.....	40
Figure 4. 3: Level of Risk identification on Oil inland Transportation	47



LIST OF ABBREVIATION AND ACROMNYS

ERB	-Electricity Regulatory Board
ERC	-Energy Regulatory Commission
GDP	-Gross Domestic Product
IA	-Internal Auditing
ICT	- Information and communication technologies
IIA	-Institute of International
KNBS	- Kenya National Bureau of Statistics
KPC	-Kenya Pipeline Company
KPRL	-Petroleum Refineries Ltd
LNG	- Liquefied Natural Gas
NOCK	-National Oil Corporation of Kenya
OMCs	-Oil Marketing Companies
PEIA	-Petroleum Institute of East Africa
PPF	-Professional Practice Framework
RBA	-Risk Based Audit
ROI	- Return on Investment



ACKNOWLEDGEMENT

I wish to express my sincere appreciation to my family for their understanding and support during the entire period of study.

I would also like to express my sincere thanks to the my supervisor Dr. Fredrick Onyango Ogola for having agreed to supervise this research proposal and his patience in reading the drafts and continually guiding me, without which the research would not have been a reality. I would also like to thank Anthony Kiuna from Strathmore Library for the tireless efforts in assisting me get the relevant literature.

Lastly but most importantly I thank Almighty God for his guidance and providence which enabled me to undertake this proposal that is quite involving in term of time and resources.



DEDICATION

This research project is dedicated to Awinja, Wamuyu and Wanja for their support, encouragement and patience during the entire period of my study and continued prayers towards successful completion of this course. May God bless you all.

A special mention is to my dad Mwalimu Peter Gaicuhie Thuo whose last conversation with me was after my successful thesis defense and went to be with the Lord two days later, just three weeks to the graduation. Mwalimu as you rest in peace, your love for knowledge shall forever live on through us.



CHAPTER ONE

INTRODUCTION

1.0 Introduction

The chapter presents the background of the study, a brief on oil transport risk management, the profile of the oil marketers in Kenya, statement of the problem, the objectives, and significance of the study, limitations and the scope of the study.

1.1 Background of the Study

Oil and gas companies face a myriad of risks in today's global marketplace. The risks range from volatile commodity prices, which are less linked to basic supply and demand but more to global socioeconomic factors, to increased health, safety and environmental pressures, and regulations (Ghosh, 2008). Given the importance of risk management in oil marketing companies, the efficiency of risk management is expected to significantly influence financial performance. Risk management is an integral part of day-to-day business activities in the energy industry.

Since the transportation link allows the flow of goods between the various fixed points from the points of production to the points of consumption, oil companies may face various challenges that may result from the failure of the transport system which may further negatively affect the distribution network. Ballou (2004) on the other hand noted that inexpensive, high quality transportation also encourages an indirect form of competition by making goods available to a market that normally could not withstand the high cost of transportation.

Petroleum transportation requires a greater amount of care, hence use of specialized forms of transport. However, the most common forms of Petroleum transport are pipelines and (Liquefied Natural Gas) LNG vessels. Petroleum can also be transported and distributed using rail and road tanker trucks. Okogu (2002) noted that the main constrain to Petroleum sector development is the costly transportation in delivering Petroleum to the consuming markets.

The transportation and marketing of petroleum liquids involve many distinct operations, each of which represents a potential source of evaporation loss. These losses may include loading losses, which are the primary source of evaporative emissions from rail tank car, tank truck, and marine vessel operations. Loading losses occur as organic vapors in empty cargo tanks are displaced to the atmosphere by the liquid being loaded into the tanks. Ballasting losses on the other hand are a major source of evaporative emissions associated with the unloading of petroleum liquids at marine terminals (Nichols, 1977). It is common practice to load several cargo tank compartments with sea water after the cargo has been unloaded. Pipeline service has been attributed as the most dependable of all modes of transport due to few interruptions to cause transit time variability as weather is not a significant factor and the pumping equipment are highly reliable and damage for pipeline is low (Ballou, 2004).

However, pipelines are frequently subjected to vandalism in not only within the Niger Delta region of Nigeria but also among many other parts of the world. In terms of road transportation, Petroleum is transported in dedicated road gas tank trucks. However, in Africa, bad roads, poor road networks and also various hindrances such as delays at police and customs check points obstructs an effective and efficient logistics (Jespersen & Nielsen, 2004). Road infrastructures are large consumers of space with the lowest level of physical constraints among transportation modes. However, environmental constraints are significant in road construction. Road transportation has an average operational flexibility as vehicles can serve several purposes but are rarely able to move outside roads. However, due to the poor road infrastructure in Nigeria, the road transport systems have high maintenance costs (Pedersen, 2003).

On the other hand, Salavasidis (2012) indicates that transportation and distribution are two sectors of industry, which should also be mentioned regarding safety issues applied in petroleum industry. Recorded incidents provide important information regarding hazardous events like oil spills, which usually are caused at terminals or by vessels' leakage. These are damaging the environment and may even cause human losses. Also, these accidents are damaging the reputation of companies, which usually have to deal with extra costs of oil recovery and compensations. Sometimes vessels and crews are faced with piracy, which is not a random failure event (Iyer, 2011). Also, terrorists could

target pipelines and vessel as the potentially flammable material enables huge explosions. In these occasions safety problems are caused by criminal activity of some groups of people and not by random failures. Such dangerous conditions are unpredicted and in case of being attacked the destiny of the crew, the vessel and the containing fluids is unknown.

Most organizations perform the basic elements of risk management. However companies with more mature risk practices do better financially. They tend to outperform the other companies by making stronger decisions, more efficiently deploying scarce resources and reducing their exposure to negative events (Pedersen, 2003). Companies around the world have made substantial investments in personnel, processes and technology to help control business risk. Historically, these risk investments have focused primarily on financial controls and regulatory compliance. Effective risk management starts at the top with clarity around risk strategy and governance. It is critical that the proper oversight and accountability exist at the board and executive levels. In linking the risk management practices and financial performance for Oil companies, the mean scores of each risk management practices will be correlated with the (Return on Asset) ROA and (Return on Investment) ROI (Iyer, 2011). Risk management practices will be explained by risk management environment, policies and procedures, risk measurement practices, risk mitigation practices, risk monitoring practices and internal control practices. However, to what extent the risk management strategies could improve financial performance of oil marketers in Kenya is still inconclusive hence the motivation to carry this study.

1.2 Statement of the Problem

Risk management for petroleum product transportation is imperative for proactive risk management and achieving high financial performance (Chima, 2007). Kearney's (2005) identified that the risks affecting petroleum oil transport operation include government regulation 64%, financial risk 60%, interest rate volatility 51%, political and social disturbances 46%, and security threats to employees and assets 26%. Petroleum distribution operation risks encompass risks that can impact a company's financial performance and competitiveness. Kenya's oil industry contributes over 20% of the GNP (Kenya National Bureau of Statistics, 2014). The Kenyan oil marketer's petroleum

industry has been faced by a lot of risks affecting their financial performance (Petroleum Institute of East Africa, 2014). Inadequate storage facilities, volatility in transportation costs, capacity constraints, weak exchange rates, slump in the value of the shilling against the dollar, rise in prices of oil per barrel and increased role of traders and speculators are all signs of an inefficient distribution (Chris 2011). Over time the quality of pipeline performance declines due to material deterioration, cracks from corrosion, erosion and defective welding.

Inland transport risks continue to erode companies financial as indicated by (Linda, 2006). Uncertainty in the inland oil transport is expensive, and its impact affects the way its customers are served. Inland oil transport risk management strategies influences returns in oil marketing companies. However, oil companies are challenged by risks and uncertainty hindering achieving high returns (World Bank, 2004). Wanjohi and Mugure, (2008) found that companies implemented risk management strategies to minimize oil transport delays, theft and loss of oil through evaporation, overruns and failures. According to KPMG (2011), 68% of oil marketers companies in Kenya experiences oil loss despite the adoption of risk management strategies. Despite increase in use of risk management strategies in oil marketing company's management, there is no empirical studies that have focused on determining the impact of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya. This study therefore sought to establish impact of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Nairobi, Kenya.

1.3 Research Objectives

1.3.1 General Objective

The general objective of this study was to establish effect of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya.

1.3.2 Specific Objectives

The specific objectives of this study were

- i. To determine influence of risk assessment on financial performance of oil marketers in Kenya
- ii. To determine influence of risk base internal audit strategy on financial performance of oil marketers in Kenya
- iii. To determine influence of risk identification on financial performance of oil marketers in Kenya
- iv. To determine influence of risk planning on financial performance of oil marketers in Kenya
- v. To determine influence of risk portfolio management on financial performance of oil marketers in Kenya

1.3.3 Research Questions

This study sought to achieve the following specific research questions:

- i. To what extent does risk assessment influence financial performance of oil marketers in Kenya?
- ii. How does risk based internal audit strategy influence financial performance of oil marketers in Kenya?
- iii. Does risk identification significantly influence financial performance of oil marketers in Kenya?
- iv. How does risk planning influence financial performance of oil marketers in Kenya?
- v. How does risk portfolio management financial performance of oil marketers in Kenya?

1.4 Significance of the study

The outcome of the research will be most beneficial to the oil marketing companies to provide the management and investors in these companies with insight into the various approaches towards inland transport risk management techniques, how effective risk

management techniques are in mitigating risks and their influence on financial performance.

This research will also benefit the government in the developing policy papers, policymaking regarding taxation and other regulatory requirements of oil marketing in the country. The policy makers will gain insights on how well to incorporate the sector effectively to ensure effective mitigation of inland oil transportation risks for the oil companies so as to achieve high financial gains.

Academicians will be furnished with relevant information regarding effect of risk management techniques on financial performance in oil sector. The study will add to the body of empirical literature on financial risk exposure of oil firms and form a basis for further research

1.5 Limitations of the Study

The researcher encountered various limitations that tend to hinder access to information sought by the study. The respondents that were approached were reluctant in giving information fearing that the information sought would be used to intimidate them or print a negative image about the institutions. The researcher handled the problem by having an introduction letter from the university and assuring them that the information they would give would be treated confidentially and it will be used purely for academic purposes.

The researcher also encountered problems in soliciting information from the respondents as the information required was subject to areas of feelings, emotions, attitudes and perceptions, which cannot be accurately quantified and/or verified objectively. The researcher encouraged the respondents to participate without holding back any information they could be having as the research instruments will not bear their names.

The study adopted descriptive analysis on the data analysis, which is subject to one limitation, which relates primarily to the low sample base that used sub-group analysis. Whereas this limitation may constrain analysis, it is not likely to be a source for less credible information due to relatively high levels of homogeneity within each subgroup. To mitigate this limitation, the following approaches were applied during data analysis. The descriptive statistics, which was based on, mean score, standard deviation and Z-scores this ensured that the entire sample base was represented throughout analysis. The

study also employed inferential statistics, partial regression analysis, Kaiser-Meyer-Olkin (KMO) Test 1 to ascertain the value of < 0.50 and significance level of ($p < 0.05$), which are appropriate for accepting statistical analysis results.

1.6 Scope of the Study

The study was limited to establishing the effects of inland petroleum transport risk management strategies on the financial performance of oil marketing companies in Kenya. The study focused on the oil marketers companies in Nairobi.

1.7 Definition of Terms

Investment Risk Management: This is the human activity which integrates identification of risk, risk assessment, measurement, monitoring, developing strategies to manage it, and mitigation of those risks which can threaten investment achieving performance (Hillson, 2002).

Risk: This is a hazard, chance of loss or of bad consequences or exposure to mischance (Fernandes, Barbosa & Povoia, 2009).

Risk Management- Risk management is a structured approach for the identification, assessment, and prioritization of risks followed by planning of resources to minimize, monitor, and control the probability and impact of undesirable events (Olsson, 2008,).

Risk Management strategy- It is a structured and coherent approach to identifying, assessing and managing investment risk (De Bakker, Boonstra and Wortmann, 2010)

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, past studies have been reviewed in regards to effects of risk management strategies on financial performance of oil marketing companies. The study also presents theoretical, empirical and conceptual framework. Only the issues in the objectives will be featured, critically reviewed and discussed.

2.2 Theoretical Review

The importance of practising investment risk management strategies is to increase significance to investment financial performance. The study will be guided by the following theories.

2.2.1 Partnership Theory on Supplier relationship

The common model through which theorists study the relationship between the supplier and buyer is known as the partnership theory. In its basic nature, the partnership model depicts the buyer and suppliers as partners with a common interest, which is customer satisfaction (Larson, 2001). Partnership is a business relationship based on mutual trust, openness, shared risks and rewards that enables an organization gain competitive advantage leading to the company achieving a performance that's far much greater than the firms would have achieved when operating as single entities. This model requires efficient information exchange between the buyer and supplier, which is a critical element of any partnership (Morton, 2003).

The theory further states that any partnership is always based on value and respect for each other. Fernandes, Barbosa and Povoá, (2009) noted that the solid and long term relationship simply implies continuous improvement of the organization performance. Suppliers must provide better services that are of high quality than his competitors at a

price reasonable and still achieve goals to remain in business (Payne & Ballantyne, 2001).

Kojima, Mathews, and Sexmith, (2010) indicated that Partnership model increases a company's efficiency through way of cooperation; both parties obtain cost reductions which leads to price reductions and therefore increasing the market share and profit margin as well. This leads to a company gaining a competitive edge and efficiency. The characters which form the perceived attributes of partnership are high frequency of both formal and informal communication, cooperative attitude, trusting relations are built, problem solving that is win-win negotiation style, long term business agreement, open sharing of information and there is always vendor certification and defect prevention approach (Kieyah, 2011).

The study is based on partnership theory to deal with risk assessment and interactions in ICT enterprise investments. Indeed, such investments are exposed to numerous and interdependent risks of various nature, which makes their management more difficult. In this study network theory is presented aiming at identifying key elements in the investment structure of interrelated risks potentially affecting an investment (Hamimah, 2008).

There are three types of partnership; the type 1 which is the most used. Companies recognize each other as partners, all the activities are coordinated, and planning is short term. Only one division within the organization is involved. According to Pedersen, (2003), the second type is the type 2 partnership which basically integrates activities rather than coordinating as in the case in type 1. There are multiple divisions and entails a long term horizon while the last type of partnership is the type 3 partnership which is not used frequently where Companies share high operational integration and each views the other as an extension of their firm, Only one division within the organization is involved (Tuten and Urban, 2001). The partnership theory has three elements, which are drivers, facilitators and components. The drivers: each party must have a driver strong enough to provide them with realistic expectations of significant benefit through strengthening of the relationship. Facilitators on the other hand include corporate compatibility, mutuality, managerial philosophy and techniques and symmetry.

The final element is the components, which are the factors that can be controlled in a partnership by the management. They include planning, joint operating controls, communications, risk/reward sharing, trust and commitment, contract style, scope and financial investment (Larson, 2001). In order to effectively manage risk the company needs to develop efficient partnership to grow and achieve better returns.

2.2.2 Portfolio theory

Portfolio Theory was developed in the 1950s through the early 1970s and was considered an important advance in enterprises management. Since then, many theoretical and practical criticisms have been levelled against it. These include the fact that enterprise returns do not follow a Gaussian distribution or indeed any symmetric distribution, and those correlations between asset classes (Michael, 1998). Portfolio theory of investment, which tries to maximize portfolio, expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of the investment. Portfolio Theory is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment that has collectively lower risk than any individual investment. A collection of both types of investment units can therefore have lower overall risk than either individually (Trbojevic and Carr, 2000). But diversification lowers risk even if investment' returns are not negatively correlated indeed, even if they are positively correlated.

More technically, portfolio theory models investment performance as a normally distributed define investment risk as the standard deviation of investment objective, and models a portfolio as a weighted combination of investment so that the achieved success of a portfolio is the weighted combination of the investment performance (Wang, 2001). By combining different investment units whose returns are not perfectly positively correlated, portfolio theory seeks to reduce the total variance of the portfolio return. Portfolio theory also assumes that investors are rational and markets are efficient.

Portfolio theory of investment tries to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Although Portfolio Theory

is widely used in practice in the financial industry and several of its creators won a Nobel Prize for the theory, in recent years the basic Portfolio Theory have been widely challenged by fields such as behavioral economics (Marckowitz 1952)

2.2.3 SCOR theory

The SCOR theory on warehousing Supply Chain Operations Reference model (SCOR) was first developed by the management consulting firm PRTM, now part of PricewaterHouse Coopers and was endorsed by supply chain council as a supply chain management diagnostic tool (Rolf, 2007). The management defines SCOR as a tool that enables the users to address, improve and communicate the activities within a supply chain and all the other parties involved. It spans from supplier to the customer (Siddharth, Subhash, & Deshmukh, 2008). This model was developed to clearly show the cycle involved in satisfying the customer demands and is based on process modeling, performance measurements and best practices. The process modeling pillar assist in describing simple and very complex supply chain activities. SCOR is based on a number of distinct management processes, which include planning, sourcing, make decisions, deliveries and financial performance. Plan as a management process entails balancing aggregate demand and supply to develop a course of action which will best meet the source, production and delivery requisition. Source is all about procuring of goods and services that will meet the demand in the market (Manuj and Mentzer, 2008).

Delivery has to do with processes of providing finished goods and services to meet the demand and this also includes order management, transport management and distribution management. Finally return entails processes associated with the return and receiving of returned products for reasons best known by the customer (Shreekant, 2012). The scope of the model covers the interaction of the customer from order entry to invoice payment, all product transactions from the supplier to the customer in the supply chain including the spare parts, supplies, and the interaction in the market from understanding the knowledge on demand aggregate to the fulfillment of each order made. Other assumptions addressed by SCOR include the following; training, quality, information technology and general administration (Peter, 2012).

The theory was developed for effective communication among partners of the supply chain. It also facilitates collaboration which is inter and intra within the supply chain, horizontal integration (Peter 2012). The model is used to describe, measure and evaluate supply chains in a move of supporting the strategic plan and continuous improvement. The performance measurements pillar contains more than 150 key indicators that are used to measure performance of the supply chain operations (Varma, Wadhwa, & Deshmukh, 2008). The SCOR performance metrics are organized in some of a hierarchy and level 1 metrics are typically used by top management decision makers to measure overall oil transport performance. Level 1 metrics are primary and do not necessarily relate to a SCOR level process which are plan, source, make, deliver and financial performance (Rolf, 2007).

The best practices pillar basically identifies what activities should be performed once the performance of the supply chain operations has been measured and performance gaps identified (Shreekant, 2012). The SCOR model defines best risk management practice as a current, which must not be emerging, structured; with stated goals, scope, process and procedure, proven; that is with proven success and repeatable method for making a positive impact on desired operational results (Simchi -Levi, 2008).

2.2.4 Lean theory on Transportation

Lean is a functional model, which basically discounts the value of economies of scale and focuses on how to reduce costs as a result of small, incremental and continuous improvement (Robert, 2006). Lean transportation has certainly become increasingly significant in transport management. Initially organizations involved in manufacturing of products used to involve themselves in lean manufacturing techniques, this has ceased as lean has expanded beyond manufacturing (Linda, 2006).

Lean transportation law seeks to explain how an organization should manage its transportation system and needs. It states that transportation can be used as a strategic differentiator by the organization and further goes on to say that not all transportation is about waste (Robert, 2006).

The theory states that transportation strategies developed by an organization should support the customer's needs and expectations. Transport strategies should not be a driver on how and when a product will be delivered to a customer, rather, the customers' expectations should be understood and transport strategies designed purposely to meet those expectations (Saat, *et al*, 2014). Real savings can only be realized through day to day management and optimization of transportation requirements variability. This therefore implies that costs reduction associated with transportation cannot be achieved through inconsistent transportation network designs (Robert, 2006). Effective method of transportation of oil eliminates cost risks in that the transport manager has the responsibility of always moving oil quantities for both inbound and outbound shipment efficiently.

2.3 Overview of Oil Marketing in Kenya

Kenya is a net importer of petroleum products and has a refinery owned and managed by the Kenya Petroleum Refineries Ltd (KPRL), an oil pipeline from Mombasa to Nairobi and Western Kenya with terminals in Nairobi, Nakuru, Eldoret and Kisumu, run by the Kenya Pipeline Company (KPC). Both KPRL and KPC are substantially government controlled (KPRL 50% and KPC 100%). The sector has over 50 oil marketing companies (OMCs) comprising of four major companies namely Vivo Energy Kenya, Total, KenolKobil, Libya Oil and other emerging oil companies, which include the Government owned National Oil Corporation of Kenya (NOCK). Prior to 1994, the government, in consultation with the oil marketers, set consumer prices for petroleum products in the country (Nikula, and Tynkkynen, 2007). However, since October 1994, the procurement, distribution, and pricing of petroleum products were liberalized with a view to enhancing operational efficiency of the industry and also attracting private capital. In 2006, the Energy Act No. 12 of 2006 was enacted. This led to the transformation of the then Electricity Regulatory Board (ERB) to the Energy Regulatory Commission (ERC) to also regulate petroleum and renewable energy sectors in addition to electricity.

According to Mwirichia (2011), ERC is a single sector regulatory agency with responsibility for economic and technical regulation of electric power, renewable energy and downstream petroleum sub-sectors including tariff setting and review; licensing;

enforcement of compliance; dispute settlement and approval of power purchase and network service contracts. This is supported by the Energy Act No. 12 of 2006 that states in Section 5(a) (ii) that the objects and functions of ERC include regulating the importation, exportation, transportation, refining, storage and sale of petroleum and petroleum products Section 102 of the Act empowers the Minister to make regulations upon recommendation by the Commission on petroleum related activities including determination of retail prices for petroleum products (Katisya-Njoroge, 2010). On December 15, 2010 the Government of Kenya enacted a new legislation, the Energy (Petroleum Pricing) Regulations, 2010 which was aimed at preserving availability of specified petroleum products in all parts of Kenya; stabilizing prices of specified petroleum products in Kenya and minimizing the variances in prices of specified petroleum products across the country (Katisya-Njoroge, 2010).

The new regulations effectively introduced government control on the maximum prices of petroleum products based on a formula decided upon by the Energy Regulation Commission (ERC). This formula is, however, still being contested by the Oil Marketing Companies. Petroleum price regulation in Kenya last existed in the period prior to mid 1993 when deregulation was implemented as a result of economic challenges faced by the Government at that time as the Kenya Shilling lost ground against the hard currencies leading to inflationary pressure that rendered regulation untenable.

2.4 Determinants of Financial Performance of Petroleum Companies

Financial performance is a measure of a policies and operations in monetary terms. It is a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Pagano, 2001). There are many different ways to measure a company's financial performance. This may be reflected in the oil companies' return on investment, return on assets, value added, among others and is a subjective measure of how a firm can use assets from its primary mode of business and generate revenues.

The oil industry, like other industries is in business to earn profits by selling its products. To maximize the profits, oil marketing companies develop new products to satisfy their own needs as well as those of their customers. This view of the innovation process leads

to the following simple analysis. A change in the financial environment will stimulate a search by oil marketers for innovations that are likely to be profitable (Ghosh, 2008).

Measuring financial performance using accounting ratios is common in the financial institution literature in particular, return on capital employed, return on assets, and return on equity. Similarly, economic value added can be as an alternative to purely accounting-based methods to determine shareholder value by evaluating the profitability of a company after the total cost of capital, both debt and equity are taken into account. Other measures of financial performance in profit making organizations are Capital adequacy, Asset quality, Management, Earnings and Liquidity that are commonly known as CAMEL Model (Mishkin, 2007). The profitability analysis is achieved on a set of indicators to measure the financial institution performances. The indicators result/arise from the accounting dates, which illustrate the reference periods in the most synthetic expressions of balance sheet and the profit and loss account.

Fernandez (2002) stated that the financial performance of a firm can be examined through its annual account reports, where information about growth, investments, earnings and costs, among others are listed. In order to link these data with financial performance, indices-ratios based in balance sheets are used, considering that a company's value resides in its balance sheet.

2.4 .1 Profitability Measure

The concept of profitability is based on the comparison of the cash outflows required for implementing a strategic alternative with the cash inflows that this alternative is expected to generate. Pandey (2006) included profitability in relation to sales and profitability in relation to investment. PAT has been widely used as a measure of financial performance. Though different factors have been used by other researchers such as shareholders' equity; liquid assets to assets; fixed assets to total assets; total borrowed funds to total assets; per capita Gross Domestic Product (GDP), the cost to-income ratio and customer satisfaction.

In financial management, ratios are used to measure and to gauge the financial performance and position of a company over a specified period of time. ROA evaluates

how efficiently assets are used to produce profits. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). It is widely considered the best measure of profitability. Wen (2010), stated that a higher ROA shows that the company is more efficient in using its resources. ROA is measured by dividing profit before tax and interest by total assets. Khrawish (2011) stated that it is a ratio of Income to its total asset.

2.4.2 Growth Rate

High growth situations are desirable since growth is consistently related to profit under wide variety of circumstances. Growth is a vital indicator of a flourishing firm. Firms grow in order to achieve their objectives, including increasing sales, maximizing profits or increasing market share. Siddharth, Subhash & Deshmukh, (2008) suggested how and where questions are important in the context of the growth of a firm. They suggest that there are many factors like characteristics of the managers, access to resources like finance and manpower, which affect the growth of the firm and differentiate it from a non-growing firm.

2.4.3 Firm Size

There are many different theories on identifying the main factors underlying the growth of the firm. One set of theories addresses the influence of firm size and age on growth and the second set deals with the influence of variables such as strategy, organization and the characteristics of the firm's owners. Trbojevic, and Carr (2010) found that a firm's growth is related to size as well as other specific characteristics like financial structure and productivity. They further added that the total assets which is one of the measure of the firm size has a direct impact on the sales revenue, but the number of employees, investment in Research and Development and other intangible assets have no much influence on the firm's growth prospects.

2.4.4 Market Share

Market share also, is often associated with profitability and thus many firms seek to increase their sales relative to their competitors. There may be uncertainty regarding the expectations and actions of a firm's rivals, a rational firm is expected to overcome uncertainty by forming competitive conjectures, subjective probability estimates of rivals' expectations and behavior (Robert, 2006).

2.5 Risk management Strategies in Petroleum Oil Transportation

Investment risk management is a structured approach to identifying, assessing and controlling investment risks that emerge during the course of the investment policy programme or investment lifecycle. It involves a series of well-defined steps to support better decision making through good understanding of the risks inherent in a proposal and their likely impact. Investment risk management is the identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and impact of unfortunate events or to maximize the realization of investment opportunities (Loosemore et al., 2006). Investment risk management strategy is defined as the risk approach used for a particular investment. Investment risk management strategy is also defined as a procedure of sequence to identify, assess, plan and implement measures to counter occurrence of investment risks.

The strategies to manage investment risks typically include transferring the risks, to another party, avoiding the risks, reducing the negative effect or probability of the investment risk, or even accepting some or all of the potential or actual consequences of a particular threat, and the opposites for opportunities (Loosemore et al., 2006). Risk management strategies is a practice undertaken by credit union in identification, assessment, and prioritization of risk's as the effect of uncertainty on objectives, whether positive or negative 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 (Hamimah 2008).

2.5.1 Risk assessment

Risk assessment is a vital process in any effective oil transportation function. In fact, risks are intrinsic to any investment and risk taking is a necessary component of any process of decision making. Poor risk management of investments often leads to failure, a situation not uncommon in both the public and corporate community. Failures have been linked to incorrect market positioning, inadequate business and risk strategies, poorly informed decision making based on insufficient information and without due authorisation from senior management . Also, the situation is often intensified by absence of clearly defined risk limits, deliberately misleading reports, inadequate intra-organisational communication concerning risk vulnerability, superficial or unrealistic risk control, poor knowledge of the business environment and lack of timely decision making. As a result, various interested parties such as shareholders and other corporate entities are deprived of valuable information, which could lead to the formulation of more comprehensive and reliable risk systems, particularly as they relate to oil transportation (Kieyah, 2011).

Risk analysis, which captures all feasible options and assesses the various outcomes of any decision. There are three approaches used in risk analysis, qualitative risk analysis, semi quantitative risk analysis and quantitative risk analysis (Loosemore et al., 2006). The choice of approach depends on the, volume, type and size of petroleum products, information available, the cost and time available, the expertise of the analysts in oil transportation to minimize risk and achieve high financial returns.

Qualitative risk analysis is a simplistic technique describing risks in linguistic variables, subjectively, making a quick assessment, or it may be of specific use in identifying attitudes to risk. A risk-scoring matrix is a tool commonly used in qualitative risk analysis (Bakker, Boonstra, and Wortmann, (2010). Semi quantitative risk analysis makes a subjective assessment of the frequency of risk and an objective assessment of risk consequences. Additionally, quantitative risk analysis represents risks in mathematical form to quantify them in terms of profitability.

There are many conceptual studies made on risk analysis and assessment reference to measurement and mitigation of risk. In practice, it is useful to classify the different risks

according to the amount of damage they possibly cause in transportation of petroleum products. This classification enables the management to divide risks that are threatening the existence of the corporation from those, which can cause slight damages. Frequently, there is an inverse relationship between the expected amount of loss and its corresponding likelihood that risks that will cause a high damage to corporation like earthquakes or fire occur seldom, while risks that occur daily such as interest rate risks or foreign exchange risks often cause relatively minor losses only, although these risks can sometimes harm the corporations to a great extent (Fatemi and Glaum 2000).

Transportation of petroleum products risk assessments enable risk response and mitigation strategies to be expressed (Ikram, 2004). Cost/benefit analysis can be used to compare risk mitigation strategies and understand how effectively the money would be spent and how much returns will be realized. When the cost of implementing the response is included in the comparison, it can show the net effect of the response on the investment cost (Crist, 2003). The response can then be judged in terms of whether its net effect is to increase cost and whether that increase can be justified by the time it saves. Assessing risk mitigation strategies makes it possible to fully understand their effects. Despite the critical role of risk assessment in transportation of petroleum products risk management, its influence on investment performance has remain less studied (Khrawish, 2011). The crucial factor for an efficient risk management in transportation of petroleum products is the systematic identification of the inherent investment risks and the assessment of the existing transportation controls.

2.5.2 Risk Based Internal Audit

Risk Based Audit (RBA) is a term derived from the Institute of International Audit (IIA) research foundation based in the USA (IIA, 2004). In 1999, the Board of Directors of IIA voted to approve a new definition of Internal Auditing and a new Professional Practice Framework (PPF). The Board through deliberation came to a conclusion that a significant gap existed between available guidance and current practise of Internal Auditing, and that a new framework was needed to carry the profession into the 21st Century (IIA, 2004). Ideally, RBA is a paradigm shift from the traditional approach of Pre-auditing or

Transactional Audit to Systems Audit and finally to RBA (Mark, 2001). In Pre-audit, management abdicated their responsibilities to Internal Audits; there were no Audit Reports and no review of the System by Management. On the other hand, Systems Audit was a passive and reactive control based Audit with no involvement of Management in audit planning. Therefore, for Internal Audit to be effective and efficient, RBA was introduced (IIA, 2004).

Risk Based Internal Auditing focuses on Strategic Analysis and Business Process Evaluation and on assessing the goals, risks and controls that must coalesce for an organization's success. By identifying, assessing, and monitoring a company's risk, Internal Auditing helps assure that resources are adequate and focused on priorities (Kunkel, 2004). Generally, Risk Based Auditing assesses areas of heightened risk and, importantly, conducts continuous risk assessments (O'Regan, 2002). The knowledge gained from a comprehensive annual risk assessment, as well as from risk assessments undertaken at the outset of every internal audit engagement, should be shared with Management and the Board (Pedersen, 2003).

Since one of the primary responsibilities of the Audit Committee is to review and monitor the audit process, active and independent Audit Committees can influence the extent of the Audit (Saat, Werth, Schaeffer, Yoon, and Barkan, 2014). Independent Directors on Audit Committees have incentives to protect their reputation and avoid potential litigation. These incentives can be explained by the demand-based perspective in the context of regulatory oversight and the scrutiny of the role of Independent Directors. The demand-based perspective suggests that Independent Directors seek differentially higher audit quality. Such greater assurance provided by the External Auditor necessarily requires additional audit work which is reflected in higher audit fees (Zwikael, and Ahn, 2011).

2.5.3 Risk Identification

The identification of risks is the ultimate step that decides the end result of the management process. Management should review all the scenarios that may affect the objectives of the investment with an open mindset and vision. One method to ensure

sufficient risk listing is to screen through the phases of investment life cycle (Nikula, P. and Tynkkynen, 2007). Common investments cycle through 4 phases of conceptualization, planning, execution and termination; with sub stages and following steps. Referring risks to particular stages and steps will help the management process be more efficient and simpler for both the boards of the staffs.

Allied with this approach, Bakker et al. (2012) emphasize the importance of risk identification as the most influential process in terms of numbers as well as in the strength of communications effects, followed by risk reporting, risk registration and risk allocation, risk analysis, and finally risk control. Sharing information about investment risk with investment' stakeholders, constitutes an important practice for management (Lee, and Azlan, 2012).

A more disciplined process involves using checklists of potential risks and evaluating the likelihood that those events might happen on the investment. Some companies and industries develop risk checklists based on experience from past investments. These checklists can be helpful to the investment manager and investment team in identifying both specific risks on the checklist and expanding the thinking of the team. The past experience of the investment team, investment experience within the company, and experts in the industry can be valuable resources for identifying potential risk on a investment (Mwirichia, 2011).

A one-time risk assessment for transportation of oil investment is not sufficient for achieving comprehensive risk management. In fact, the evaluation of the investment risks and controls should be repeated over the whole oil transportation life cycle, and further measures should be defined and implemented, if necessary. In this context, risk indicators as well as control indicators, which represent an objective measure for changes to the risk and control situation, are helpful instruments for defining and monitoring risk and control levels.

2.5.4 Risk Planning

All investments are comprised of tasks. Tasks may involve either hazards if not sufficiently planned, or opportunities if recognized and planned for early in the

investment (Cantwell and Miller, 2005). Issues or hazards that are not adequately controlled are likely to cause increased negative risk while positive risks that are not appropriately realized represent lost opportunities. Use the Risk Management worksheet to determine and plan for transportation investment's risks. Identified risks need to be closely monitored and risk managed. Risk reduction may not always be feasible. One accepts or retains the risk that one has to take as part of the business strategy. Risk acceptance is typically applied for low-risk transportation operations (Salavasidis, 2012). The first stage in the risk management process in transportation risk planning, involves planning how to approach and perform risk management to ensure that the level, type and visibility of risk management are commensurate with both the size of the risk and the importance of the investment. The investment objectives are established and the responsibilities are assigned to the relevant parties in the risk planning stage. Risk identification, the second stage in risk management, identifies potential risks by recognising, filtering and ranking the risks in a risk profile (Nikula, and Tynkkynen 2007). Risk classification is an integral part of risk identification. Risks of different types are placed in different categories by considering their predetermined characteristics (Zhou, Chen, and Wang, 2008)

Risk management planning develops a detailed strategy for risk responses depending on the nature of likely risks in transportation of petroleum products. The group works very closely with the investment monitoring and control group. They maintain a risk register to monitor each risk event along with the implementation progress of each work package. This register helps in making various decisions across the investment phases. Risk analysis lead to deriving a few effective risk responses in line with the principles like avoidance, transferring, reduction, and absorbing (Wang, 2001).

Enterprises development investments on implementation provide information to support operations, management analysis and decision-making within an organization through risk planning (Psarros, 2011). Although managers claim that they manage the investment risks quite efficiently, evidences of lack of management of transportation of products has indicated failure in risk management planning and affects financial performance of a company. Deficiencies in transportation of petroleum products planning and team building are well-known risk factors (Crist, 2003). A full and complete investment plan

may not necessarily be presented before the contract but a comprehensive and proper investment management strategy needs to be initiated as soon as possible (Sweeney, 2005). Furthermore, a well-balanced team including both well and less experienced analysts and transport structure developers needs to be built. Finally, efficient communication channels linking investment managers, investment team, customer managers and end-users are essential to ensure flows of information and feedback. These communication channels are viewed as the key of final success in transport structure development and implementation.

2.5.5 Portfolio Risk management

Investment portfolio risk management is recognized as essential in order to cope with the challenges arising from the environment. Literature suggests a portfolio-wide perspective for managing risks in company investment portfolios. However, research on risk management and its success in a portfolio context is scarce. While many organisations undertake a risk-based assessment when determining which programs to include in their portfolio of work, this assessment tends to be static rather than dynamic. That is, the risk-based assessments are only undertaken at the beginning of the funding cycle and those assessments are not revisited at anytime during the life of an investment or program. Thereafter, portfolio risk management is typically relegated to a simple administrative task of collecting, collating and summarising the risks facing the individual transport function and programs that make up the portfolio (Al-Othman, Lababidi, Alatiqi and Al-Shayji, 2008).

Such a management system usually comprises several organizational actors, like a sponsor, a portfolio board, and portfolio office; defined governance rules, processes and roles, ICT systems and a culture of cooperative behavior. In contrast to single investment management, multi-investment management it is not a temporary organization, but a permanent one, which creates a specific link between the single investments and the permanent mother organizations (Iyer, 2011). Multi-investment management has broader defined tasks than single investment management, for example resource allocation, strategy implementation, risk management at the portfolio level balancing the cumulative

risks of single investments, identifying and exploiting synergies between single investments, and aligning them to strategic goals and resource restrictions (Henry and Barro, 2009).

A layer above multi- company management is then the organization or more specifically transportation of an organization. This is also a permanent function, with even broader defined tasks .It does not only involve risk management strategy implementation and resource allocation, but also the development and implementation of company oriented competences, cultures and governance. In analyzing company leadership it is useful to distinguish between organizations which deliver their oil products as complex investments, and investment-led organizations which deliver more standardized and less complex products and services, but organize, plan and control their innovation, transformation, and digitalization functions through single and multi-investment management approaches.

With investment portfolio management applications such as the oil company Primavera solutions, firm leaders can collect and analyze the necessary information to proactively manage risk. With this technology, those tasked with orchestrating the right people and the equipment they need can successfully manage and complete complex firm investment. Chris (2011) also indicated that firm managers and the organizations they serve realize a significant and proven advantage in their efforts to identify, select, and execute the best transportation opportunities. In addition, they improve their ability to coordinate existing resources, to invest in new investments that further the company's goals, and to build end-to-end solutions that establish best practices across the enterprise. Juliane and Alexander Kock, (2013) state that investment portfolios are managed in uncertain environments where risks need to be governed. Their study shows that portfolio risk identification, the formalization of the portfolio risk management process, and risk management culture directly influence risk transparency, whereas risk prevention, risk monitoring, and the integration of risk management into company investment portfolio management are directly connected to risk coping capacity.

2.6 Risk Factors Facing Transportations of Petroleum Products

Special risks arise from the nature of ship and barge operations, which differ in significant ways from surface transportation modes and are not always fully controllable through regulatory measures (Ross & Nydick, 2004). Weather conditions, for instance, are a much greater risk management factor for water transportation than for truck, rail or pipeline. Severe weather on the Great Lakes, in the form of high winds and waves, ice and diminished visibility particularly when combined with equipment failure and/or human error can substantially increase the risk of catastrophic events. There is also greater responsibility placed on a single human operator for ship and barge operations than in surface transportation modes (Sweeney, 2005). While commercial shipping lanes linking cargo ports on the Great Lakes are well established in open waters and tightly regulated in restricted and high traffic areas, ultimate navigation routing decisions and ship handling maneuvers are still controlled by the vessel master on U.S. and Canadian flag vessels, or by a licensed pilot on foreign flag vessels operating in the Great Lakes via the St. Lawrence Seaway

World trade is dependent on maritime transport and great strides have been made in recent years to render this system as open and frictionless as possible in order to spur even greater economic growth. However, the very things that have allowed maritime transport to contribute to economic prosperity also render it uniquely vulnerable to exploitation by terrorist groups. The risks are numerous and encompass both containerized and bulk shipping. The vulnerabilities are important, and range from the possibility for physical breaches in the integrity of shipments and vessels to documentary fraud and illicit money-raising for terrorist groups. Finally, the stakes are extremely high, as any important breakdown in the maritime transport system would fundamentally cripple the world economy (Crist, 2003).

Transportation and distribution are two sectors of industry, which should also be mentioned regarding safety issues applied there. Many incidents are indicating that there is a need of some improvements in practices applied so far. Therefore, the suggestion is to discuss this topic further. Recorded incidents provide important information regarding hazardous events for example like oil spills, which usually are caused at terminals or by

vessels' leakage. These are damaging the environment and may even cause human losses. In addition, these accidents are damaging the reputation of companies, which usually have to deal with extra costs of oil recovery and compensations (Al-Othman, Lababidi, Alatiqi and Al-Shayji, 2008). Sometimes vessels and crews are faced with piracy, which is not a random failure event. On top of this, terrorists could target pipelines and vessel as the potentially flammable material enables huge explosions. In these occasions, safety problems are caused by criminal activity of some groups of people and not by random failures. Such dangerous conditions are unpredicted and in case of being attacked the destiny of the crew, the vessel and the containing fluids is unknown (Psarros, 2011)

Offshore and onshore pipelines are also sometimes hazardous. According to many incidents demonstrating the fact that humanity has encountered many problems caused either by failure of the equipment or by criminal and in some cases by political activity. In these cases the potential victims are also the people working in these facilities, the surrounding area and definitely the company exploiting the entire facility. However, there is a significant difference between supplying fuels to a specific area and to the entire country, in terms of relying on the pipeline or the vessel as the only energy source. The pipeline has the property of constant flow, which means that consumers are depending on this kind of energy supply, in contrast with tankers, where is some kind of flexibility related to product delivering. Thus these damages, explosions, sabotages or even closed valves after the decision of operators of the pipelines reflect to the energy reliability of dependent consumers (Katisya-Njoroge, 2010).

According to Transport Canada (2013), Oil spillage especially in maritime transport is one of the biggest risk factors that affect firms that trade in petroleum products. The tankers that carry petroleum products may experience oil spillage that may lead to huge losses and interference with the marine ecosystem (Chris, 2011). Oil spillage may end up affecting not only the financial position of the company involved but also the lead times and inability to meet the market demand for petroleum products for the affected areas (OPEC, 2003). The other major risk factor that has developed in the last two decades relates to terrorism activities in the high seas. In the recent past terrorism has become a thorny issue to the international community since ocean going vessels are frequently being attacked by pirates and commandeered to unknown destinations. Terrorism has

made it very difficult to determine with certainty that an ocean tanker transporting oil and petroleum products will be able to arrive to its destination safely without and interference (Khrawish, 2011)

Most oil and gas companies would agree that the most significant challenge for their enterprise is management of information. Oil and gas companies continue to work to be able to create intelligence from the massive amount of technical and business data, both structured and unstructured, that they have collected (Ward and Chapman, 2003). The ultimate goal in collecting all this information is to speed time to first oil, reduce risks, and meet compliance requirements with information life-cycle management. Some companies are establishing new information governance structures to harness Oil Transport, and Inland Distribution Course Energy Insights expects others to follow. At the same time, information needs to be shared in a secure manner with multiple partners to speed time to oil and lower EHS and economic risks.

The transportation is infrastructure that means roads, seaports, airports, rail, and canal. All these exist along nodes and links of transportation network. The transportation and infrastructure focuses on operational and policy issues within transportation and infrastructure areas that affect logistics operation (Chopra & Meindl, 2007). Transport system is the most important economic activity among the components of business logistics systems. Transportation plays a connective role among the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. It is the planning of all these functions and sub functions into a system of goods movement in order to minimize and cost maximize service to the customers that constitutes the concept of business logistics (Shah, and Ierapetritou, 2011).

The role that transportation plays in logistics system is more complex than carrying goods for the proprietors. Its complexity can take effect only through highly quality management. By means of well-handled transport system, goods could be sent to the right place at right time in order to satisfy customers' demands. It brings efficacy, and also it builds a bridge between producers and consumers. Therefore, transportation is the base of efficiency and economy in business logistics and expands other functions of logistics system. In addition, a good transport system performing in logistics activities brings benefits not only to service quality but also to company competitiveness (Libecap

and Smith 2001). The tank car is most frequently used to ship crude oil in the U.S. Several problems have been identified with this tank car model. These tank cars are prone to structural failure and rupture upon impact (Olsson, 2008).

The top fittings, used for loading and unloading of content, may burst open in a derailment or rollover (Mohd, 2009). The head shields, at the front of the cars, are prone to puncture in a collision. The three bottom valves, facilitating quick unloading at the terminals, can break on impact and release oil. Out of the 63 oil filled tanker cars that derailed in Lac-Mégantic, 60 cars (95%) spilled oil due to tank car damage puncture of shell and front/rear heads were identified as the major structural points of failure (Iyer, 2011).

Tanker trucks are typically loaded through bottom lines, which do not drain completely into the tank because they are at the lowest point on the container. The structurally fragile bottom lines can contain more than 50 gallons of the oil, referred to as wetlines, and may contribute to an event leading to fire and explosion. Since trucks are often used to transport oil to and from railway transshipment facilities and pipelines, poorly maintained and monitored infrastructure at delivery points and fuel loading terminals could contribute to accidents, including fire and explosion (Liu, Saat, and Barkan, 2014)

2.7 Empirical Review

There are several studies on managing risks in oil transportation and marketing enterprises. Juliane and Alexander Kock (2013) examine how portfolio risk management influences investment portfolio success. Using a sample of 176 firms, this study provides evidence that portfolio risk identification, the formalization of the portfolio risk management process, and risk management culture directly influence risk transparency, whereas risk prevention, risk monitoring, and the integration of risk management into investment portfolio management are directly connected to risk coping capacity. The findings also suggest that both risk transparency and risk coping capacity have a direct impact on investment portfolio success. However, the results did not confirm the hypothesis that risk portfolio management have a significant positive effect on investment success.

Lee, and Azlan (2012) carried out a study on implementation of risk management in the Malaysian construction industry. The study focused on implementation of risk management in Malaysian construction industry and attempt to establish the relationship between risk management and investment performance. The data were obtained from desk works, followed by semi-structured interviews involved risk management personnel from 3 selected local construction companies. The findings concluded that risk management practices in Malaysian construction companies were relatively low and lacked standardization. However, the study failed to indicate evidence that investment performance improved due to implementation of risk management investment.

Mwikali (2012) carried out a study on the response strategies adopted by Kenya Pipeline Company limited to the uncertainty of oil distribution in Kenya. Basing on its methodology, the study adopted a case study research design because only one organization was involved. The study used primary data collected using an interview guide. The data obtained from the interviews was mainly qualitative. Content analysis was used to analyze the findings. The study established that the risk strategies developed were tied to the overall corporate strategy to enable the Corporation attain its strategic goals. The challenges facing the Corporation were both internal and external. They included, capacity constraints with the Sinendet line to Kisumu being smaller, long processes of clearing the products by other stakeholders at the depots leading to delays in oil marketers collecting their products, change in technology which made some equipment at the Corporation obsolete, long and bureaucratic government procurement procedures which caused delay in maintenance hindering companies from achieving high returns.

Liu, Saat, and Qingguo (2013), explore the moderating effects of risk on the relationship between risk management and IS development investment performance from a vendor perspective, rather than the client perspective that is mainly employed in the literature. A survey based research design is used to collect data to test the proposed model. The results reveal that investment uncertainty can moderate the effects of investment planning and control on process performance and the effects of user participation on product performance. More specifically, the results indicate that investment planning and control makes a greater contribution to process performance when there is a low level of inherent

uncertainty and that user participation makes a greater contribution to product performance when there is a high level of inherent uncertainty. The results of this study contribute to a more acute understanding of the contingency approach to inland System risk management. The study however fail to indicated the extent to which investment risk planning impact on investment performance

Carvalho and Rabechini (2011), reviewed for this study, recommend that organizations develop processes, techniques and tools aimed at achieving efficiency in managing processes and improving financial performance. These recommendations adhere to the results found here, considering the perception of respondents with respect to investment success. The presence of a risk manager, constituted the second significant variable to understand the relationship between risk management and financial performance. This finding, in practice, suggests that investment managers should assign a specialized professional to deal with risk management activities in transportation operations.

Zwikael and Ahn (2011) carried out a study on impact of risk management strategies on financial performance in New Zealand, Israel and Japan, with 701 managers in 7 industrial sectors. The study adopted an exploratory research design. The findings indicated that investment risk management strategies, even when moderate, have a relationship with levels of risk and investment success. The study showed the importance of the investment context, both the industry and the country, to levels of investment risk. The study failed to indicate the extent to which investment risk management strategies impact on investment performance and whether there existed a positive or negative relationship between risk management and investment success

Panos et al. (2009), highlight in their study that commodity risks have become more evident than before. For instance rapidly developing economies like China and India have driven up the global demand and prices. As the risk exposures have increased companies are aiming to manage their exposures better and hence avoiding increased costs or earning volatility. However, the development of commodity exchanges and emergence of wide availability of forwards and other derivatives allows companies to meet these targets Panos et al., (2009). Through the developed markets companies are able to hedge the price and demand uncertainties by using financial contracts as forwards, futures, swaps, and options as discussed earlier. Many commodities like agricultural products

(corn, wheat, and soybeans), energy products, crude oil, petroleum products and metals aluminium, gold, copper have their own hedging instruments.

Ager (2013), carried out a study to establish the effect of Collateral Financing Agreements on the financial performance of firms in the Kenyan petroleum sector. The petroleum sector is becoming more internationalized and thus the financing of the procurement is also evolving. The sector is divided into three main sectors based on the steps from drilling to refinement and selling of the final products; the upstream, midstream and downstream sectors. This study used a quantitative descriptive design. The target population being all petroleum companies in Kenya.

As per PIEA publication (2014), there are 50 firms in the sector, which are directly and actively involved, in downstream operations of petroleum. Both primary and secondary data was used to obtain the needed information. Data from the questionnaires was analyzed using percentage statistical method by the conversion of frequencies into percentages through the use of SPSS. The study concluded that indeed petroleum products purchased under CFA had a stronger and more positive Pearson correlation coefficient influence on the OMCs. Petroleum products purchased on cash was seen to have weak, positive significant correlation coefficient. This study therefore indicated that petroleum products purchased under CFA created a higher financial performance as it had a greater financial base compared to petroleum products purchased on cash. This evidence was also supported by the findings that showed the value of the F-statistic. Therefore increasing the volume of petroleum products purchased under CFA increases financial performance to a higher extent in comparison to increases the petroleum products purchased on cash.

2.8 Conceptual Framework

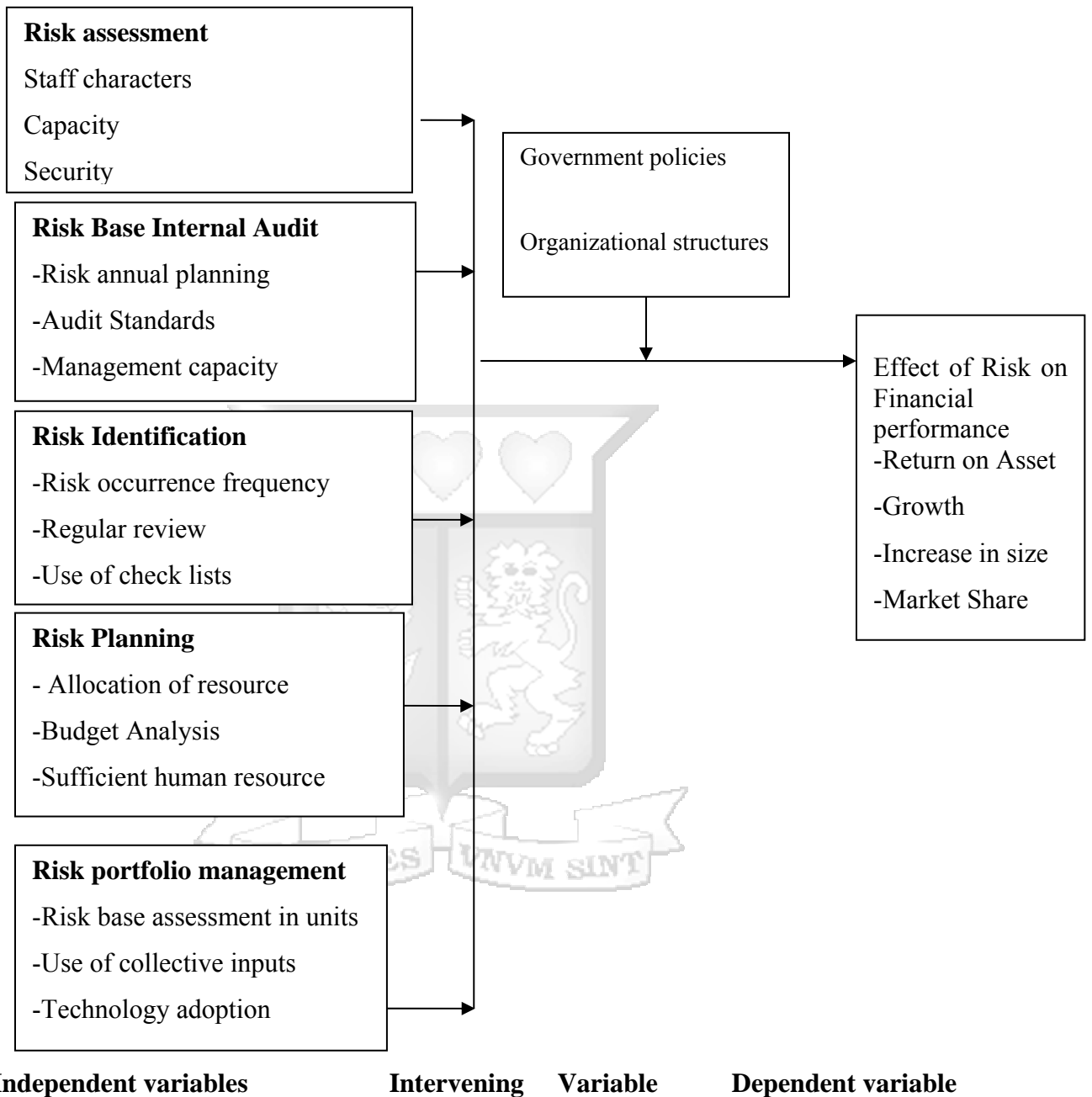


Figure 2. 1: Conceptual Framework

Source: Author, (2015)

2.9 Research Gap

Among the many academic articles, there is still a notable gap in this research study that has been undertaken to date in the context of inland transport risk management, which will help oil marketing companies to improve on financial performance. This study therefore aimed at investigating and widening the scope on the effect of inland petroleum transportation risk management to the financial performance of oil marketing companies. The study provides scholars with useful information on how to avert the exposure in their research. It is also of use to all the professionals who have the responsibility of managing the risk associated with inland oil transportation. To this end most research on the effect of risk management practices on financial performance has focused on the exposure of multinational companies and most of the focus has been financial institutions. This body of research has found mixed results regarding significant effect of oil transportation risk management on financial performance of organizations. This study sought to fill the existing research gap by determining the effect of inland petroleum transport risk management on financial performance of oil marketing companies in Kenya.

2.10 Summary of the Literature

From the review of the studies, effective risk management strategies in transporting oil ensure successful accomplishment of investment with customers' satisfaction, functional achievement, and overall better financial performance of the organizations. Managing risk dynamically throughout the transportation of oil ensure user, customer and client involvement, management commitment, clear specification and design, appropriate planning, realistic expectations, competent and committed staff and clear vision and objectives that all influence company financial success. Like any other firms, oil marketing companies faces numerous risks that hinder companies from achieving high financial performance. Therefore, a risk management strategy is found necessary in order to increase company's high return and minimize losses. Literature review indicated that there are numerous tools and techniques for oil companies in managing risks such as identifications, analysis, developing responses and effectiveness of management in developing a framework of risk management as well as integrating it with the companies' operations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used to carry out the study. The chapter presents research design, population of the study, sampling techniques, data collection tools used and data processing and analysis.

3.2 Research Design

The research adopted descriptive as well as inferential research designs. The descriptive design refers to a set of methods and procedures that describe variables (Cooper and Schindler, 2008). This research design involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data. According to Kothari (2004), descriptive design is a process of collecting data in order to test hypothesis or to answer the questions of the current status of the subject under study.

Descriptive research is used to describe the general characteristic of the study population and show the relationship between the dependent and independent variables. The research design was deemed fit to establish the effects of inland transport risk management strategies on financial performance of oil marketers companies in Kenya.

Inferential research was used to make predictions or inferences about the study population from observations and analyses of a sample. The research design in this study ensured that the sample is representative of the population. By applying tests of significance, the study revealed the extent to which results of the analysis might occur by chance where there might not be relationships between the variables being studied.

3.3 Population of the Study

Population of the study is defined as the total collection of elements about which the study make some inferences (Saunders, Lewis, and Thornhill, 2009). The target population was 50 oil marketing companies in Nairobi with activities on transporting and marketing petroleum products in Kenya. The respondents were, managers, risk

management officers, depot managers, financial officers and operation officers making a study population of 250 respondents.

Table 3. 1: Sampling frame

Category	Population
Various Line Managers	50
Risk Managers	50
Depot Managers	50
Financial Officers	50
Operations officers	50
Total	250

Source: Author (2015)

3.4 Sample Design

The study adopted stratified random sampling technique to select sample size from the target population. The method assured the sample was representative of the population. Stratified samplings as noted by Kothari, (2004) is a method applied if the population from which a sample is to be drawn does not constitute an identical group, and hence requires comparisons between various sub-groups.

Stratification was used because the population was structured into various levels of management in the oil marketing companies. A sample of 30% was drawn from each stratum through simple random sampling. According to Kothari (2000) a representative sample is one which is at least 10% of the population therefore the choice of 30% is considered as representative. This is relevant as Mugenda and Mugenda (2003) indicated a sample size of 10% or 20% was sufficient for a study. The main advantage of simple random sampling was that it eliminates bias in selection of respondents. The study had a sample size of 75 respondents as illustrated in Table 2 below.

Table 3. 2: Sample size

Category	Population	Sample Proportion	Sample
Various Line Managers	50	0.3	15
Risk Managers	50	0.3	15
Depot Managers	50	0.3	15
Financial Officers	50	0.3	15
Operation officers	50	0.3	15
Total	250		75

Source: Author (2015)

3.5 Data Collection

The study collected primary data using questionnaires. The questionnaires included structured and unstructured questions and was administered through drop and pick method to respondents who were officers working in the companies. The structured questions were used in an effort to conserve time and money as well as to facilitate easy analysis as they are in immediate usable form. While the unstructured questions was used so as to encourage the respondent to give an in-depth and felt response without feeling held back in revealing of any information. With unstructured questions, a respondent's response may give an insight to his or her feelings, background, hidden motivation, interests and decisions and give as much information as possible without holding back. At the same time, with the use of structured questions, when the researcher was after information that he finds easier for administration purposes, he used this method since the questionnaires was followed by alternative answers.

3.6 Reliability and Validity of Data

Validity is the degree by which the sample of test items represents the content the test is designed to measure. Content validity was adopted for this study and measured the degree to which data collected using a particular instrument represents a specific domain

or content of a particular concept. The usual procedure in assessing the content validity of a measure is to use a professional or expert in a particular field (Zikmund, Babin, Carr, and Griffin, 2010). To establish the validity of the research instrument the researcher sought opinions of experts in the field of study especially the researcher's supervisor and lecturers. This facilitated the necessary revision and modification of the research instrument thereby enhancing validity.

Reliability refers to the consistency of measurement and is frequently assessed using the test-retest reliability method. Reliability was increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. Reliability of the research instrument was enhanced through a pilot study that was done among staff working in oil marketing companies. The pilot data was included in the actual study. The pilot study enabled the researcher to be familiar with research and its administration procedure as well as identifying items that require modification. The results helped the researcher to correct inconsistencies arising from the instruments to ensure the instrument measured what was intended to be measured.

3.7 Data Processing and Analysis

The collected data was well examined and checked for completeness and comprehensibility. The data was then summarized, coded and tabulated. Data cleaning then was done and tabulated. The tabulated data was analyzed with the help of the Statistical Package for Social Sciences (SPSS 20.0) that has data handling and statistical analysis capability that can analyse statistics and generate descriptive statistics (Norusis, 2007). There was inferential statistics analysis as well. This took the form of confirmatory factor analysis, testing for correlations. There was also multicollinearity test. Data presentation was done by the use of pie charts, bar charts and graphs, percentages and frequency tables. The purpose of presentation of data was to highlight the results and to make data or results more illustrative by presenting in the form of figures and tables so that it will be easy to observe general trends. The data was then analyzed using descriptive techniques which included frequency, percentages, means and standard deviations.

For qualitative data, which was mainly gathered from open ended questions a qualitative data checklist was developed. The checklist was clustered along main themes of the research to ease consolidation of information and interpretation and then analyzed through content analysis. Content analysis is the process of analysing verbal or written communications in a systematic way to measure variables qualitatively. A multiple regression model was applied to determine effects of inland transport risk management strategies on the financial performance of oil marketing companies in Kenya. The response on effects of risk strategies were measured by computing indices based on the responses derived from the Likert-Scaled questions.

The multiple regression used in this model was:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

Where:

Y= Financial Performance

α =Constant Term,

β = Beta coefficients

X_1 = Risk Assessment

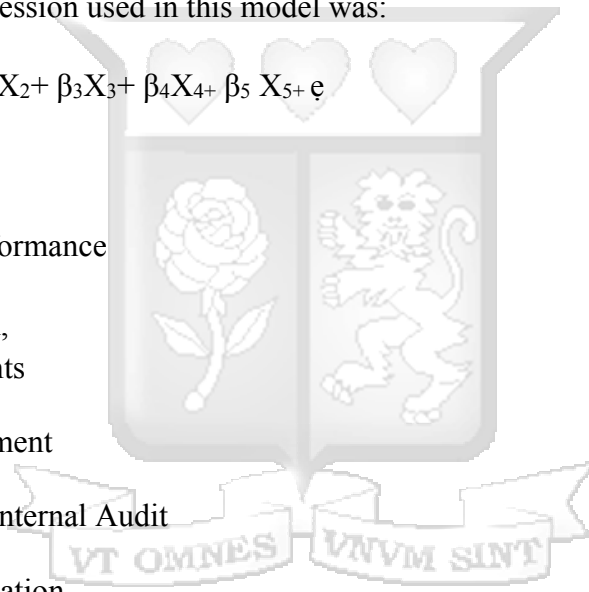
X_2 = Risk Based Internal Audit

X_3 = Risk identification

X_4 = Risk Planning

X_5 = Portfolio Quality

ϵ = Error Term



CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETITION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The results are presented on the effect of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya.

The study population was 75 where 70 respondents responded and returned the questionnaires. They were from the top 15 firms and this accounts for 85.50% of the industry's sales. This constituted a 93.33% response rate. Mugenda and Mugenda (2003) indicate a respondent rate of 50%, 60% or 70% is sufficient for a study and therefore a respondent rate of 93.33% for this study was sufficient. This commendable response rate was made a reality after the researcher made personal calls and visits to remind the respondent to fill-in and return the questionnaires.

4.1.1 Reliability and validity results

Table 4.1 illustrates the findings of the study concerning the reliability analysis.

Table 4. 1: Reliability Results

Variable	Cronbach's	No of Item
Risk Assessment	0.7637	5
Risk Based Internal Audit	0.7233	5
Risk identification	0.8414	5
Risk Planning	0.8281	5
Portfolio Quality	0.7139	5
Overall	0.8520	

Source: Author (2015)

In this study, reliability was ensured through a piloted questionnaire with companies' managers, risk management officers, depot managers, financial officers and operation officers in oil marketing companies in Nairobi. The pre-test was conducted using

Spearman Brown Prophecy formula (Tuckman, 1972). From the findings, the Spearman Brown Prophecy of risk identification was 0.7637, Risk Based Internal Audit was 0.7233, Risk identification 0.8414, Risk planning was 0.8281, portfolio quality was 0.7139 and the all coefficient were close to 1 making the instrument very reliable.

4.1.2 Validity Outcomes

Validity is the accuracy or meaningfulness and technical soundness of the research. It is the degree to which a test measures what it purports to measure. Mugenda and Mugenda (1999), stated that to enhance validity of a questionnaire, data should be collected from reliable sources, the language used on the questionnaire was kept simple to avoid any ambiguity and misunderstanding. The validity of data collected was made through collecting data from the relevant respondents having been permitted by the management of the oil marketing companies in Kenya and the University. The validity of the instrument was established by being given to researcher’s supervisor who approved the instrument for data collection.

4.2 General information

4.2.1 Gender of the Respondents

Figure 4. 1: Gender of the Respondents

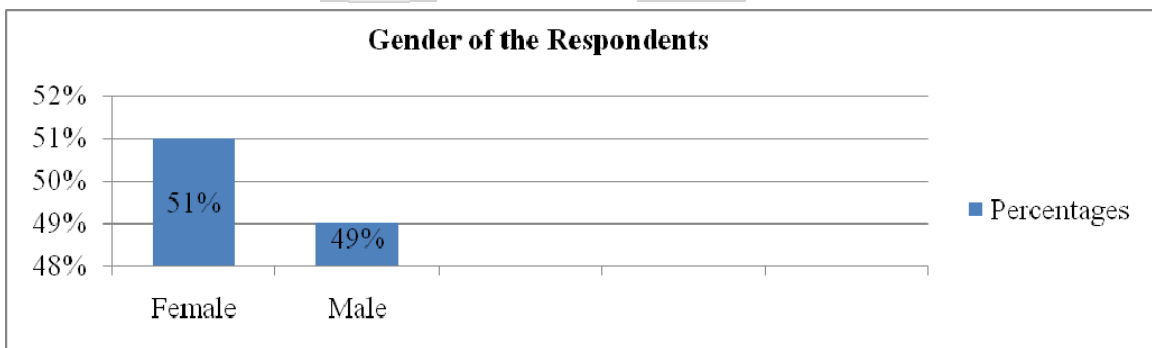


Figure 4.2: Gender of the Respondents

Source: Author (2015)

When the respondents were asked their gender, the following data was obtained and presented on Figure 4.1. Majority 51% of the respondents were female while 49% of the respondents were male. It is evident from the research findings that this study had more female respondents than the male respondents.

4.2.2 Age of the Respondent

The respondents were requested to state their age. From the findings, majority 47% of the respondents were aged between 25 to 30 years of age, 27% of the respondents were aged between 31 to 40 years while 23% of the respondents indicated that they were aged between 41 to 50 years while 3% of the respondent was aged over 50 years. This implies that for the data collected in the oil marketing companies in Kenya of the respondents are within the productive age limit.

4.2.3 Highest level of education

The respondents were requested to indicate their highest level of education, from the findings, most, 44% of the respondents indicated that they were diploma holders, 37% of the respondents indicated that they were bachelor's degree holders while 19% of the respondents indicated that they had masters' degree and above level of education. This implies that most of the oil marketing companies in Kenya were operated by literate personnel who could offer relevant information concerning the impact of inland petroleum transport risk management strategies on financial performance of oil marketing companies in Kenya.

4.2.4 Business operation period

The study sought to know the period in which the oil marketing companies had been in operation. From the findings, majority 34%, 23% and 19% of the respondents indicated that their oil marketing companies had been in operation for 11-15 years, 16-20 years and 6-10 years. Most 15% and 9% of the respondents indicated that their oil marketing companies had been in operation for 2-5 years and over 20 years.

4.3 Risks facing inland oil transportation

Table 4. 2: Rating the extent to which the risks are faced by company

Risk Elements \ Number of respondents per Rating	Very low extent	Low extent	Average extent	Great extent	Very great extent	Mean	Standard deviation
Weather conditions	8	4	9	21	28	3.81	0.33
Oil Tanker structural risks	9	1	1	30	29	4.29	0.29
Oil Spillage risk	9	3	5	21	32	3.91	0.37
Information risks	7	0	0	26	30	4.53	0.20
Theft risks	6	0	1	24	39	4.59	0.33
Poor road risks	2	2	14	18	34	4.54	0.32
Operational risks	3	3	15	24	25	4.52	0.36
Security Risks	4	4	16	26	20	4.07	0.10

Source: Author (2015)

The respondents were requested to rate the extent to which companies faced the identified risks. From the findings, majority of the respondents indicated that theft risks, Poor road risks, Information risks and operational risks were faced by the oil marketers companies to a very great extent as indicated by a mean of 4.59, 4.54, 4.53 and 4.52 with standard deviation of 0.33, 0.32, 0.20 and 0.36 respectively. The study also found that companies faced oil tanker structural risks, security risks, oil Spillage risk and Weather conditions to a great extent as indicated by a mean of 4.29, 4.07, 3.91 and 3.81 with standard deviation of 0.29, 0.10, 0.37 and 0.33 respectively. This clearly indicated that oil marketers companies faced theft risks, poor road risks, information risks and operational risks besides other risks to a very great extent.

4.4 Inland oil transport risk assessment

4.4.1 Level of inland oil transport risk assessment undertaken

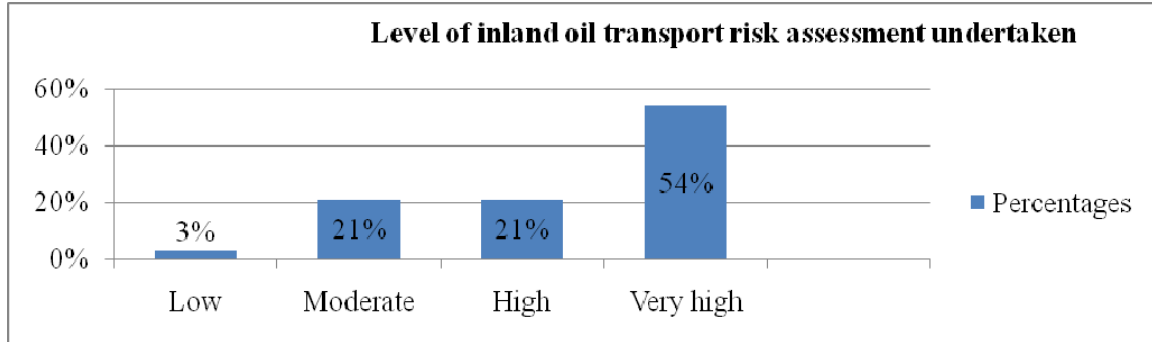


Figure 4. 1 Level of inland oil transport risk assessment undertaken

Source: Author (2015)

The study sought to know the level of inland oil transport risk assessment undertaken in the company. From the finding, majority 54% of the respondents indicated that the level of inland oil transport risk assessment undertaken in the company was very high, 21% said it was high, 21% said moderate while 3% of the respondents indicated that the level of inland oil transport risk assessment undertaken in the company was low.

4.4.2 Inland Oil Transportation Risk Evaluation

Table 4. 3: Inland oil transportation risk evaluation influence on financial performance

Rating of Risk Evaluation's effect on Financial Performance	Frequency of reponses per rating	Percentages per rating
Very great extent	30	43
Great extent	29	41
Average extent	7	10
Low extent	4	6

Total	70	100
-------	----	-----

Source: Author (2015)

The study sought to know the extent to which inland oil transportation risk evaluation influence financial performance. From the findings, majority 43% of the respondents indicated that inland oil transportation risk evaluation influence financial performance to a very great extent, 41% said to a great extent while 10% of the respondents indicated that inland oil transportation risk evaluation influence financial performance to an average extent. The study further found that 6% of the respondents indicated that inland oil transportation risk evaluation influence financial performance to a low extent and to a low extent. This implies that evaluation of the risk that involves evaluating the frequency and consequences of accidents based on a wide range of factors, including loss of life, financial loss, and short-term and long-term environmental impacts influence financial performance of oil marketing companies in Kenya. This is in line with Kieyah, (2011) who stated that risk assessment is a vital process in any effective oil transportation function. In fact, risks are intrinsic to any investment and risk taking is a necessary component of any process of decision making.

4.4.3 Influence of inland oil transport risk assessment

Table 4. 4: Influence of inland oil transport risk assessment

Risk Assessment Regarding	Number of Respondents per Rating						Mean	Standard deviation
	Strongly Disagree	Disagree	Moderately agree	Agree	Strongly agree			
Character of staff	4	5	8	25	28	4.81	0.69	
Capacity	6	1	4	30	29	4.98	0.90	
Conditions	9	3	5	21	32	4.91	0.69	
Security	4	3	0	20	36	4.86	0.51	

Source: Author (2015)

The study sought to know the extent to which the respondents agreed with the given statement concerning influence of inland oil transport risk assessment on financial performance in the company. From the findings, majority of the respondents strongly agreed that risk assessments on capacity, conditions, security and character of staff influence financial performance in the oil marketing companies as indicated by a mean of 4.98, 4.90, 4.86 and 4.81 with standard deviation of 0.90, 0.69, 0.51 and 0.69. The study found that a commodity like oil, requires specific modes of transportation due to their special character and oil is traditionally transported by ships, trucks, pipelines, or railroads. This implies that the nature of the risk assessment problem influence the financial performance of the oil marketing companies in Kenya. This is in line with Siddharth, Subhash & Deshmukh (2008), who suggested how and where questions are important in the context of the growth of a firm. They suggest risk assessment on various factors like characteristics of the managers, access to resources like finance and manpower which affect the growth of the firm and differentiate it from a non-growing firm.

4.5 Significance of the risk based audit

4.5.1 Significance of the risk based audit items in inland oil transport

Table 4. 5: Risk based auditing in inland oil transport

Number of Respondents per Rating	Very low extent	Low extent	Average extent	Great extent	Very great extent	Mean	Standard deviation
Risk Based audit reporting time	3	2	8	28	29	4.11	0.50
Assessment of risks	5	4	7	25	29	3.99	0.35
Internal audit Annual plans	6	7	9	20	28	3.81	0.29
Management capacity	3	2	11	26	28	4.03	0.36

Source: Author (2015)

Table 4.5 shows the respondents response on the significance of the given risk based audit items in inland oil transport to the achievement of financial goals in oil companies in Kenya. From the findings, majority of the respondents indicated that risk based audit reporting time and management capacity are significant risk based audit items in inland oil transport to the achievement of financial goals to a great extent as indicated by a mean of 4.11 and 4.03 with standard deviation of 0.50 and 0.36. Most of the respondents indicated that assessment of risks and internal audit annual plans are significant risk based audit items in inland oil transport to the achievement of financial goals to a moderate extent as indicated by a mean 3.99 and 3.81 with standard deviation of 0.35 and 0.29. This implies that by identifying, assessing and monitoring a company's risk, Internal Auditing helps assure that resources are adequate and focused on priorities. This is in line with Kunkel (2004), who stated that risk based auditing assesses areas of heightened risk and importantly, conducts continuous risk assessments.

4.5.2 Risk base Internal Audit Affect Financial Performance

Table 4. 6: Risk base Internal Audit Affect Financial Performance

Elements of Risk Based Internal Audit	Rating and Number of Respondents					Mean	Standard deviation
	Very low extent	Low extent	Average extent	Great extent	Very great extent		
Disclosures about oil transport risk and risk management	6	7	10	25	22	3.71	0.25
Enhanced risk standards for the oil transportation	3	6	8	34	19	3.86	0.23
Increase safety risks and risk management	5	6	10	23	26	3.83	0.22
Change management in risk management	2	7	9	41	11	3.74	0.23
Active and independent audit committee	2	3	10	26	29	4.10	0.49
Management's ownership interest	2	1	14	21	32	4.14	0.24

Enhance audit standards	4	0	0	0	66	4.05	0.23
Number of internal auditors in the company	0	5	13	33	19	3.94	0.26
Proficiency of the internal auditors	3	4	11	26	20	4.02	0.36

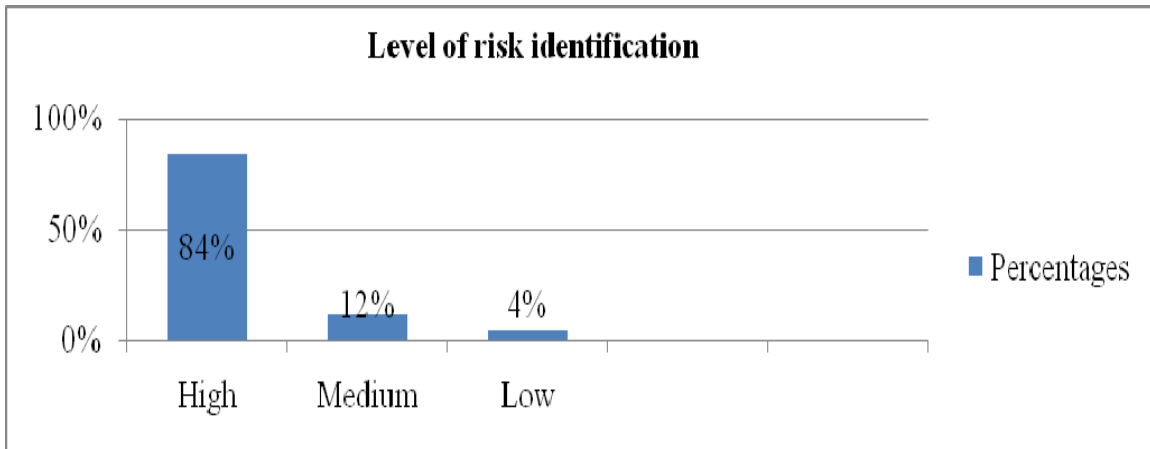
Source: Author (2015)

The study sought to know the extent to which the given risk base internal audit factors for inland oil transport affect the company's financial performance. From the findings, majority of the respondents indicated that management's ownership interest, active and independent audit committee, enhanced audit standards and proficiency of the internal auditors affect the company's financial performance to a great extent as indicated by a mean of 4.14, 4.10, 4.05 and 4.02 with standard deviation of 0.49, 0.24, 0.23 and 0.36. Most of the respondents indicated that number of internal auditors in the company, enhanced risk standards for the oil transportation, increase safety risks and risk management and change management in risk management affect the company's financial performance to a moderate extent as indicated by a mean of 3.94, 3.86, 3.83 and 3.74 with standard deviation of 0.26, 0.23, 0.22 and 0.23. The study further found that most of the respondents indicated that disclosures about oil transport risk and risk management affect the company's financial performance to a moderate extent as indicated by a mean of 3.71 with standard deviation of 0.25.

4.6 Risk Identification On Inland Transportation

4.6.1 Level of risk identification on inland transportation of petroleum product

Figure 4. 3: Level of Risk identification on Oil inland Transportation



Source: Author (2015)

The study sought to investigate the level of risk identification on inland transportation of petroleum product as carried out in oil marketing companies. From the findings, majority 84% of the respondents indicated that there was high risk identification on inland transportation of petroleum product as carried out in oil marketing companies, 12% said there was medium level while 4% of the respondent indicated that there was low risk identification on inland transportation of petroleum product as carried out in oil marketing companies. This implies that oil marketing companies embraced high level of risk identification on inland transportation of petroleum product. This allied with Bakker et al. (2012) this approach who emphasizes on the importance of risk identification as the most influential process in terms of numbers as well as in the strength of communication effects, followed by risk reporting, risk registration and risk allocation, risk analysis, and finally risk control.

4.6.2 Importance of risk identification practices

Table 4. 7: Risk Identification Practices

Rating per Importance	Not Important	Less Importance	Moderately Importance	Importance	Very importance	Mean	Standard deviation
Risk Identification Practices							

Reviewing risks in the transport system	0	1	15	23	31	4.71	0.63
Insuring against financial loss	0	5	5	28	32	4.29	0.34
Allocate resources to curb theft	7	3	1	30	29	4.14	0.22

Source: Author (2015)

The respondents were requested to rate the importance of risk identification practices in petroleum oil inland transport risk management in the companies. From the findings, majority of the respondents indicated that reviewing risk in the transport system is very important risk identification practices in petroleum oil inland transport as indicated by a mean of 4.71 with standard deviation of 0.63.

The study found also that Insuring against financial loss and Allocating resources to curb theft is very important risk identification practices in petroleum oil inland transport as indicated by a mean of 4.29 and 4.14 with standard deviation of 0.34 and 0.22. This implies that risk identification practices in petroleum oil inland transport risk management has been of great importance. This is in line with Nikula and Tynkkynen (2007), who stated that management should review all the scenarios that may affect the objectives of the investment with an open mindset and vision, one method to ensure sufficient risk listing is to screen through the risk identification practice.

4.6.3 Influence of Risk Identification on Financial Performance

Table 4. 8: Risk Identification and Financial Performance

Number of respondents per Extent of Effect on Financial Performance Risk Identification						Mean	Standard deviation
	No Extent	Less Extent	Moderately Extent	Great extent	Very great extent		

Screening of inland transport risks	1	0	7	33	29	4.28	0.30
Use of checklist reduce losses	0	0	7	32	31	4.34	0.35
Risk controls reduce losses	4	0	4	31	31	4.27	0.41
Reduces sabotage targeted on the product while in transit	2	0	1	35	32	4.85	0.81
Risk registration influences high security for oil in transport	0	0	0	32	34	4.52	0.50
Increase in risk awareness	1	2	10	20	37	4.57	0.61

Source: Author (2015)

The study sought to know the extent to which the respondents rated inland oil transport risk identification leading to good financial performance in the company. From the findings, majority of the respondents indicated that reduction in sabotage targeted on the product while in transit, increase in risk awareness and risk registration influences high security for oil in transport leads to good financial performance in the company to a very great extent as indicated by a mean of 4.85, 4.57 and 4.52 with standard deviation of 0.81, 0.61 and 0.50. Most of the respondents also indicated that use of checklist reduce losses, screening of inland transport risks and risk controls reduce losses leading to good financial performance in the company to a very great extent as indicated by a mean of 4.34, 4.28 and 4.23 with standard deviation of 0.35, 0.30 and 0.41. This implies that referring risks to particular stages and steps help the management process more efficient and simpler for both the boards of the staffs. This is in line with Mwirichia, (2011), who stated that a more disciplined process involves using checklists of potential risks and evaluating the likelihood that those events might happen on the investment

4.7 Risk Planning for transportation risks influence Financial achievement

4.7.1 Influence of Risk Planning on Financial achievement

Table 4. 9: Influence of Risk Planning on Financial achievement

Extent	Frequency of Responses per Extent	Percentage of Respondents
Very great extent	38	54
Great extent	25	35
Average extent	7	10
Total	70	100

Source: Author (2015)

The study sought to know the extent to which planning for transportation risks influence achievement of the company's set financial performance. Majority 54% of the respondents indicated that planning for transportation risks influence achievement of the company's set financial performance to a very great extent, 35% said to a great extent while 10 % of the respondents said that planning for transportation risks influence achievement of the company's set financial performance to an average extent. This implies that in the risk management process in transportation risk planning is a stage that influences achievement of the company's set financial performance. The finding support Zhou, Chen, and Wang, (2008) who indicated that risk management planning develops a detailed strategy for risk responses depending on the nature of likely risks in transportation of petroleum products influencing effective risk mitigation measures, reducing financial losses and increasing financial returns. This also concurred with Cantwell and Miller, (2005) who stated that all investments are comprised of tasks and if not sufficiently planned may involve either hazards or opportunities if recognized and planned for early in the investment.

4.7.2 Risk planning influences financial performance

Table 4. 10: Risk Planning Influences financial performance

Rating and Number of Respondents Risk planning Elements	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Mean	Standard deviation
	Influences sufficient allocation of resources to mitigate against risks	0	3	7	23	37	4.34
Acquisition of resources	0	0	7	31	32	4.35	0.46
Oil transport budget analysis yielding reduction in oil losses	0	1	8	33	28	4.25	0.31
Sufficient human resources	1	1	8	26	34	4.30	0.44
Achievement of high market share	0	0	14	29	27	4.18	0.34

Source: Author (2015)

The study sought to know the extent to which respondents agreed with the given statement regarding how risk planning influences financial performance in the company. From the findings, majority of the respondents strongly agreed that acquisition of resources, influences of sufficient allocation of resources to mitigate against risks and sufficient human resources influences financial performance in the oil marketing companies as indicated by a mean of 4.35, 4.34 and 4.30 with standard deviation of 0.46, 0.32 and 0.44. From the findings, majority of the respondent agreed that oil transport budget analysis yielding reduction in oil losses and achievement of high market share influences financial performance in the oil marketing companies as indicated by a mean of 4.25 and 4.18 with standard deviation of 0.31 and 0.34. This implies that risk planning result into reduction in risks facing the companies and subsequently led to increasing in financial returns. The findings concurred with Cantwell and Miller (2005) who found that risk planning through risk Management worksheet to determine and plan for transportation investment's risks led to effective monitoring and risk management hence

decrease in financial losses and increase in return on assets, return on equity and increase in management efficiency.

4.8 Portfolio Risk management

4.8.1 Undertaking regular transport risk evaluation

Table 4. 11: Regular Transport Risk Evaluation

Extent of Risk Evaluation in Companies	Number of respondents per extent	Percentage per Extent
Great Extent	33	47
Moderate Extent	19	27
Very great extent	8	11
Little Extent	6	9
Not at all	4	6
Total	70	100

Source: Author (2015)

The study sought to know the extent to which company undertake regular transport risk evaluation in various oil business units. From the findings, majority 47% of the respondents indicated that company undertook regular transport risk evaluation in various oil business units to a great extent, 27% of the respondents indicated to a moderate extent while 11% of the respondents indicated that company undertook regular transport risk evaluation in various oil business units to a very great extent.

The study found that 9% respondents indicated that companies undertook regular transport risk evaluation in various oil business units to a little extent while 6% of the respondents indicated that company did not at all undertake regular transport risk evaluation in various oil business units. This implies that organisations undertake a risk-based assessment when determining which programs to include in their portfolio of work; this assessment tends to be static rather than dynamic. The findings of this study seemed to differ with Al-Othman, Lababidi, Alatiqi and Al-Shayji, (2008), who stated that the risk-based assessments are only undertaken at the beginning of the funding cycle and

those assessments are not revisited at any time during the life of an investment or program. The study revealed that indeed oil marketing companies in Kenya embrace portfolio risk management strategies as part of their businesses

4.8.2 Portfolio risk management influences financial performance

Table 4. 12: Portfolio Risk Management Influences Financial Performance

Rating and Number of Respondents	Strongly disagree	Disagree	Neither agree nor	Agree	Strongly agree	Mean	Standard deviation
Risk Based Internal Audit Elements relating to Financial Performance							
Risk based assessment reduce transport cost overruns	6	2	1	25	36	4.19	0.39
Use of collective input in departments in reducing losses	4	2	9	20	35	4.14	0.12
Use of dedicated teams dealing with transport helps to minimise loss of oil	4	3	1	22	40	4.36	0.48
Adopts technology in monitoring oil on transit hence reducing oil loss	4	4	6	19	37	4.39	0.26

Source: Author (2015)

The study sought to know the extent to which the respondents agreed with the given statement regarding how portfolio risk management influences financial performance. From the findings, majority of the respondents strongly agreed that adoption of technology in monitoring oil on transit reducing oil loss, use of dedicated teams dealing with transport helps to minimise loss of oil and risk based assessment reducing transport cost overruns influences financial performance as indicated by a mean of 4.39, 4.36 and 4.19 with standard deviation of 0.33, 0.38 and 0.31 respectively.

Most of the respondents agreed that use of collective input in departments in reducing losses influences financial performance as indicated by a mean of 4.14 with standard

deviation of 0.12. This implies that transportation plays a connective role among the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. This is in line with Shah and Ierapetritou (2011), who stated that transportation is the base of efficiency and economy in business logistics and expands other functions of logistics system.

4.9 Regression Analysis

The study sought to determine the impact of inland petroleum transport risk management strategies on financial performance of Oil Marketing Companies in Kenya. $Y = \alpha_0 + \beta_1$ Risk assessment + β_2 Risk Based Internal Audit + β_3 Risk identification + β_4 Risk Planning + β_5 Portfolio Quality + ϵ

4.9.1 Model Summary

A model summary was generated using SPSS version 20 to calculate R, R Squared and adjusted R Squared as captured in Table 4.13.

Table 4. 13: Model Summary

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate	Sig F
1	.79(a)	.624	.619	0.29	0.002

a Predictors: (Constant) Risk assessment, Risk Based Internal Audit , Risk identification , Risk Planning and Portfolio Quality

Dependent: Financial performance

From the regression model summary Table R is the correlation between the observed and predicted values of dependent variable. This implies that there was significant association of 0.79 between financial performance and inland petroleum transport risk management strategies. Adjusted R^2 is called the coefficient of determination which indicates how financial performance varies with variation in risk assessment, risk based internal audit, risk identification, risk planning and portfolio quality. The study established that there existed a significant positive variation between risk identification, risk based internal

audit, risk identification, risk analysis and assessment and portfolio quality and financial performance of oil marketer companies as $r= 0.619$, $P=0.02 < 0.05$. However this does not reflect the extent to which risk assessment, risk based internal audit, risk identification, risk planning and portfolio quality impact financial performance.

4.9.2 Analysis of variance

Table 4. 14: ANOVA (b):

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.040	38	.0537	3.138.	0.01(a)
	Residual	16.611	339	.049		
	Total	18.651	377			

a Predictors: (Constant) Risk Assessment, Risk Based Internal Audit , Risk Identification , Risk Planning And Portfolio Quality
 Dependent: Financial performance

The Total variance (16.611) was the difference between the variance which can be explained by the independent variables (Model) and the variance which was not explained by the independent variables (Error). The study established that there existed a significant goodness of fit between variable as F-test ($F=8.142$, $P=0.01 < 0.05$). The calculated $F=8.142$ far exceeds the F-critical of 3.138. This implied that the model formed between effects of inland petroleum transport risk management strategies on financial performance was good fit for the data. The strength of variation of the predictor values financial performance was significant at $P= 0.01 < 0.05$.

4.9.3 Coefficients Estimate of the Variance

Table 4. 15: Coefficients (a) of Variables

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std.	Beta		
1	(Constant)	7.000	.467		4.120	0.01
	Risk Assessment	3.838	.635	1.915	2.034	0.02
	Risk Based Internal Audit	2.749	.426	1.712	4.313	0.01
	Risk identification	1.678	.322	.645	2.906	0.003
	Risk Planning	3.567	.231	.559	2.769	0.04
	Portfolio Quality	4.203	.212	.397	2.547	0.002

a Predictors: (Constant) Risk Assessment, Risk Based Internal Audit , Risk Identification , Risk Planning And Portfolio Quality

b. Dependent: Financial performance

$$Y = 7.000 + 3.838 X_1 + 2.749 X_2 + 1.678 X_3 + 3.567 X_4 + 4.203 X_5 + \varepsilon$$

From the above regression model and referring to the unstandardized coefficients for both dependent and independent variables, it was found that financial performance of the oil marketing companies would be at 7.000 holding, risk assessment, risk based internal audit , risk identification , risk planning and portfolio quality constant at zero (0). This could be as a result of other mitigation and management factors not explained by the model.

From the regression analysis, the study found that there existed a significant positive relationship between risk assessment and financial performance status as $r = 3.838$, $t = 2.034$, $P = 0.02 < 0.05$. The findings were similar to Ikram, (2004) who found that risk assessments enable risk response and mitigation strategies on transportation of petroleum products to be expressed through Cost/benefit analysis effectively determining how much financial returns would be realized

The study found that there existed a significant positive relationship between risk based internal audit and financial performance of Oil marketers as $r=2.749$, $t=4.313$, $P=0.01<0.05$. This implied that a unit increase in risk based internal auditing would result into significant increase in financial performance by factor $r=2.749$, $P=0.01<0.05$. The finding support Kasiva (2012) who indicated that effective risk based audit practices such as risk assessment, risk management, annual risk based planning, internal auditing standards and internal auditing staffing enhance effective and efficient financial performance in financial institutions.

The study found that there existed a significant positive relationship between risk identification and financial performance of Oil marketers as $r=1.678$, $t=2.906$, $P=0.003<0.05$. This implied that a unit increase in identification of risk would result into significant increase in financial performance by factor $r=1.678$, $P=0.003<0.05$. The findings concurred with Bakker *et al.* (2012) who indicated that risk identification enhance risk communications, risk reporting, risk registration and risk allocation, risk analysis, and finally risk control reducing financial losses and increasing financial returns for the companies.

The study found that there existed a significant positive relationship between Risk Planning and financial performance of Oil marketers as $r=3.567$, $t=2.769$, $P=0.04<0.05$. This implied that a unit increase in risk planning would result into significant increase in financial performance by factor $r=3.567$, $P=0.04<0.05$. The findings concurred with Psarros, (2011) who found that risk planning for inland oil transportation increase financial performance of companies.

The study found that there existed a significant positive relationship between Portfolio Quality and financial performance of Oil marketers as $r=4.203$, $t=2.769$, $P=0.04<0.05$. This implied that a unit increase in Portfolio Quality management of company/s departments would result into significant increase in financial performance by factor $r=4.203$, $P=0.002<0.05$. The findings support Juliane and Alexander Kock (2013) who indicated that portfolio risk management influences investment portfolio success, portfolio risk identification, the formalization of the portfolio risk management process, risk management culture directly influence risk transparency, risk prevention, risk

monitoring, and the integration of risk management into investment portfolio management are directly connected to risk coping capacity yielding high financial returns



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This study presents the summary of findings, conclusions and recommendation of the findings. This study sought to determine impact of inland oil transportation risk management strategies on financial performance of oil marketers companies in Kenya.

5.2 Summary of Findings

The study revealed that inland oil transportation risk evaluation influence financial performance to a very great extent as risk evaluating carried out frequently resulted in adoption of effective measures to mitigate occurrence of risk, choosing the best strategies to mitigate risks leading to reduction, hence increase in financial performance of oil marketing companies in Kenya. Risk assessment is a vital process in any effective oil transportation function. Risk assessments on capacity, conditions, security and character of staff influence financial performance in the oil marketing companies. The study found that a commodity like oil, require specific modes of transportation due to their special character and ships, trucks, pipelines, or railroads traditionally transport oil. This implies that the nature of the risk assessment influence the financial performance of the oil marketing companies in Kenya. The study revealed that risk assessment on characteristics of the managers, access to resources like finance, manpower and growth of the firm can differentiate it from a non-growing firm. The study established that there existed a significant positive relationship between risk based internal audit and financial performance of Oil marketing companies as $r=2.749$, $t=4.313$, $P=0.01<0.05$ indicating that a unit increase in risk based internal auditing would result into significant increase in financial returns, return on equity and management efficiency.

The study established that risk based audit items in inland oil transport has an effect on the achievement of financial goals in oil companies in Kenya. Risk based audit reporting time and management capacity are significant risk based audit items in inland oil transport to the achievement of financial goals to a great extent. Assessment of risks and

internal audit annual plans are significant risk based audit items in inland oil transport to the achievement of financial goals.

The study revealed that management's ownership interest, active and independent audit committee, enhanced audit standards and proficiency of the internal auditors had significant impact on the company's financial performance to a great extent. The study found that effective internal auditing in the company, enhanced risk standards for the oil transportation, increased safety risks and risk management and change management in risk management impacted positively on the company's financial performance to a moderate extent. The study further revealed that disclosures about oil transport risk and risk management affect the company's financial performance. The study found that risk identification had a significant positive impact on financial performance of Oil marketers

The level of risk identification on inland transportation of petroleum product is carried out in oil marketing companies. The study found that high-risk identification on inland transportation of petroleum product was carried out in oil marketing companies. Hence oil marketing companies embraced high level of risk identification on inland transportation of petroleum product, strengthened communications effects, influence risk reporting, risk registration and risk allocation, risk analysis, and finally risk control impacting positively on financial performance of the companies due to significant reduction in risks. The study revealed that reviewing risks in the transport system is a very important risk identification practice in petroleum inland transport .The study found that insuring against financial loss and allocating resources to curb theft was very important risk identification practices in petroleum oil inland transport. This implies that risk identification practices in petroleum oil inland transport risk management have been of great importance in influencing achievement of returns on the investment with an open mindset and vision.

The study found that inland oil transport risk identification led to good financial performance in the company as it led to reduction in sabotage targeted on the product while in transit, increase in risk awareness and risk registration influences high security for oil in transport leads to good financial performance in the company to a very great

extent. The study revealed that use of checklist reduces losses, screening of inland transport risks and risk controls reduce losses leading to good financial performance in the company to a very great extent. The study revealed that risk Planning had a significant positive impact on financial performance hence a unit increase in risk planning of risk would result into significant increase in company returns.

The study established that planning for transportation risks influenced achievement of the company's set financial performance to a very great extent. This concurred with Cantwell and Miller, (2005) who stated that all investments are comprised of tasks and if not sufficiently planned may involve either hazards, or opportunities if recognized and planned for early in the investment. The study found that risk planning influence acquisition of resources, sufficient allocation of resources to mitigate against risks and sufficient human resources impact positively on financial performance in the oil marketing companies. Through risk planning, oil transport budget analysis is achieved yielding reduction in oil losses and achievement of high market share. The study revealed that there existed a significant positive relationship between risk planning and financial performance of oil marketers as $r=3.567$, $t=2.769$, $P=0.04 < 0.05$ therefore a unit increase in risk planning would result into significant increase in return on assets and management efficiency.

The companies were found to undertake regular transport risk evaluation in various oil business units clearly indicating that organisations undertake a risk-based assessment when determining which risk programs to effectively mitigate against occurrence of risks. The study found that adoption of technology in monitoring oil on transit reduces oil loss, use of dedicated teams dealing with transport helps to minimise loss of oil and risk based assessment reducing transport cost overruns resulting into achieving better financial returns. The study revealed that use of collective inputs such as business logistics, functions of logistics system and experts in departments in reducing losses influences financial performance other. The study revealed that there existed a significant positive relationship between portfolio quality and financial performance of Oil marketers as $r=4.203$, $t=2.547$, $P=0.04 < 0.05$ indicating that a unit increase in Portfolio Quality management of company/s departments would result into significant increase in return on equity, return on assets, increase in management efficiency.

5.3 Conclusion

From the findings, the study concluded that risk analysis and assessment of risks in inland oil transportation result into effective risk evaluation leading to adoption of effective measures to mitigate occurrence of risk, choosing the best strategies to mitigate risks leading to reduction, hence increase in financial performance oil marketing companies in Kenya. The companies identified capacity, conditions, security and character of staff, characteristics of the managers, and accessibility of resources like finance, manpower and growth of the firm and differentiate them from competitor firms. The study concluded that there existed a significant positive relationship between risk based internal audit and financial performance hence a unit increase in risk based internal auditing would result into significant increase in financial returns, return on equity and management efficiency.

The study concluded that risk based audit items in inland oil transport led to the achievement of financial goals in oil companies in Kenya as this resulted into effective reporting of risks, time and management capacity ,internal audit annual planning are significant risk based audit items in inland oil transport to the achievement of financial. The study also concluded that management's ownership interest, active and independent audit committee, enhanced audit standards and proficiency of the internal auditors, effective internal auditing in the company, enhanced risk standards for the oil transportation, increased safety risks and risk management and change management in risk management impacted positively on the company's returns on assets and equity.

The study also concluded that level of risk identification on inland transportation of petroleum products as carried out in oil marketing companies resulted into effective communications, effective risk reporting, risk registration and risk allocation, risk analysis, and finally risk control impacting positively on financial performance of the companies due to significant reduction in risks. Inland oil transport risk identification leading to earning high returns in the company as it led to reduction in sabotage targeted on the product while in transit, increases in risk awareness and risk registration influences high security ,increase use of checklist reducing losses, screening of oil in inland transport and risk controls reduce losses leading to increase in earnings .

The study also concluded that risk planning influences acquisition of resources, sufficient allocation of resources to mitigate against risks and sufficient human resources impact positively on financial performance in the oil marketing companies. Through risk planning, oil transport budget analysis is achieved yielding and effective management of financial resources leading to reduction in oil losses and achievement of high market share. The study further concluded that achieving portfolio quality in companies' departments in risk management through adoption of technology in monitoring oil on transit reducing oil loss, use of dedicated teams dealing with transport and effective business logistics system as well as defining roles in departments would results into earning high returns for companies leading to significant increase in return on equity, return on assets, increase in management efficiency.

5.4 Recommendations

The study recommends that management in Oil marketing companies should ensure analysis and assessment of risks on inland oil transportation. This would influence achievement of effective risk evaluation, effective risk mitigation responses, choosing the best strategies to mitigate risks leading to reduction, hence increase in financial performance oil marketing companies in Kenya. Through risk assessment and analysis, the company identifies capacity, conditions, security and character of staff, characteristics of the managers and accessibility of resources like finance, manpower ,growth of the firm and differentiate it from competitor firms leading to an increase in financial returns, return on equity and management efficiency.

Risk based internal auditing of inland oil transport led to the achievement of financial goals in oil companies in Kenya as this resulted into effective reporting of risks, time and management capacity, internal audit annual planning are significant risk based audit items in inland oil transport to the achievement of financial .The study recommends that management should effectively implement risk based internal auditing strategies which include but not limited to management's ownership interest, active and independent audit committee, enhanced audit standards and proficiency of the internal auditors, effective internal auditing in the company, enhanced risk standards for the oil transportation as this

would lead to increased safety risks and risk management impacting positively on the company's financial returns on assets and equity.

The study recommends that management of the oil marketing companies should increase level of risk identification on inland transportation of petroleum products to achieved effective communications, effective risk reporting, risk registration and risk allocation, risk analysis, and finally risk control. This would result into achieving earning high returns in the company as it led to reduction in sabotage targeted on the product while in transit, increases in risk awareness and risk registration influences high security, increase use of checklist reducing losses, screening of oil in inland transport and risk controls reduce losses leading to increase in earnings. The study recommends that management of Oil marketers companies should focus on achieving efficiency in risk planning as this would influence acquisition of resources, sufficient allocation of resources to mitigate against risks and sufficient human resources impact positively as this would influence achievement of high financial returns. Through risk planning, oil transport budget analysis is achieved yielding effective management of financial resources leading to reduction in oil losses and achievement of high market share.

The study recommends that companies should emphasize on ensuring different departments in the company put effective measure to mitigate risks. This would result into portfolio quality in companies which may lead to adoption of technology, effective monitoring of oil in transit reducing oil loss, use of dedicated teams dealing with transport and effective business logistics system as well as defining roles in departments as this would yield high returns, increase in return on equity, return on assets, increase in management efficiency.

5.5 Recommendation for Further Study

The study focused on determining effect of inland petroleum transport risk management strategies on financial performance of oil Marketing Companies in Kenya. The study recommends that a study should be carried to determine impact of operational risk management specifically on oil product loss on financial performance. A further study should also be carried out to determine impact of risk based internal audit practices on profitability of the oil marketing companies.

REFERENCES

- Ager, E. (2013) Effect of Collateral Financing Agreements on the Financial Performance of Firms in the Kenyan Petroleum Sector
- Al-Othman, W.; Lababidi, H.; Alatiqi, I. and Al-Shayji, K. (2008) Petroleum Transportation optimization of petroleum organization under uncertainty in market demands and prices. *Eur. J. Oper. Res.*, 189 (3), 822–840.
- Ghosh, S. (2008), Regulatory Pressure, Market Discipline, and oil marketers institution in India: An Empirical Exploration, *Global Economic Review*, 37, 2, 227-247
- Bakker, K. De, Boonstra, A., Wortmann, H. (2012), Risk managements' communicative effects influencing IT investment success. *International Journal of Investment Management* Vol. 30, pp. 444–457
- Ballou. R. (2004). *Business Logistics/Supply Chain management*. 5th ed. New Jersey, Pearson Education Inc.
- Cantwell, C. V. and Miller (2005). Risk and Hazard Communication in the Marine Oil Transportation Environment. *International Oil Spill Conference* .The Human Factors Group
- Chima, A. (2007).Supply chain management issues in the oil and gas industry, *Journal of Business and Economics Research*, Vol.5, No.6, pp 27-36.
- Chopra, S. & Meindle, P. (2007). Illustrating the key drivers in effective supply chain management: ISBN-10: 0132743957 | ISBN-13: 978-0132743952.
- Chris I. E.(2011) Petroleum Supply Chain Risk Analysis in a Multinational Oil Firm in Nigeria. *Journal of Marketing Development and Competitiveness* vol. 5(7) .37
- Cooper, D. R. & Schindler P. S. (2008). *International Edition: Business Research Methods*. (8th ed.); New Delhi; MacGraw-Hill.
- Crist, P. (2003). 'Security in Maritime Transport: Risk Factors and Economic Impact'. Organisation for Economic Co-operation and Development Report Submitted to Maritime Transport Committee In June 2003.
- De Bakker K., Boonstra A., & Wortmann H. (2010). Does risk management contribute to investment success? A meta-analysis of empirical evidence *International Journal of Investment Management*, 28(5), 493-503
- Fatemi, A. and Glaum, M. (2000), Risk management practices in German firms", *Managerial Finance*, Vol. 26 No.

- Fernandes, L.J,A. Barbosa, P.- Povoas,S.R.,(2009). Risk Management in Petroleum Supply Chain, in Barbosa-Povoas,A.P; Selana M.I.(Eds).Proceedings of the 14th Congress of APDIO, pp. 55-66
- Fernandez, M. J., (2002). Sustainability in Action: Identifying and Measuring the Key Performance Drivers. *Long Range Planning*, 34, 597-598.
- Hamimah A. (2008). An assessment of risk management in joint venture (JV) in Malaysia. *Asian Social Science*, 4(6), 99-106.
- Henry, K and Barro, F. (2009). Stakeholder theory and dynamics in supply chain collaboration, *International Journal of Operations and Production Management*, Vol.29, No.6, pp 591- 611.
- Hillson, D. (2002), Extending the risk process to manage opportunities. *International Journal of Investment Management*, Vol. 20 No 3, pp. 235-240.
- IIA (2004), *International Standards for the Professional Practice of Internal Auditing*, Institute of Internal Auditors, Altamonte Springs, FL, .
- Ikram, A. (2004). Supply chain management in the oil and gas sector. Supply Chain Update, University of Wisconsin-Madison School of Business. November.
- Iyer, K. (2011). Demand chain collaboration and operational performance: Role of IT analytic capability and environmental uncertainty, *Journal of Business and Industrial Marketing*, Vol.26, No.2, pp 81-91.
- Jespersen, P.H., & Nielsen, L.D. (2004). Logistics and transport-a conceptual model. *World Transport Policy and Practice*, vol.10, no.3, 6-11.
- Juliane, S. & Alexander, K. (2013) Influence portfolio risk management influences Organization portfolio success in IT enterprises in UK. *International Journal of Project Management*, Vol. 26, pp. 73-79.
- Katisya-Njoroge, P. (2010). Oil and gas: The challenge of protectionism in Kenya. Petroleum Institute of East Africa.
- Kearney, A.T. (2005). *Insight to impact*. Preparing for Global Change in the Petroleum Supply Chain
- Khrawish,, W. (2011); *Risk Management Problems and Solutions*, New York Mcgraw-Hill New York.
- Kieyah, J. (2011). Study on the Petroleum Industry in Kenya. Kenya Institute for Public Policy Research and Analysis.

- KNBS, K. N. (2014). *Economic Survey 2013 Highlights*. Kenya National Bureau of Statistics. Nairobi: Ministry of Devolution and Planning.
- Kojima, M. Mathews, W. and Sexmith, F. (2010). Petroleum Markets in Sub-Saharan Africa: An analysis of 12 Countries. Extractive Industries for Development Series 15.
- Kothari, C. (2004). *Research Methodology: Methods & Techniques*, 2nd edition. New age International Publishers, New Delhi, India Lalwani, C.S.,
- KPMG (2011) Monumental Oil Subsidy Fraud And Corruption At The NNPC-The Damning KPMG Report: Premium *Times*. Sahara Reporters.
- Kunkel, J. (2004), The changing role of internal audit", *Chain Store Age*, September, pp.4-5.
- Larson, P. D. (2001), Logistics skills and competencies for supply chain management, *Journal of Business Logistics*, vol. 22, no. 2, pp. 27-50.
- Lee,H. and Azlan, J. (2012), Implementation of risk management in the Malaysian construction industry . (3rd . Edition), Elsevier.
- Libecap G.D, Smith J.L. (2001). Regulatory remedies to the common pool: the limits to oil field unitization. *Energy Journal*, Vol 22, pp. 1–26.
- Linda, K.(2006), Risk managements' communicative effects influencing Oil Transportation success. *International Journal of Transport Management* Vol. 30, pp. 444–457
- Liu, X., Saat, M.R. and Barkan, C.P.L. (2014). Probability analysis of multiple-tank-car release incidents in railway hazardous materials transportation. *Journal of Hazardous Materials* 276, 442-451. 2.
- Liu, X., Saat,W M.R. and Qingguo, C.P.L. (2013). Safety effectiveness of integrated risk reduction strategies for rail transport of hazardous materials. *Transportation Research Record* 2374: 102-110. 6.
- Loosemore, M., Raftery, J., Reilly, C. & Higgon, D. (2006). *Risk Management in Transport Projects*. 2nd Ed. Oxon, UK: Taylor and Francis.
- Manuj, I. and Mentzer, J.T. (2008). *Global supply chain Risk Management Strategies*. International journal of Physical Distribution and Logistics Management, Vol 38, No. 3, pp. 192-233.
- Mark (2001), The Influence of Risk Based Audit on Corporate Governance University. *The CPA Journal*, Vol.3 pp.11-13

- Michael, S.. (1998), The Quantity Theory versus the Real Bills Doctrine in Colonial America. In, *Economics Working Papers*.
- Mishkin, F. S. (2007). *The Economics of Money, Banking, and Financial Markets*, 8th ed. Boston: Addison-Wesley
- Mohd, A., N. (2009). Sustainability of petroleum and environmental control in the Malaysian petroleum law.. *Journal of Business Regulation*, 16(5), 132-145
- Morton, R. (2003). Good chemistry in the supply chain. *Logistics Today*, 44(10), October, 30.
- Mwikali, M.C. (2012). Response strategies adopted by Kenya Pipeline Company limited to the challenges of oil distribution in Kenya.
- Mwirichia K. (2011), Overview of LPG Regulatory Framework in Kenya, WLPGA East Africa Regional Summit, Nairobi
- Nichols, R.A. (1977). Analytical Calculation Of Fuel Transit Breathing Loss, Chevron USA, Inc
- Nikula, P. and V. P. Tynkkynen (2007). "Risks in Oil Transportation in the Gulf of Finland: Not a Question of If–But When." *Towards a Baltic Sea Region Strategy in Critical Infrastructure Protection*, Stockholm: Nordregio: 141–164
- Okogu, B.E. (2002). Issues in Global Natural Gas: A Primer and Analysis,” IMF Working Paper 02/40 (Washington: International Monetary Fund
- Olsson, R. (2008). Risk management in a multi investment environment. *International Journal of Quality and Reliability Management*, 25, 1, 60-71.
- OPEC (2003), Organisation of the Petroleum Exporting Countries, Annual Statistics Bulletins 2002
- O'Regan, D. (2002), The CPA's transition to the world of internal auditing, *The CPA Journal*, August, pp.11-13
- Pagano, M.. (2001). Financial Markets and Growth. An Overview.” *European Economic Review* 37, 613-622
- Pandey, S. (2006), Financial hedging practices and processes as a part of oil refining companies’ supply chain, Aalto University Apulensis Series Oeconomica 2, 663-671
- Panos, K, Rong, L., & Qing, L. (2009) Inventory Management and Financial Hedging of Storable Commodities, Research Collection Lee Kong Chian School of Business.

- Payne; D. and Ballantyne. G. (2004) Diagnosing Customer Value: Integrating the Value Process and Relationship Marketing. *British Journal of Management*. Vol. 12, No. 2, p. 159-182,.
- Pedersen, P.O. (2003). Freight transport and logistics in sub-Saharan Africa: Taaffe, Morrill and Gould revisited. *Transport Reviews*, vol.23, no.3, 275-297.
- Peter, B., (2012). *Supply Chain Excellence: A Handbook for Dramatic Improvement Using the SCOR*. p. 9
- PIEA, P. I. (2014). *Petroleum Insight* (2nd Quarter ed.). Nairobi: PIEA.
- Psarros, G., R. (2011). Risk acceptance criterion for tanker oil spill risk reduction measures. *Marine Pollution Bulletin* 62(1): 116-127.
- Robert, G. T. (2006) Linking two dimensions of orientation to firm performance: The moderating role of environment and life cycle. *Journal of Business Venturing*, 16(5), 429-451
- Rolf G. P. (2007): *Application of the SCOR Model in Supply Chain Management*. Youngstown, New York.
- Ross, M.E. & Nydick, R.L. (2004), Structuring the Selection Process of Licensing Candidates in the Pharmaceutical Industry Using the Analytic Hierarchy Process, *Journal of Pharmaceutical Marketing and Management*, 8(1), 21-36.
- Saat, M.R., Werth, C.J., Schaeffer, D., Yoon, H. and C.P.L. Barkan(2014). Environmental Risk Analysis of Hazardous Material Rail Transportation. *Journal of Hazardous Materials* 264, 560–569. 3.
- Salavasidis, S. (2012). Safety issues during transportation and distribution of oil and gas.
- Saunders, M., Lewis, P. and Thornhill, A. (2009). *Research methods for business students*.(5th Edition). London: Prentice Hall
- Shah, N.K., Li, Z., and Ierapetritou, M.G., (2011). Petroleum refining operations: Key issues, advances, and opportunities, *Industrial and Engineering Chemistry Research*, Vol. 50, pp 1161-1170.
- Shreekant, W S. and Amol P. (2012). *Supply Chain Analytics With SAP NetWeaver Business Warehouse*. Tata McGraw-Hill Education.
- Siddharth, V. Subhash, W. S. & Deshmukh, D. (2008). Evaluating petroleum supply chain performance: Application of analytical hierarchy process to balanced scorecard", *Asia Pacific Journal of Marketing and Logistics*, Vol. 20 Iss: 3, pp.343 – 356.

- Simchi-Levi, D. Kaminski, P. and Simchi-Levi, E. (2008). *Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies*. McGraw-Hill International
- Sweeney, E. (2005). Managing the Supply Chain: The Role of Information and Communications Technology (ICT) as a Key Enabler of the Process. *Business Ireland*, Summer Issue, p.105-109.
- Transport Canada (2013). The Government's Final Response to the Public Review Panel on Tanker Safety and Marine Spills Response Capacity, Government of Canada
- Trbojevic, V. M. and Carr, B. J. (2000). Risk based methodology for safety improvements in ports." *Journal of Hazardous Materials* **71**(1-3): 467-480.
- Tuten, T.L. and Urban, D.J.(2001) An expanded Model of Business Partnership formation and success. *Industrial Marketing Management* Vol 30, pp 148-164
- Varma, S., Wadhwa, S., & Deshmukh. (2008). Evaluating Petroleum Supply Chain Performance: Application of Analytical Hierarchy Process to Balanced Scorecard. *Asia Pacific Journal of Marketing and Logistics*, 20(3), 343-356.
- Wang, S.Q. (2001), Evaluation and competitive tendering or BOT power plant investment in China, *Journal of Construction Engineering and Management*, Vol. 1998, pp. 333-41.
- Wanjohi, A. and Mugure, A. (2008). Factors affecting the growth of MSEs in rural areas of Kenya: A case of ICT firms in Kiserian Township, Kajiado District of Kenya. Unpublished.
- Ward, S. and Chapman, C. (2003), Transforming investment risk management into investment uncertainty management. *International Journal of Investment Management*, Vol. 21 No 2, pp.97-105.
- World Bank (2004), Competitiveness and growth, In: Poverty Reduction and Economic Management 3, Country Department 12, Africa Ref: a, vol. 2, Report no. 36483-NG
- Zhou, Y.; Chen, X.; Wang, Z. (2008) Optimal ordering quantities for multiproducts with stochastic demand: Return-CVaR model. *Int. J. Prod. Econ.*, 112 (2), 782-795
- Zikmund, G.W., Babin, B.J., Carr, C.J. and Griffin, M. (2010). *Business Research Methods* . 8th ed. South-Western, Cengage Learning.
- Zwikael, O., Ahn, M. (2011), The effectiveness of risk management: an analysis of investment risk planning across industries and countries. *Risk analysis*, Vol. 31 No 1, pp. 25-37.

APPENDICES

Appendix I: Letter of Introduction

Charles Thuo

P.O. BOX 79352 - 00200

NAIROBI

Dear (Respondent)

I am a post graduate student at Strathmore Business School, Strathmore University undertaking a research project on, **“EFFECT OF INLAND PETROLEUM TRANSPORT RISK MANAGEMENT STRATEGIES ON FINANCIAL PERFORMANCE OF OIL MARKETING COMPANIES IN KENYA**

Your organization has been selected for this study and you have been selected to fill the questionnaire. Kindly respond to the questions in the attached questionnaire. The information provided will exclusively and solely be used for academic purposes and will be treated with utmost confidentiality. Upon request, you will be furnished with a copy of the final report.

For any clarification, kindly contact the undersigned on the mobile number 0722 296508. Your cooperation will be highly appreciated.

Yours Faithfully,

Charles Thuo

Appendix II: Questionnaire:

Please tick (✓) the box that matches your answer to the questions and give the answers in the spaces provided as appropriate. The information you provide will be treated with utmost confidentiality.

Section A: Background Information

- 1) Gender of the respondents
 Male [] Female []
- 2) What is your age in years.....
- 3) Highest level of education attained.....
- 4) How long in years has your company been in operation

SECTION: B

5. Rate the extent to which the following risks are faced by your company, using a scale of 1-No Extent, 2- Less extent, 3-Moderate, 4- Great Extent and 5- Very Great Extent)

Oil Marketing companies risks	1	2	3	4	5
Weather conditions					
Oil Tanker structural risks					
Oil Spillage risk					
Information risks					
Theft risks					
Poor road risks					
Operational risks					
Security Risks					

Part A: Risk Assessment

5. What is the level of inland oil transport risk assessment undertaken in your company?

Low [] Moderate []
 High [] Very high []

6. Rate the extent to which inland oil transportation risk evaluation in your company influence financial performance.

1-No Extent, 2- Less extent, 3-Moderate, 4- Great Extent and 5- Very Great Extent)

Inland Transportation Risk evaluation	1	2	3	4	5
Extent to which inland oil transportation risk evaluation influences Financial performance					

7. To what extent based on a likert scale with values 1-5 do you agree with the following statement concerning influence of inland oil transport risk assessment influencing financial performance in your company? (1=Strongly Disagree, 2=Disagree, 3=moderately agree, 4= Agree and 5= strongly agree)

Risk Assessment	1	2	3	4	5
Assessing timeliness in oil transport					
Character of staff					
Capacity					
Conditions					
Security					
Communication of risks of inland oil transit					

Part B: Risk Based Internal Audit

8. Indicate the significance of the following risk based audit items in inland oil transport to the achievement of financial goals in your company?

Risk Based Services	Very great extent	Great extent	Average extent	Low extent	Very low extent
Risk Based audit reporting time					
Assessment of risks					
Internal audit Annual plans					

Management capacity					
---------------------	--	--	--	--	--

9. To what extent do the following risk base internal audit factors for inland oil transport affect the company's financial performance? Use a scale of 1 to 5 where: 1 = No extent at all; 2 = little extent; 3 = Moderate extent; 4 = Great extent; 5 = A very great extent

	1	2	3	4	5
Disclosures about oil transport risk and risk management					
Enhanced risk standards for the oil transportation					
Increase safety risks and risk management					
Change management in risk management.					
Active and independent audit committee					
Management's ownership interest					
Enhance audit standards					
Number of internal auditors in the company					
Proficiency of the internal auditors					

Part C- Risk Identification

10. What is the level of risk identification on inland transportation of petroleum product as carried out in your company?

High [] Medium [] Low []

11. Rate the importance of risk identification practices in petroleum oil inland transport risk management in you company? Rate using a scale of 1 to 5 where 1 is Not Importance 2= Less Importance. 3= Moderately Importance, 4= Importance an and 5 =Very importance,

Risk identification practices	1	2	3	4	5
Reviewing risk the transport system					
Insuring against financial loss					
Allocate resources to curb theft					

12. Rate the extent to which your inland oil transport risk identification leads to good financial performance in the company. Use a scale of 1 to 5 , 1-No Extent, 2- Less extent, 3-Moderate ,4- Great Extent and 5- Very Great Extent

Risk identification practices	No Ext ent	Less Extent	Moderately Extent	Great Extent	Very Great extent
Screening of inland transport risks					
Use of checklist reduce losses					
Risk controls reduce losses					
Reduces sabotage targeted on the product while in transit					
Risk registration influences high security for oil in transport					
Risk registration					
Increase in risk awareness					

Part D: Risk Planning

13. To what extent does planning for transportation risks influence achievement of the company’s set financial performance?

- i. Very great extent []
- ii. Great extent []
- iii. Moderate extent []
- iv. Little extent []
- v. No extent []

14. To what extent do you agree with the following statement regarding how risk planning influences financial performance in your company .Where, 1=Strongly Disagree,2=Disagree, , 3=Moderately agree, 4= Agree and 5= Strongly agree)

Risk Planning	Strongly agree	Agree	Neutral	disagree	Strongly disagree
Influences sufficient allocation of resources to mitigate against risks					
Acquisition of resources					

Oil transport budget analysis yielding reduction in oil losses					
Sufficient human resources					
Achievement of high market share					

Part E: Portfolio Risk management

15. To what extent does your company undertake regular transport risk evaluation in various oil business units?

- i. Very great extent []
- ii. Great extent []
- iii. Moderate extent []
- iv. Little extent []
- v. No extent []

16. To what extent do you agree with the following statement regarding how portfolio risk management influences financial performance? Where, 1=Strongly Disagree, 2=Disagree, 3= Moderately agree, 4= Agree and 5= Strongly agree)

Portfolio Risk management	1	2	3	4	5
Risk based assessment reduce transport cost overruns					
Use of collective input in departments in reducing losses					
Use of dedicated teams dealing with transport and this helps to minimise loss of oil					
Adopts technology in monitoring oil on transit hence reducing oil loss					

Appendix iii: List of Oil Marketers

- 1 Kobil Petroleum (K) Ltd
- 2 Vivo Energy Kenya
- 3 Total Kenya Limited
- 4 Libya Oil (K) Ltd
- 5 Kenya Oil Limited
- 6 National Oil Kenya Limited
- 7 Engen Kenya Limited
- 8 Gapco (K) Limited
- 9 Mafuta Limited
- 10 Petro Oil (K) Ltd
- 11 Kamkis Trading Ltd
- 12 Dalbit Petroleum (K) Ltd
- 13 Moil
- 14 Metro
- 15 Hashi Energy (K) Ltd
- 16 Hass Petroleum
- 17 Galana Oil (K) Ltd
- 18 Addax
- 19 Fossil Fuels Ltd
- 20 Oilcom (K) Limited
- 21 Global Petroleum
- 22 Mogas Kenya Limited
- 23 Bakri
- 24 Gulf Energy
- 25 Oilcity
- 26 Royal Energy (K) Ltd
- 27 Riva
- 28 Jade Petroleum Limited
- 29 Muloil (K) Ltd



- 30 Riva Petroleum Dealers Limited
- 31 Hared
- 32 Trojan International Ltd
- 33 Premium
- 34 Al-Leyl Petroleum Limited
- 35 Banoda Oil Ltd
- 36 Ranway Traders Ltd
- 37 Tosha Petroleum LTD
- 38 Nafton Petroleum Limited
- 39 Keroka Petroleum Limited
- 40 Pj Petroleum Equipment Limited
- 41 Olympic Petroleum Limited
- 42 Samhar Petroleum Products Co.
- 43 Ainushamsi Energy Limited
- 44 Fast Energy Limited
- 45 Topaz Petroleum Limited
- 46 Essar Petroleum (East Africa) Ltd
- 47 Regnol Oil Kenya Ltd
- 48 East Africa Gasoil Ltd
- 49 One Petroleum Limited
- 50 Millenium Dealers Limited

