

**ENTERPRISE RISK MANAGEMENT: A COMPARATIVE STUDY OF
SMALL AND MEDIUM MANUFACTURING INDUSTRIES IN NAKURU
MUNICIPALITY, KENYA**

MUTHUSI BARNABAS MUSYOKA

**A RESEARCH THESIS SUBMITTED TO THE SCHOOL OF HUMAN
RESOURCE DEVELOPMENT IN PARTIAL FULFILLMENT FOR THE
AWARD OF THE DEGREE IN MASTER OF SCIENCE IN
ENTREPRENEURSHIP STUDIES**

MOI UNIVERSITY

2014

DECLARATION

Declaration by the Candidate

This thesis is my original work and has not been presented for a degree in any other University. No part of this thesis may be reproduced without the prior written permission of the author and/or Moi University.

Muthusi Barnabas Musyoka..... Date:

SHRD/PGE/12/08

Declaration by Supervisors

This thesis has been submitted for examination with our approval as University Supervisors.

Dr. Nassiuma, B. Date:

Department of Entrepreneurship and Quantitative Studies,
Moi University, Eldoret, Kenya.

Prof. Irura Ng'ang'a Date:

School of Business,
Karatina University, Kenya.

DEDICATION

This thesis is dedicated to my wife Susan, and daughters Wendy and Tabitha: you have been a source of inspiration and strength throughout my master's course. I also dedicate this thesis to my mum and dad who encouraged me to pursue this course, my sister Gladys and brothers Felix, Andrew and Julius and to my Nephews Mutinda and Jason.

ACKNOWLEDGEMENT

My sincere acknowledgement goes to my supervisors, Prof. Stephen Ng'ang'a and Dr. Bernard Nassiuma for their dedication in providing direction and guidance they during my research, without which i would not have made it. I also wish to acknowledge the support of Mr. Munyika and the entire staff of the Department of Micro and Small Enterprise Development, Nakuru for their support and assistance in linking with the Juakali Associations in Nakuru Municipality. My sincere acknowledgement also goes to the staff of District Industrial Development office, Nakuru for their support in linking with the Manufacturing firms in Nakuru Municipality during the study. I also thank the officials of Bondeni, Central and Shabaab Juakali Associations for their support and allowing me to conduct the research among their members. I cannot forget to say thank you to all owner managers, directors and managers of manufacturing industries in Nakuru who spent their precious time in responding to the questionnaires during data collection. I also wish to acknowledge the everyday encouraging words from my course mates Magdalene, Sangurah, Kipchumba, Godfrey, Emma, Omillo, Lagat and Jesse. I wish to register my heart most gratitude and appreciation to all of you.

May God bless each and every one of you abundantly.

ABSTRACT

Micro and Small Enterprises account for 75 per cent of total the employment and 30 per cent of the Kenya's gross domestic product as of the year 2008. However, two thirds of micro and small enterprises fail within the first few months of operation. Further, small and micro manufacturing industries due to their size are more vulnerable to business uncertainties compared to medium and large industries. The objectives of this study were to compare the enterprise risks, and risk management practices between micro and small and medium and large manufacturing industries in Nakuru Municipality. A combination of descriptive and comparative study designs was used. The target population for the study was 1937 comprising of 1847 micro and small industries and 90 medium and large industries, from which a sample of 95 micro and small industries and 48 medium and large industries were selected through stratified random sampling. Data was collected using a questionnaire and analyzed using both descriptive statistics such as mean, mode, frequency counts and percentages. Statistical inferences were made using Pearson correlation and t-test statistics. The found out that: the most common risks in medium and large manufacturing enterprises were theft, personal injuries, property damages and critical machine breakdowns while in micro and small industries common risks were property damages, theft and natural calamities. There was a significant difference in the level of risks facing small and large industries on risks stemming from the business internal environment. Risks from external environment were indifferent between the Micro and Small and medium and large enterprises on external risks. Large industries put in risk mitigation measures to an average of 7 risk factors while small industries put measures against an average of 2 risks out of the 14 risks studied. The study concluded that risk management affected overall industry performance, profitability, growth rate and productivity. Therefore the study recommends more comprehensive risk management framework for micro and small industries workable in their own small size as a strategy to reduce mortality and enhance transition from small to large.

LIST OF ACRONYMS AND ABBREVIATIONS

| | | |
|-------|---|--|
| CIC | - | Cooperative Insurance Company |
| COSO | - | Committee of Sponsoring Organizations of Treadway Commission |
| CRAR | - | Capital to Risk-weighted Assets Ratio |
| DIDO | - | District Industrial Development office |
| DMSED | - | Department of Micro and Small Enterprise Development |
| ERM | - | Enterprise Risk Management |
| FERMA | - | Federation of European Risk Management Associations |
| FSD | - | Finance Sector Deepening |
| GDP | - | Gross Domestic Product |
| GOK | - | Government of Kenya |
| ILO | - | International Labour Organization |
| KNBS | - | Kenya National Bureau of Statistics |
| MC | - | Marginal Cost |
| MD | - | Managing Director |
| MLIs | - | Medium and Large Industries |
| MSEs | - | Micro and Small Enterprises |
| MSIs | - | Micro and Small Industries |
| MSMEs | - | Micro Small and Medium Enterprises |
| NCST | - | National Council for Science and Technology |
| SMEs | - | Small and Medium Enterprises |
| SPSS | - | Statistical Package For Social Sciences |
| SSIs | - | Small Scale Industries |
| UK | - | United Kingdom |

TABLE OF CONTENTS

| | |
|---|------------|
| DECLARATION..... | ii |
| DEDICATION..... | iii |
| ACKNOWLEDGEMENT..... | iv |
| ABSTRACT..... | v |
| LIST OF ACRONYMS AND ABBREVIATIONS..... | vi |
| TABLE OF CONTENTS..... | vii |
| LIST OF FIGURES..... | ix |
| LIST OF TABLES..... | x |
| OPERATIONAL DEFINITION OF KEY TERMS..... | xi |
| CHAPTER ONE..... | 1 |
| INTRODUCTION..... | 1 |
| 1.1 Overview..... | 1 |
| 1.2 Background to the Study..... | 1 |
| 1.3 Statement of the Problem..... | 5 |
| 1.4 Research Objectives..... | 6 |
| 1.5 Research Hypotheses..... | 7 |
| 1.6 Justification of the Study..... | 7 |
| 1.7 Significance of the Study..... | 7 |
| 1.8 Limitations to the Study..... | 8 |
| 1.9 Assumptions of the Study..... | 9 |
| 1.10 Scope of the Study..... | 9 |
| CHAPTER TWO..... | 10 |
| LITERATURE REVIEW..... | 10 |
| 2.1 Introduction..... | 10 |
| 2.2 Risks Facing MSEs..... | 10 |
| 2.3 Enterprise Risk Management..... | 12 |
| 2.4 Risk Management and Enterprise Performance..... | 19 |
| 2.5 Theoretical Framework..... | 20 |
| 2.6 Conceptual Frame Work..... | 22 |
| 2.7 Chapter Summary and Research Gap..... | 24 |
| CHAPTER THREE..... | 27 |
| RESEARCH METHODOLOGY..... | 27 |
| 3.1 Introduction..... | 27 |

| | |
|---|-----------|
| 3.3 Research Design..... | 28 |
| 3.4 Target Population..... | 29 |
| 3.5 Sampling for the Study | 29 |
| 3.6 Data Collection | 31 |
| 3.7 Data Analysis and Presentation | 34 |
| 3.8 Ethical Considerations | 36 |
| CHAPTER FOUR..... | 37 |
| DATA ANALYSIS, PRESENTATION AND INTERPREATION..... | 37 |
| 4.1 Introduction..... | 37 |
| 4.2 General Information about the Business Enterprise | 37 |
| 4.3 Risks Facing MLIs and MSIs in Nakuru Municipality..... | 44 |
| 4.4 Risk Management Strategies..... | 61 |
| 4.5 Comparison of Risk Management Practices | 74 |
| 4.6 Effects of Risk Management of Industry Performance..... | 76 |
| CHAPTER FIVE | 82 |
| DISCUSSIONS, CONCLUSIONS, AND RECOMMEDATIONS..... | 82 |
| 5.1 Introduction..... | 82 |
| 5.2 Discussion of Findings..... | 82 |
| 5.3 Conclusions..... | 87 |
| 5.4 Recommendations..... | 89 |
| 5.5 Suggestions for Further Research | 89 |
| REFERENCES..... | 91 |
| APPENDICES | 95 |
| Appendix i: Research Questionnaire | 95 |
| Appendix ii: Letter of Introduction from Moi University | 100 |
| Appendix iii: Authorization Letter from NCST..... | 101 |
| Appendix iv: Research Permit | 102 |
| Appendix v: Additional Data | 103 |

LIST OF FIGURES

| | |
|--|----|
| Figure 2.1: Risk management in Manufacturing and their effect on enterprise performance | 23 |
| Figure 4.1: Reasons for the Choice of Nakuru..... | 42 |
| Figure 4.2: Technology Used..... | 43 |
| Figure 4.3: Comparison of Risks Experienced By MLIs and MSIs | 47 |
| Figure 4.4: Comparison on the Level of Risk by MLIs and MSIs | 59 |
| Figure 4.5: Strategies for managing property damage..... | 62 |
| Figure 4.6: Strategies for managing Natural Calamities..... | 62 |
| Figure 4.7: Strategies for managing theft of property | 63 |
| Figure 4.8: Strategies for managing Personal Injuries..... | 64 |
| Figure 4.9: Strategies for managing Economic Recessions..... | 65 |
| Figure 4.10: Strategies for Managing Changes in Inflation Rates..... | 66 |
| Figure 4.11: Strategies for managing Changes in Interest Rates | 67 |
| Figure 4.12: Strategies for managing Loss of Key Staff | 68 |
| Figure 4.13: Strategies for the Management of Critical Machine Breakdowns | 69 |
| Figure 4.14: Strategies for Managing Reputational Damages | 70 |
| Figure 4.15: Strategies for Managing Unfair Competition..... | 71 |
| Figure 4.16: Strategies for managing political Instability | 71 |
| Figure 4.17: Changes in Technology | 72 |
| Figure 4. 18: Strategies for Managing Unfavorable Government Regulations | 73 |

LIST OF TABLES

| | |
|---|-----|
| Table 3.1: Sample Matrix..... | 301 |
| Table 4.1: Age Distribution of MLIs | 38 |
| Table 4.2: Age Distribution of MSIs | 38 |
| Table 4.3: Number of branches owned by MLIs | 39 |
| Table 4.4: Number of Branches Owned by MSIs..... | 40 |
| Table 4.5: Type of Branch for MLIs..... | 40 |
| Table 4.6: Type of Branch for MSIs | 41 |
| Table 4.7: Risks experienced by MLIs Before | 45 |
| Table 4.8: Risks experienced by MSIs Before..... | 46 |
| Table 4.9: T-test on Risks Experienced By MLIs and MSIs | 48 |
| Table 4.10: MLI Rating on the Likelihood of Risk Occurrence..... | 49 |
| Table 4.11: MSI Rating on the Likelihood of Risk Occurrence | 50 |
| Table 4.12: T-test on likelihood of Risk Occurrence between MLIs and MSIs | 51 |
| Table 4.13: MLI Rating on the Level of Loss..... | 53 |
| Table 4.14: MSI Rating on the Level of Loss..... | 54 |
| Table 4.15: T-Test Results on the Level of Loss | 55 |
| Table 4.16: Risk Level rating by MLIs | 57 |
| Table 4.17: Risk level rating by MSIs | 58 |
| Table 4.18: t-test Results the Level of Risk by MLIs and MSIs..... | 60 |
| Table 4.19: t-test of risk management strategies by MLIs and MSIs | 75 |
| Table 4.20: MLIs Performance | 77 |
| Table 4.21: MSIs Performance | 77 |
| Table 4.22: t-test analysis on enterprise performance..... | 78 |
| Table 4.23: Comprehensives in risk management | 79 |
| Table 4.24: Pearson correlation on comprehensiveness of risk management practice and enterprise performance..... | 81 |

OPERATIONAL DEFINITION OF KEY TERMS

Comprehensiveness of risk management practice:- is one that takes into account all potential enterprise risks. An enterprise that has measures to address the 14 risks in the study is considered to be the most comprehensive.

Economic risks – in this study refer to risks emanating from business macroeconomic conditions such as economic recessions, exchange rates, and interest rates.

Growth rate - enterprise growth is a subjective measure of a development process of enterprise from small to big and from weak to strong. This was measured on entrepreneurs rating on how their enterprises have grown for the last five years.

Medium and Large Enterprises - refer enterprises which employ more than 50 employees directly. Medium enterprises employ 50 – 100 employees while large enterprises employ above 100 employees.

Micro and Small Enterprises - refer to those enterprises that employ less than 50 employees. Micro enterprises employ 0-9 employees, while small enterprises employ 10 – 49 employees. The current study looks as MSEs in the manufacturing business.

Natural environment risks – these are naturally caused environmental changes that put business into risks. They include floods, earthquakes, volcanic eruptions and landslides among others.

Operational risks – these refer to risks which interrupt the production cycle in manufacturing such as critical machine breakdowns, fire, and electrical faults.

Political risks – in the current study refer to the risk that an business returns could suffer as a result of political changes or political instability or legal changes in a country.

Risk - refers to both expected and unexpected events that may have an adverse impact on the capital and earnings of a business entity. In this study, risk factors considered included: property damages, natural calamities, theft, personal injuries and accidents, economic recession, changes in inflation rates, changes in interest rates, loss of key staff, critical machine breakdowns, reputation damage, unfair competition, political instability, changes in technology and unfavourable regulations.

Risk management or mitigation- Risk management activity is a pro-active action in present to prevent risks from occurring or to reduce the amount of loss should the risk strike. Risk management options vary but in this study they are categorized as either risk retention, risk reduction, risk transfer or risk avoidance.

Technological risks – these are referred to as threats or vulnerabilities associated with technological changes. These include changes in technology.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This first chapter discusses the introduction to the research. It contains the background to the study, statement of the problem, research objectives, research hypotheses, assumptions, justification and significance, scope and limitations to the study.

1.2 Background to the Study

In the contemporary economy, Micro and Small Industries (MSIs) in the industrialization process have gained much prominence in developing countries. Their prominence came into the limelight in the late 1970s and early 1980s due to the economic recession originating from the UK which led to the closure of big manufacturing firms and a decline of industrial growth in many developing countries. Governments of such countries adopted a new policy approach towards the Small Scale Industries (SSIs) which were seen as providing a viable alternative to the large scale industries which were so dependent on foreign exchange (Ankomah, 2012). Since then small scale industries have continued to grow and the concept has since transformed from small scale industries to small scale enterprises to include businesses undertaking activities in other sectors of the economy.

Today, the economic roles played by micro and small enterprises (MSEs) have been well manifested in many countries of the world including Malaysia, Japan, South Korea, and Zambia MSEs contribute substantially to the Gross Domestic Production (GDP), export earnings and in the creation of employment for a larger population in these countries. In India they contribute 8% of the national GDP, comprises 50% of

total manufactured exports, 45% of India's total industrial employment and 95% of all industrial units (Ravi, 2009). In Kenya, MSEs account for 75 per cent of total the employment outside small scale agriculture and pastoralist activities sector, and an estimated 30 per cent of the country's GDP (ROK, 2008). Therefore they act as the springboard for a country's sustainable economic development. Promotion of MSE development encourages the development of indigenous entrepreneurship, enhance regional economic balance through industrial dispersal and generally promote effective utilization of local resources that are considered critical in engineering economic development (Tolentino, 1996; Oboh, 2004; Odeh, 2005).

Despite the role they play in the economy, MSEs have had their peculiar challenges hindering growth, performance and achievement of their purpose in the economy. The problem of poor performance in the MSE sector spreads across all areas of the world and have drawn a lot of interest to players in many sectors of the economy. In the UK the number of small business closures stood at 85per day during the global economic crisis in early 2009 (ILO, 2009). In Nigeria, this sub-sector has fallen short of expectation (Osotimehin, Jegede, Babatunde & Olajide, 2012). In Kenya, three out of five enterprises fail within the first few months of operation (KNBS, 2007). This has a negative impact to the economies affected. Osotimehin, *et al.*, (2012) has shown a high correlation between the degree of poverty, hunger, unemployment, and economic well being of the citizens of countries and the degree of vibrancy of the respective countries micro and small scale enterprises.

The risk profiles of MSEs is one of the factors identified having an impact on performance of this sector. The risk experienced by enterprises vary, similarly to the management strategies. In Korea where the MSEs sector has been described as the

most dynamic sector in the economy, it was identified as the most vulnerable to external shocks which resulted in reduced sales volume, increased bankruptcies and closures. Further MSEs in Korea are faced with decline in the demand for products and services, liquidity and credit related problems, sharp increases in the price of raw materials, considerable fluctuations in the exchange rate, and inflation pressure, regulation and compliance. The situation was complicated by running business without access to experts bears higher risk (Dae Suh, 2011).

In Malaysia statistics show that not many MSEs graduated into becoming large corporations despite the increasing number of MSMEs established each year. This phenomenon was also attributed to the risk profiles of MSEs and their low risk taking propensity. MSE owners were afraid of expanding their business for fear of risks and uncertainties they might face if they became larger corporations (Salleh & Ibrahim, 2011). Risks identified in the MSE sector include: leverage on financial structure, tough competition, inadequate margin, low collection in account receivables, incapacity to go for technological advancements, high employee turnover, credit risks and interest rate risks (Raghvan, 2005). The risk profiles of MSEs make it difficult even for lenders to be able to assess risk premiums due to the differences in the perceived versus real risk profiles (ILO, 2009). This puts enterprises into crisis of accessing expansion capital among other crises. Looking at the portfolio of risks facing MSEs, they could be categorized as industry risks, business risks, financial risks, management risks, and compliance risks.

Lack of risk management strategies in place also remains to be a common trend among MSEs amidst many risks, a factor that could be closely linked to the high

mortality rate. Raghvan (2005) points out that in the past two decades, nearly 80 per cent of the organizations that lacked business contingency plans and suffered catastrophic loss of property, records, customer loyalty, skilled and trained workforce and/or cash flow, wound up within a couple of years of the incident. This happened despite many of them having had business interruption coverage insurance policy. This implies that risk management should not be understood in the context of insurance cover alone but as a wide range of strategies and interventions to prevent risks from occurring and reduce the effects of the risks to the business in the event that it strikes on an ongoing basis.

Organizational life cycle theory by Churchill and Lewis (1983), reveals that there are that there are four critical stages that exist in the life of an enterprise where the stages are determined by the length of time the firm has been operating. In each of the stages, there are different sets of business characteristics, challenges and managerial interventions required. Therefore in order to survive owner-managers are required to take note of the challenges along enterprise life cycle, those originating from the external and internal environment, and how these will impact upon their organizations performance and growth. Consequently, they put in measures to cushion the enterprises against these risk challenges.

Research informs us that the major reason for small firm failure is poor management of the business which falls within the internal environment which is directly controllable by the owner-managers (Megginson, Byrd and Megginson, 2003). This would therefore suggest that if enterprises can identify and isolate the factors from the internal environment that contribute to business failure, measures can be put in place

to avoid these pitfalls for start-ups. The essence of risk management is to reduce risks to a reasonable and manageable level, on an on-going basis (Tatum, 2003). Compared to larger companies, MSEs are not different in risk exposures although their size makes them particularly vulnerable to the impact of unfavorable business conditions, and they rarely have the resources to have dedicated risk management systems and professionals (FERMA, 2006).

1.3 Statement of the Problem

Since their invention, MSEs continue to play a key role in economic development globally through contribution to the GDP, employment creation, utilization of local resources and ensuring balance in regional development. They act as spring boards for economic development. Ideally, business enterprises are expected to grow in size by transitioning from one stage to the next; from micro enterprises with less than ten employees to large enterprises employing more than 250 people.

Despite the high number of enterprises born, their mortality rate remains very high even in developed countries. For instance, the UK registered 85 MSEs closures in 2009 (ILO, 2009) while in Kenya, 60% of MSEs do not operate beyond the first three years (KNBS, 2007), which according to (Churchil & Lewis, 1983) business cycle is within the first stage of operation. Enquiries by (Raghvan, 2005; Megginson, Byrd and Megginson, 2003; Dae Suh, 2011) into the root causes of poor performance and the high mortality rates point out to a wide range of risk factors that negatively impact on operations and enterprise survival. These include operational risks, technological risks, and financial risks among other risk factors. The risk propensity of MSEs has

also been identified as low (Salleh & Ibrahim, 2011). To minimize their effects on businesses, risks require proper risk management strategies in place (Raghvan, 2005) Knowledge on the risk management strategies applied by MSEs remain scanty especially in less developed economies. There is also lack of standardized operation procedures and guides to assist MSEs in managing enterprise risks. This study therefore was set to investigate the risk management practices employed by MSEs in the manufacturing sector in Nakuru Municipality by analyzing a portfolio fourteen probable enterprise risks.

1.4 Research Objectives

The research had the following objectives:

1.4.1 Broad objective

The broad objective of the study was to compare the risk management practices adopted by Micro and Small Industries (MSIs) with those by Medium and Large Industries (MLIs) in Nakuru Municipality, Kenya.

1.4.2 Specific Objectives

This research sought to achieve the following specific objectives:

- (i) To identify risks facing MSIs compared to MLIs in Nakuru Municipality, Kenya.
- (ii) To compare the risk management practices adopted by MSIs against those adopted by MLIs in Nakuru Municipality.
- (iii) To assess the effects of risk management practices on performance of manufacturing industries in Nakuru Municipality, Kenya

1.5 Research Hypotheses

The research sought answers to the following hypotheses:

H₀₁: There is no significant difference in the risks facing MSIs and MLIs in Nakuru Municipality.

H₀₂: The risk management practices adopted by MSIs are not significantly different from those adopted by MLIs in Nakuru Municipality.

H₀₃: The risk management practices by manufacturing industries in Nakuru Municipality do not affect their performance.

1.6 Justification of the Study

The government of Kenya in the wake of devolution has invested heavily in enhancing enterprise development as a strategy for economic growth. This is evident through the creation of the ministry of industrialization and enterprise development. At the same time the enterprise mortality rate remains high which undermines the government's efforts of enterprise creation and growth. Transition of enterprises from small to medium also remains high, hence the missing middle. This study will shed light on the risks responsible for the high mortality rate and the current practices vis-a-vis the standard practice. This will form a basis for designing interventions to reverse the high enterprise mortality and transition.

1.7 Significance of the Study

The findings of the study could be adopted by MSE development agencies in Kenya in designing risk management interventions to enhance the development of micro and small industries and in enhancing industry growth and reducing MSI mortality rates.

These findings could also benefit the government of Kenya especially industrialization and enterprise development ministry in formulating policies to cushion manufacturing industries of all sizes against potentially damaging risks, enhancing growth and bridging the missing middle gap between MSMEs and large enterprises. The study would also contribute to the existing body of knowledge on enterprise development and risk management in the manufacturing sector especially in developing economies.

1.8 Limitations to the Study

MSIs were scattered all over town and most of them were not formally registered with legitimate business permits from Nakuru Municipal Council. This made it difficult to capture all of them in the study. For the purpose of this study only those MSI registered with the ministry of Labour under Juakali Associations namely Shabaab, Bondeni and Central were considered to represent the MSIs. The study included MSIs whose operations were based in Nakuru municipality and who were registered with the Juakali Association under the Ministry of labour at the time of study. The findings of the study may be generalized to the Micro and Small manufacturing enterprises in the Municipality and in the country at large with caution.

Some of the large enterprises were found to be very conservative in sharing specific operational data. To overcome this, the researcher insisted on commitment to uphold anonymity of responses and confidentiality in handling and use of the research findings for academic purposes only. Some of the MSI owners who were found to have difficulties in reading and interpreting the questionnaires were assisted in the interpretation of the questions and filling of the questionnaires.

1.9 Assumptions of the Study

The study was based on the following assumptions:

- (i) All enterprises adopt a certain method of risk management either consciously or unconsciously but the strategies differ with the size of enterprises.
- (ii) That enterprises operating within the same economic sector experience similar risks from the environment they share.
- (iii) That there are commonalities between the risks and risk management practices between micro and small industries and also between medium and large enterprises.

1.10 Scope of the Study

The study focused on the risks experienced and risk management strategies adopted by MLIs and MSIs and their effect on enterprise performance. The two were then compared. MLIs considered in the study were those whose manufacturing operations were based within Nakuru Municipality and were formally registered with the Ministry of Industrialization. On the other hand, MSIs considered were those registered with Juakali Associations also registered with the Directorate of Micro and Small Enterprise Development in the ministry of Labour. Three juakali associations who fulfilled these conditions were: Shabaab Juakali Association whose members operate MSIs in Nakuru, Industrial Area, Bondeni Juakali association whose members conduct manufacturing business in Bondeni Slums, and Central Juakali association whose members make and sell handcrafts in Nakuru CBD outside National Bank. The study was conducted between August and September 2012.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter contains a review of literature on enterprise risk management among enterprises. The review focuses on the concept of risk and risk management in MSEs, the risk management process, and the relationship between risk management and enterprise performance. Further the chapter presents theoretical framework guiding the study, conceptual framework, a summary of literature and highlights on the research gaps being filled.

2.2 Risks Facing MSEs

The etymology of the word “Risk” may be traced to the Latin word Rescum, which means Risk at Sea (Raghavan, 2005). In business, risk is always measured against capital and therefore the Capital to Risk-weighted Assets Ratio (CRAR) is much in vogue. Risk is the potentiality that both expected and unexpected events may have an adverse impact on the capital and earnings. Risk management on the other hand is a logical process or approach that seeks to eliminate or at least minimize the level of risk associated with a business operation (Tatum, 2003). Risk Management therefore plays a key role in protecting enterprise assets and resources by ensuring that risks are reduced to an acceptable level.

2.2.1 Peculiar Characteristics that Expose MSEs to Risks

Micro and Small enterprises by virtue of their size and the mode of operation are subjected to a number of risk factors. Deloitte (2006) states that, MSEs have vast potential market for MSE finance, with little competition, high profit, massive potential ‘first mover advantage’ but managing risks is a key challenge. Mwaniki

(2006) identified several peculiar characteristics of the micro enterprises, which makes them more vulnerable to things going wrong. According to Mwaniki (2006), most MSEs do not or rarely keep records; they lack traditional collateral and require small and short-term loans; they have limited access of financial services, most lack capital & stability, use simple technology, they also lack entrepreneurial and management skills due to high illiteracy levels; most MSEs tend to remain basic and with low growth rates. Raghavan (2005) indicates that MSEs may not have wherewithal to manage and control risks due to their very size and several limitations. These make MSEs vulnerable to enterprise risks, and also have limited ways of mitigating the risks whenever they strike.

2.2.2 Risks Specific to MSEs

Like every organization MSEs are faced with risks. According to a survey carried out by the Institute of Chartered Accountants (2005), the pressing challenges facing MSEs were identified as loss of key staff, IT risk, market changes and image impairment respectively. Raghavan (2005) identified the key risks facing MSEs as Constitution of business entity which lack of professionalism and overdependence on one or two key persons, leverage on financial structure, tough competition and inadequate margin, low collection in account receivables, inability to cope with technological advancement and high employee turnover.

Technoserve, (2007) in a research carried out in central Kenya revealed that, the level of business understanding among micro enterprises was very shallow, MSEs in Kenya still faced difficulty in accessing capital as financial institutions were reluctant to lend to them due to the high risk associated with MSE lending and high transaction cost involved. The high risk in MSE lending was also confirmed by (International trade

centre, 2009) who revealed that financial institutions classify all MSE s as high-risk companies therefore unsuitable for lending. This implies that the credit risks in MSEs were high.

2.3 Enterprise Risk Management

Risk management is an ongoing process that requires several stages to accomplish one cycle and as described by various scholars consists of various key steps: objective setting, risk identification, risk analysis, risk mitigation and evaluation.

2.3.1 Enterprise Risk Management Process

Enterprise risk management is a continuous process in an organization with a systematic procedure applied in all risks in an organization.

2.3.1.1 Objective Setting

This forms the first stage in risk management. According to the Asian Disaster Reduction Center, (2005) Risk management guidelines starts by reflecting and clarifying the objectives to be achieved through the implementation of a risk management system. This is echoed by Tatum (2003), who states that at the core of effective risk management strategies is the desire to find ways to manage the degree of uncertainty that exists within any business enterprise.

2.3.1.2 Risk Identification

Once the organizational risk management goals and objectives are clearly articulated, the next step is to identify the risks underlying. Raghavan (2005) states that, “a company can protect itself against possible threats by being aware of its most vulnerable areas and the factors that affect its operations”. According to the Institute

of Occupation Safety and Health (2002), identifying hazards and assessing risks are the first stages of risk management. An examination of a company's vulnerability quickly provides a rough picture of difficult-to-manage threats related to the company's operations. Identifying hazards and assessing their severity makes it easier to plan risk management control measures.

According to the Asian Disaster Reduction Center, (2005), in the risk identification process, target risks are isolated based on past disaster experiences and the losses and severity observed in those events domestically as well as in other countries. Risk identification should be conducted using several different methods in cooperation with experts since the risks that need to be addressed involve a great deal of uncertainty and can tend to be overlooked.

2.3.1.3 Risk Assessment (Risk Analysis)/ Risk Determination

Nicholas (2009) posits that all risks have two dimensions to them: likelihood of occurrence, and severity of the potential consequences. In addition, the Asian Disaster Reduction Center, (2005) argues that risk assessment is performed to estimate the quantitative damage that can be expected to result from hazards and their impacts. When it is impossible to conduct a quantitative estimation, risks are ranked by qualitative assessment. Risk assessments are generally carried out by technicians or engineers. Disaster scenarios are developed based on assessed damage.

Raghavan (2005) opines that, if risk is considered in terms of occurrence frequency, then it can be measured on a scale, with certainty of occurrence at one and certainty of non-occurrence at the other end. When the probability of occurrence or non-

occurrence is equal, risk is the greatest. In Stoneburner, *et al.*, (2002) model of risk determination, the purpose of this step is to assess the level of risk to a system. The determination of risk for a particular threat/vulnerability pair can be expressed as a function of: The likelihood of occurrence of a given threat and the magnitude of the impact or loss should a threat-source successfully exercise the vulnerability. The final determination of risk level is derived by multiplying the ratings assigned for threat likelihood (e.g., probability) and threat impact.

2.3.1.4. Risk Mitigation Options /Countermeasures/Risk Treatment

In this process, countermeasures are executed in accordance with policies. Risk management countermeasures consist of four elements: risk avoidance, risk reduction, risk transfer and risk retention. If a significant degree of loss with high probability is expected, risk avoidance is the best countermeasure. When a significant degree of loss with low probability is expected, risk transfer would be an appropriate measure. In the case of a low degree of loss without reference to probability, risk retention is one of the options to be selected. In several cases, risk treatment would not be possible through countermeasures alone. Risk reduction would be the mainstay of these countermeasures (Asian Disaster Reduction Center, 2005).

2.3.1.5 Evaluation/Re-Examination

Risk management performance, the implementation status of plans and countermeasures and efficacy, achievement of objectives, validity of the whole project and its components, need to be evaluated. The crucial point in this process is to constantly review the risk identification and assessment processes in order to take appropriate countermeasures against frequent changes in the economic environment,

geographic features, social structures, localities, and other factors that may impact negatively on the enterprise (Nicholas, 2009).

2.3.2 Risk management in MSEs

Generally MSEs have been defined as high risk ventures with little or no structure for managing risks. Absence or minimal involvement of MSEs in risk management activities have drawn a lot of reactions from many parties. In a training by Federation of European Risk Management Associations (2006) to reduce MSE loss or failure aimed at improving the business performance and reducing the risk of loss and failure among small and medium sized businesses, it emerged that, MSEs were no different from other organizations, but their sizes made them particularly vulnerable to the impact of things going wrong, and they rarely have the resources to have a dedicated risk management professionals.

Poor risk management practices are very common among MSEs. In an online MSEs survey a UK based firm Light speed Research (2009), revealed that more than a third of MSEs cut their level of insurance cover in order to cut down their costs during tough economic times. Further, 13 per cent lacked adequate insurance cover for their business while one quarter had minimum cover only for what was legally required. Mwaniki (2006) in a study on 18 African countries revealed MSEs had weak risk assessment and management strategies in place. Some of the institutions studied admitted cited inadequate staff training, lack of relevant skills to enable them make good decisions, lack of business records, entrepreneurial and management capacities by the MSEs relevant in managing risks.

Even established institutions who work with and support MSEs admit the poor structures available for risk assessment and management among MSEs. Wendel & Harvey (2006), found out that, Kenyan lenders including banks lacked cost-effective ways to quantify credit risk in MSEs a factor that hinder full penetration into this market segment. Ingirige, (2008) observed that MSEs specifically were faced with poor planning, vulnerability to cash flow interruptions, lack of capital for recovery, ineffectual interactions with national agencies, infra-structure problems, individual attitudes and organizational culture, access to expertise, business sector and perceived exposure to risk. Collectively these factors determine the adaptive capacities and the overall behavior of MSEs.

According to Satchu (2009) to cultivate sound risk management, first MSEs need a coherent view of the world and an awareness of the challenges other similar enterprises face in order to consider and forecast on how they might be affected. This forms a basis of consciously planned and systematic risk management practice beyond common sense. There is also need for carefully designed micro insurance and risk management practices tailor made for MSEs. Finance Sector Deepening (FSD) (2009) identified some of the risk management products for MSEs as bid and performance bonds, crop and weather insurance, and cover for supply chain risks. None of these products is fully developed or actively used in the Kenyan market although some companies offer bid and performance bond cover and others like CIC insurance Co have started offering the crop and weather policies.

Only 44% of small businesses in the world survive for four years or more, one big reason for their mortality rate being poor risk management (Nicholas, 2009).

Cunningham (2008), in a discussion on MSE risk management series pointed out that SMEs have more reason to manage risk compared to their Medium and Large Enterprise counterparts. Proper risk management creates a competitive advantage, especially in times of crisis because it provides better identification of business opportunities and threats, and better corporate governance. Effective risk identification, assessment and mitigation, businesses can unlock the valuable upside of risk and create competitive advantage, certainty, security, efficiency, resilience and confidence.

Risk management by virtue of being an ongoing process can help improve operations, prioritize resources, ensure regulatory compliance, achieve performance targets, improve financial stability and ultimately, prevent loss or damage to the entity. It aims to secure the well-being of the company and its employees (Raghavan, 2005). Enterprise risk management (ERM) which involves continuous, holistic view of risks and risk management has been internationally recommended by international rating agencies such as Harvard Business Review, Sarbanes Oxley Act of 2002 and Basel Capital Accord II as a tool for ensuring better performance in times of crisis (Buchanan, 2004).

There are significant challenges to the implementation of ERM, one is the adoption of the ERM mode. According to Gate (2006); Deloitte, (2008), ERM as risk considerations is yet to be fully integrated into business decision making. Another challenge experienced is the variation in risk appetite between individuals and corporations. One of the major formulations on ERM was made by COSO (2004) which encompasses the crucial concept of risk appetite (Ai, *et al.*, 2012). Risk

appetite is a corporation's willingness and ability to undertake risks to achieve its strategic objectives that governs business decision making. In addition, interrelations between risks and the prioritization of risks are ranked in order of risk types according to importance, which is critical to holistic integration. This holistic integration is an important characteristic of the stated end-goal for ERM which is majorly to gain competitive advantage and create value (Economist Intelligence Unit, 2007).

Giesecke, *et al.* (2012) in their study on economic impacts of catastrophic events investigated the regional economic consequences of a hypothetical catastrophic event attack via radiological dispersal device centered on the downtown Los Angeles area. They found out that catastrophic risks when they strike can lead to the resource loss effect and shifts in the perceptions of economic agents which they termed as the behavioral effect. The resource loss effect relates to the physical destructiveness of the event, while the behavioral effect relates to changes in fear and risk perception. Other researchers have also concluded that some disaster risks when they strike lead to social, political, or economic consequences that go beyond the direct harm caused.

Zhou and Liu (2012) while studying on risk assessment of major hazards and its application in urban planning in China cited that in rapidly developing manufacturing industry it is essential to conduct a comprehensive risk assessment of the manufacturing establishments not only to the employees inside but to the general public and environment. Many manufacturing industries handle flammable, explosive, toxic, harmful, and dangerous substances. Therefore accidents such as fire, explosion, and toxic diffusion inevitably happen. Accidents resulting from these major hazards in cities cause a large number of casualties and property losses. As a result, it is

important for both the governments, and developers to attach increasingly importance to the analysis of major hazards in cities realistically and to suitably plan and utilize the surrounding land based on the risk analysis results, thereby reducing the hazards.

In Kenya, based on the governments Vision 2030, mushrooming of industrial parks at regional, and constituency level targeting the establishment of MSIs also pose similar challenges as experienced in China. It is however not clear on who bears the responsibility for proper risk assessments in these establishments. Risk analysis is the foundation and scientific basis of safety planning for urban land use. Therefore, it is necessary to use risk analysis to plan the industrial park, the location of construction projects, and the surrounding land uses of industrial parks or projects, taking into consideration which areas are designated for residential use, which areas for business, and which areas should be restricted on population density. Reasonably safe distances should also be established between the industrial park or building projects and the sensitive targets, so as to balance the land effectiveness and risks, not only to ensure that the land is maximally used but also to minimize significant risk for urban public safety (Zhou and Liu, 2012).

2.4 Risk Management and Enterprise Performance

In recent years, a growing number of firms have adopted enterprise risk management to improve risk management. Some risk management professionals argue that the 2008 financial crisis resulted from a system-wide failure to embrace ERM and that adopting ERM may prevent the history from repeating itself (Ecklesa, Hoyt & Miller, 2011). ERM adoption lowers the marginal cost (MC) of reducing risk, which creates incentives for profit-maximizing firms to reduce total risk while increasing firm value.

By combining the firm's risks into a risk-portfolio, an ERM-adopting firm is able to better recognize the benefits of natural hedging, prioritize hedging activities towards the risks that contribute most to the total risk of the firm, and optimize the evaluation and selection of available hedging instruments. Enterprise risk management (ERM) takes a broad perspective on identifying the risks that could cause an organization to fail to meet its strategies and objectives (William, Shenkir, and Walker, 2007).

A research conducted in Malaysia to establish the impact of risk management on enterprise performance revealed that enterprise risk management could contribute toward enhancing business performance and corporate risk profile. Contribution to the latter will in turn, reduce enterprises' cost of capital. The study also revealed that the main motivations for corporates in Malaysia to implement enterprise risk management practices have been that of tightening internal operations control and to reduce corporate cost of capital. These findings are consistent with the value maximization hypothesis of corporate risk management (Lai, 2012).

Risk refers to a deviation from what the organization planned or expected. Risk has an upside "opportunity" as well as a downside "the potential negative impact to an asset". This type of risk "loss" can prevent companies from achieving strategic goals. On the other hand, organizations can turn risks into opportunities through effective Risk Management (Barson, 2007).

2.5 Theoretical Framework

This study is based on the enterprise risk management model developed by the Committee of Sponsoring Organizations of Treadway Commission [COSO], 2004. For a long time, the Committee of Sponsoring Organizations of the Treadway

Commission (COSO) has issued Internal Control Integrated Framework to help businesses and other entities assess and enhance their internal control systems. That framework has since been incorporated into policy, rule, and regulation, and used by thousands of enterprises to better control their activities in moving toward achievement of their established objectives. Following the growing needs for a more comprehensive framework for risk management, COSO in 2001 initiated a project, and engaged Price water house Coopers, to develop a framework that would be readily usable by managements to evaluate and improve their organizations' enterprise risk management. COSO ERM was meant to provide key principles, concepts, a common language, and a clear direction and guidance on risk management.

COSO enterprise risk management integrated framework expands on internal control, providing a more robust and extensive focus on the broader subject of enterprise risk management. The framework is designed on assumption that, all entities face uncertainty, and the challenge for management is to determine how much uncertainty to accept as it strives to grow stakeholder value. Further, it assumes that, uncertainty presents both risk and opportunity, with the potential to erode or enhance value. Enterprise risk management encompasses: aligning risk appetite and strategy, enhancing risk response decisions, reducing operational surprises and losses, Identifying and managing multiple and cross-enterprise risks, seizing opportunities and improving deployment of capital. These principles in enterprise risk management help management achieve the entity's performance and profitability targets and prevent loss of resources (COSO, 2004). Enterprise risk management consists of eight interrelated components derived from the way management runs an enterprise and also integrated with the management process. These include internal environment,

objective setting, event identification, risk assessment, risk response, control activities, information and communication and monitoring (Lai, 2012)

However this model of risk management has its own challenges. The COSO ERM framework is based on individual decision making. The challenges result from the realities that human judgment in decision making can be faulty, decisions on responding to risk and establishing controls need to consider the relative costs and benefits. Two or more people and management have the ability to override enterprise risk management decisions. Secondly, the eight components may not function identically in every entity. Application in small and mid-size entities, for example, may be less formal and less structured. Nonetheless, small entities still can have effective enterprise risk management, as long as each of the components is present and functioning properly. In relation to the current study, this model provides a basis of identifying, evaluating risks and the risk management strategies. The comprehensiveness of an enterprise risk management framework according to the study may be evaluated on the eight basic components, and the comprehensiveness on the risk portfolio being managed in enterprises. This model also provides a basis of evaluating risk management in enterprises regardless of size and the formal structure under which it is implemented (COSO, 2004; Stoke, 2004)

2.6 Conceptual Frame Work

The conceptual framework on figure 2.1 shows the interrelationships of the study variables informed by the enterprise risk management framework guided by the theory of enterprise risk management summarized in (Nocco & Stulz, 2006). Nocco and Stulz (2006) define ERM as an approach under which all risks are viewed together within a coordinated and strategic framework, assessed and measures to

mitigate or exploit the opportunities behind the risk put in place. They further argue that ERM creates value, because it strengthens the firm's ability to carry out its strategic plan, by minimizing costs and maximizing profitability of the organization. In view of this, the conceptual model assumes that every organization big or small operates in an environment with risks and uncertainties. Therefore the management strategies adopted play a key role in determining the enterprise performance. The level of application of risk management strategies between Micro and Small Industries (MSIs) and that of Medium and Large Industries (MLIs) vary significantly.

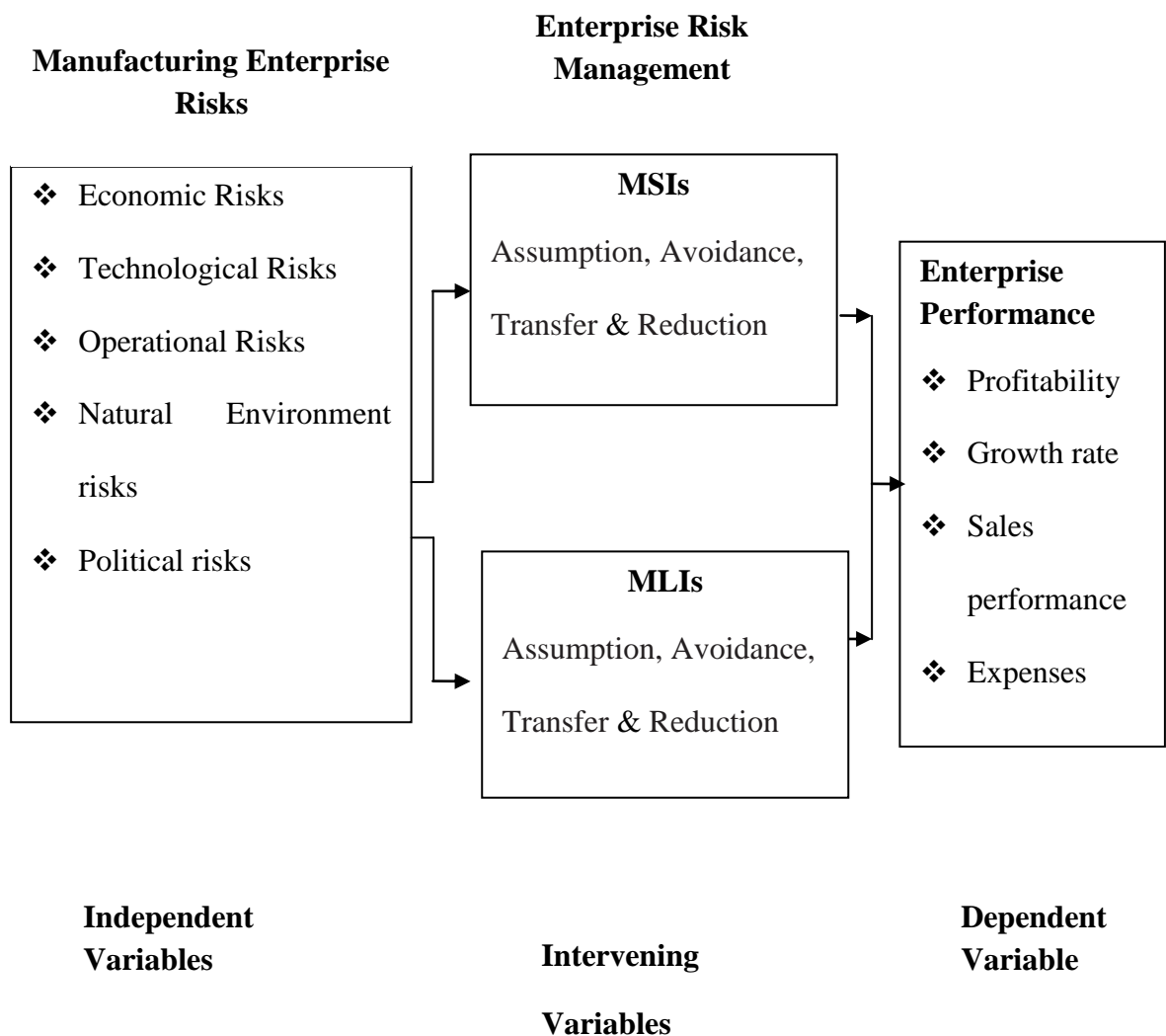


Figure 2.1: Risk management and enterprise performance

This study conceptualizes that manufacturing enterprises regardless of their sizes are exposed to similar risks from the business macro environment (Independent Variable). Macro level risks peculiar to a manufacturing business set up can be categorized based on their origin as; Economic Risks; Technological Risks; Operational Risks; Hazard; Natural Environment risks and Political risks.

Variations however arise in the way these two categories of enterprises manage the risks facing them based on their size (intervening variables). depending on the way an organization views and characterizes a risk on the basis of uncertainty, and loss levels, the measures put in place lie under four categories: risk retention, risk reduction, risk transfer or risk avoidance. Decisions on the risk management options are based on enterprises risk rating.

Even as business continue to operate in environment characterized by multiple risks, the success of business performance (dependent variable) depends on how well enterprise management are able to effectively manage the prevailing risks, through the correct choice of risk management strategy. Some of the key financial measures of enterprise performance include: profitability, growth rate, sales performance and expenditure levels.

2.7 Chapter Summary and Research Gap

Micro and Small enterprises have vast potential market for MSE finance, with little competition, high profit, massive potential. However, by virtue of their size and the mode of operation MSEs are subject to a number of risk factors. Several peculiar characteristics which make them more vulnerable to things going wrong include lack of professionalism and overdependence on one or two key persons, tough competition

and inadequate margin, low collection in account receivables, inability to cope with technological advancement and high employee turnover.

The key risks facing MSEs are no different from other organizations in the same industry, but their sizes make them particularly vulnerable to the impact of the risk. Therefore, MSEs have more reason to manage risk compared to their Medium and Large Enterprise counterparts. Enterprise risk management is an ongoing process that can help improve operations, prioritize resources, ensure regulatory compliance, achieve performance targets, improve financial stability and ultimately, prevent loss therefore improve on profits.

MSEs are by far and large poor in risk management practices, as revealed by researchers and other established institutions that support MSEs such as banks and other finance institutions. There are poor structures available for risk assessment and management among MSEs. As a result MSEs are unable to benefit from their full support such credit facilities and business among other services. Further, by virtue the many challenges facing MSEs the mortality remain high, one of the main causes being poor risk management practices. These trends however can be reversed through cultivation of sound risk management, a coherent view of the world and an awareness of the challenges other similar enterprises face in order to consider and forecast on how they might be affected.

ERM is a new risk management concept that looks at risks from a portfolio perspective rather than an individualistic view. Although enterprises big or small in one way or the other practice ERM, studies on its application remain scanty. Studies

on enterprise risk management among MSEs remain scanty across the world with more of the available studies focusing on MSEs in developed economies, focus on third world countries are very scanty. Best practices on the implementation of ERM also remain scanty especially among MSE.

Despite the similarity in the risk exposures among enterprises within the same industry, no study yet has been done to compare the risk management strategies adopted by enterprises of different sizes, and transition in risk management interventions from one stage to the other. This study therefore fills in these gaps by comparing the risk exposures and risk management strategies adopted by enterprises of different sizes MSI and MLIs in a developing economy.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology and procedures that were used in conducting the research. The chapter contains sections on the study area, research design, target population, sample size determination, sampling procedure, data collection instruments, validity and reliability of the instruments, data collection procedure, administration of research instruments, data analysis and presentation.

3.2 Study Area

This study was conducted in Nakuru Municipality which shared boundaries with Nakuru Town. Nakuru town was established by the British as part of the white highlands during the colonial era. It received town status in 1904 and municipality in 1952. The municipality is the fourth largest in Kenya after Nairobi, Mombasa and Kisumu. It is located around 156 km Northwest of Nairobi, 650km from Mombasa and 182km from Kisumu. Nakuru Municipality covers an area of 290 km² and has four locations and five sub locations. It has about 700,000 inhabitants (Nakuru District Development 2008-2012). The municipality, with Nakuru town as its headquarter is also a transitory town to western Kenya, Uganda and Tanzania on one side and Nairobi city, Coast and Tanzania on the other side. Nakuru is a cosmopolitan municipality hosting various races and ethnic groups of Kenya. Most of the municipality's income comes from the MSEs segment within manufacturing, tourism, education and agricultural sectors.

3.3 Research Design

A research design according to Gravetter and Forzano (2003) is a general plan for implementing a research strategy. The design specifies whether the study will involve groups or individual subjects and whether it will make comparison between groups or within groups. This study adopted a combination of comparative and descriptive designs to establish the risks and risk management strategies adopted by MLIs compared to MSIs within Nakuru Municipality and their influence on enterprise performance.

Comparative research according to Mills, Bunt & Bruijn (2006) searches for similarity and variance between two or more groups of subjects. It is used to separate patterns that are more general and isolate regularities from the context laden environment. Comparative design facilitated the comparison for similarities and variances between the risk exposures and risk management strategies adopted between MLIs and MSIs. Descriptive design on the other hand was adopted in investigating and describing the risks exposure and risk management strategies adopted. Descriptive design in research involves the description of the status of affairs as it exists. They involve the measurement, classification, and interpretation of data (Kisilu & Tromp, 2006). To control for variances, first the manufacturing enterprises selected were from the same geographical location, Nakuru Municipality. Secondly, one questionnaire was administered to the two groups of manufacturing enterprises.

3.4 Target Population

The target population for the study is defined by Best and Kahn (1998) as all individuals bearing similar characteristics of interest to the researcher. This study was conducted on manufacturing industries whose operations are based within Nakuru municipality. The target population for the study was 1937 manufacturing industries. These included 1847 MSIs and 90 MLIs. There were three Juakali Associations in Nakuru Municipality and all were chosen for study. The sampling frame for MSIs was obtained from the ministry of labour, Department of MSE Development, (DMSED) Nakuru District, which comprised of three Jua Kali associations: Bondeni, Shabaab and Central. On the other hand, the sampling frame for MLIs was obtained from the District Industrial Development office Nakuru (DIDO). DIDO Nakuru had 90 registered medium and large manufacturers. MSIs who operate as informal street vendors without licenses or even business names and affiliation to Jua kali groups were not included in the study.

3.5 Sampling for the Study

This section discusses the procedure used in determining the sample size and the sampling/selection procedure used.

3.5.1 Sample Size Determination

To obtain the desired sample size for the study, Nassiuma (2002) formula was used. Two independent samples were obtained: sample for MLIs (n_{MLIs}) and sample for MSIs (n_{MSIs}). The formula was applied to calculate the sample size on each category of manufacturing industries: MLIs and MSIs. Sample size calculations were as shown on equation 3.1 below:

$$n = (Nc_v^2) / (c_v^2 + (N-1)e^2) \dots \dots \dots \text{Eq 3.1}$$

Where:

n= Sample size

N= Population

C_v = Coefficient of variation (take 0.5)

e= Tolerance at desired level of confidence, take 0.05 at 95% confidence level

The sample size for MLIs (n_{MLI}) was determined as follows:

$$n_{MLI} = (N_{MLI} c_v^2) / (c_v^2 + (N_{MLI} - 1) e^2)$$

$$\text{Therefore } n_{MLI} = (90 * 0.5^2) / (0.5^2 + (90 - 1) * 0.05^2)$$

$$n_{MLI} = 47.6 \sim 48$$

The Sample size for MSIs (n_{MSI}) was determined as shown below:

$$n_{MSI} = (N_{MSI} c_v^2) / (c_v^2 + (N_{MSI} - 1) e^2)$$

$$\text{Therefore } n_{MSI} = (1847 * 0.5^2) / (0.5^2 + (1847 - 1) * 0.05^2)$$

$$n_{MSI} = 95.$$

Therefore the sample size for the study was 143 manufacturing industries comprising of 48 MLIs and 95 MSIs. The sample size distribution is shown on table 3.1.

Table 3.1: Sample Distribution Matrix

| | Target Population | Sample Size | Percentage |
|------------------------------------|------------------------------|------------------------|-------------------|
| Medium and Large Industries | | | |
| Medium industries | 71 | 36 | 50.7% |
| Large Industries | 19 | 12 | 63.1% |
| Sub total | 90 | 48 | 53.3% |
| Micro and Small Industries | | | |
| Bondeni Juakali Association | 627 | 32 | 5.14% |
| Central Juakali Association | 437 | 23 | 5.14% |
| Shabaab Juakali Association | 783 | 40 | 5.14% |
| Sub total | 1847 | 95 | 5.14% |
| GRAND TOTAL | 1837 | 143 | 7.78% |

3.5.2 Sampling Procedure

Selection of subjects from the population was done using stratified random sampling technique. Sampling for the two strata MLIs and MSIs was done independently. Random sampling ensured that each enterprise was given an equal chance of participation in the study and that there was no biasness in the selection of enterprises to participate.

3.6 Data Collection

Data collection is the process of conducting the actual research, collecting opinions from the selected sample. This section presents the data collection instrument design, instrument validity, reliability, and the administration procedure.

3.6.1 Data Collection Instruments

Primary data was elicited using questionnaires prepared by the researcher. Questionnaires allow collection of data from a large number of subjects simultaneously and provide for investigation with an ease of accumulation of data Graveter & Forzano (2003). One set of questionnaires was designed for both MLIs

and MSIs (see appendix i). This allowed for comparison of risks and risk management in the two categories measured on the same scale. The questionnaires were carefully designed with four sections; Section A sought to provide enterprise details such as age, products, location and size; Section B elicited data to identify potential risks manufacturing enterprises faced, their likelihood of occurrence, magnitude of loss should the risk strike, and the measures taken to minimize or eliminate the risks; the likelihood of occurrence was measured on a five point likert scale where very likely was denoted by 1.0, likely 0.8, moderate 0.6, unlikely 0.4, and very unlikely 0.2. Similarly the level of loss was measured on a five point likert scale as 1.0 denoting very high loss, 0.8 high, 0.6 moderate loss 0.4 low, and very low level of loss. Further in this section, managers were asked to identify the risk management strategies they applied in their industries. In the last section owner managers evaluated their enterprises in terms of profitability, productivity, sales, growth rate for the past five years.

3.6.2 Validity and Reliability of the Instruments

Adams, Jackson, & Marshall (2007) defines validity as the strength of conclusions and inferences of a research, which is dependent on the degree of accuracy in measuring what is intended in the research. To ensure internal, external and construct validity of the research instruments, this study relied on expert advice and judgment. This was given by the two supervisors from the department of quantitative and entrepreneurship studies Moi University. Consultations were done in all stages of the study.

Reliability according to Mugenda and Mugenda (2003), is a measure of the degree to which research instruments yield consistent results or data after repeated trials. To improve on reliability in this study, piloting of the questionnaires was done among 15 selected small scale enterprises in Eldoret Town. Piloting questionnaires were then analyzed using Cronbach's reliability coefficient in the statistical package for social scientists (SPSS, 19.0). A reliability coefficient of 0.708 was obtained which implied that the instruments were reliable. The judgment was informed by Fraenkel & Wallen (2000) who state that an alpha value of 0.7 and above is considered suitable to make group inferences that are accurate enough. Several questions found unreliable were modified for clarity purposes.

3.6.3 Administration of Research Instruments

To facilitate the data collection, an introductory letter was obtained from the School of Human Resource development Moi University (appendix ii) to enable the researcher obtain a research permit from the National Council for Science and Technology (NCST) (see appendix iv). The researcher then informed the Nakuru District Industrial Development Office (DIDO), and the Department of Micro and Small Enterprise Development. DIDO linked the researcher with the medium and large manufacturing enterprises by providing contacts persons who enabled easy access to the managing directors who formed the target respondents for MLIs with other senior managers.

Questionnaires for Managing directors of MLIs were then dropped at the MDs offices and collected later after one week. The questionnaires were accompanied by an introduction letter and copy of research permits from NCST. Those who had not completed the questionnaires were given more time as per their requests.

On the other hand the District Enterprise Development Officer in the DMSED office provided the register of registered Juakali enterprises (MSIs) and linked the researcher to the chair persons of the three Juakali Associations whose members were sampled to take part in the study. Chair persons of Juakali associations provided the mobile phone numbers of the owner managers and physical addresses of the sampled enterprises. Appointments were then booked for the filling of the questionnaires. Questionnaires for owner managers of MLIs were administered by the researcher assisted by two data collection assistants who were trained prior to the study on research protocols, the questionnaire design and ethical issues.

3.7 Data Analysis and Presentation

Raw data from the field was first cleaned then coded before being entered onto the computer for analysis using statistical package for social science (SPSS) version 19. Data cleaning in research is an important stage of verifying that the data values are correct or, at the very least, conform to some a set of rules (Bartholomew, Steel, Moustaki & Galbtaith, 2008). Coding on the other hand converts ranked data to numerical figures for easy analysis using quantitative tools. The choice of SPSS 19.0 in handling and analyzing data were made because it was easy to run, time saving and contained all the statistical analysis tools required in the study. Both descriptive and inferential statistics were used.

Analysis of data was then done according to the research objectives: to analyze objective one all the risks experienced in section two were listed down in order of frequency and percentage of enterprise who experienced it in the past. The mean rating was used to determine the order from most experienced risk factor to the least

experienced. A comparative ranking of the risk was plotted in a histogram based on the mean rating and a comparative analysis done for MLIs and MSIs using t-test statistics. The risk levels were analyzed by first analyzing the likelihood of risk and level of loss. This was done using frequencies, percentages and mean. Comparative risk rating was done for the likelihood of risk occurrence and the level of loss using t-test statistic. The level of significance was used to determine the equality of means in risk rating for MLIs and MSIs. The level of risk was then obtained by computing the product of the likelihood of risk occurrence and the level of loss. These findings were then summarized into frequencies and percentage, before computing the t-test statistic to determine the equality of means in risk exposure between MLIs and MSIs.

Risk management strategies adopted by manufacturing industries studied, were first identified by summarizing into frequencies and percentages, before being grouped into four categories of risk management options: risk retention, risk reduction, risk transfer and risk avoidance. A comparison of the risk management strategies adopted by MSIs and MLIs was done by plotting them on two pie charts side by side this this was an open question. Further a comparison of the grouped risks were done using t-test statistic between MLIs and MSIs.

Finally in analyzing the effect of risk management on industry performance, a summary of enterprise performance was done using frequencies and percentages. Secondly the comprehensiveness of risk management practice was established by summing the risk factors where mitigation measures had been put in place. The highest score would be 14 where an enterprise has put in strategies for all risks under study and 0 for an enterprise that has no mitigation strategy at all. Correlation

analysis was then done between comprehensiveness of risk management strategy and enterprise performance for each of the two categories of industries: MLIs and MSIs. The findings were then presented in tables, pie charts, and comparative bar graphs before discussions in chapters four and five.

3.8 Ethical Considerations

The researcher sought permission from the relevant authorities that is the national council of Science and Technology (NCST) and the Ministry of industrializations and the DMSED. Further, the researcher sought prior consent from all the participants to participate in the study. Participants were allowed to participate in the study on voluntary basis and also on their rights to withdraw from the study at any point in time. Anonymity and confidentiality of information disclosed was observed in all stages.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPREATION

4.1 Introduction

This chapter presents the analysis and interpretation findings of the study on the enterprise risks facing manufacturing enterprise, risk management strategies and their relationship with enterprise performance. The chapter is organized into six sections: introduction, general Information about the business enterprise, risks Facing MLIs and MSIs in Nakuru Municipality, risk management strategies, comparison of risk management strategies and effects of risk management of industry performance. Out of the 95 questionnaires issued to micro and small manufacturing enterprises, 92 were successfully filled in the presence of the researcher therefore a rate of return of 92(96.8%) was achieved, 3 questionnaire were filled but not usable. However, a lower rate of return for MLIs of 32(66.7%) was achieved.

4.2 General Information about the Business Enterprise

Under this section, the study presents the general information about the manufacturing business studied both large and small. The particular information of interest to the researcher were: age of the business, number of branches, type of goods manufactured, number of employees, why entrepreneurs chose Nakuru Town and technology used. Further the basic risk management practices were explored such as whether they attended training, whether there was a risk management department and risk managers in the industries.

4.2.1 Age of the Industries

Most of the MLIs 9(28.1%) were aged between 1-10 years while those above 40 years were 5(15.6%). Age distribution of the MLIs is presented on Table 4.1.

Table 4.1: Age Distribution of MLIs

| Age in years | Frequency | Percent |
|----------------|-----------|---------|
| 1 -10 | 9 | 28.1 |
| 11 - 20 | 6 | 18.8 |
| 21 - 30 | 7 | 21.9 |
| 31-40 | 5 | 15.6 |
| Above 40 years | 5 | 15.6 |
| Total | 32 | 100 |

Cumulatively 28(71.9%) of the MLIs were in the age bracket above 10 years implying that they had experience on the risk profiles in the manufacturing business in Nakuru Municipality. The age distribution of micro and small industries was also determined as shown on Table 4.2 which shows that majority 64(71.1%) were aged below 10 years.

Table 4.2: Age Distribution of MSIs

| Age in years | Frequency | Percent |
|----------------|-----------|---------|
| 1-10 | 64 | 71.1 |
| 11-20 | 18 | 20.0 |
| 21-30 | 6 | 6.7 |
| 21-40 | 2 | 2.2 |
| Above 40 years | 0 | 0 |
| Total | 90 | 100 |

This implies that based on the age which they have been in operation, majority of MLIs may not have enough experience on the risk profile in their enterprises in

Nakuru Municipality. T-test on the age of enterprises revealed that there was a significant difference in the mean ages of MLIs and MSIs $t(119) = 6.84, p < 0.05$. The mean age for MLIs was higher at 26.9 years while that of MSIs was 9.01. This indicates that MSIs were far much younger than MLIs in the manufacturing business therefore, they could borrow from the experiences of MLIs who have been longer in business in the same industry.

4.2.2 Number of Branches

The findings on the number of branches owned by MLIs are presented in Table 4.3. The findings show that majority 21(63.6%) had only on branch.

Table 4.3: Number of branches owned by MLIs

| Number of Branches | Frequency | Percent |
|--------------------|-----------|--------------|
| 1 | 21 | 63.6 |
| 2 | 3 | 9.1 |
| 3 | 1 | 3.0 |
| 4 | 1 | 3.0 |
| 5 | 2 | 6.1 |
| 11 | 2 | 6.1 |
| 20 | 2 | 6.1 |
| Total | 32 | 100.0 |

This implies that majority of the questionnaires for MLIs were administered at the industry head quarters therefore the information on risks and risk management gathered reflected the actual risk situation on ground.

Majority of MSIs studied 81(88.0%) had only one branch. These findings are presented on Table 4.4.

Table 4.4: Number of Branches Owned by MSIs

| Number of branches | Frequency | Percent |
|--------------------|-----------|--------------|
| 1 | 81 | 88.0 |
| 2 | 7 | 7.6 |
| 4 | 3 | 3.3 |
| 5 | 1 | 1.1 |
| Total | 92 | 100.0 |

Similar to MLIs this indicates that the questionnaires administered were done from the main branch which has the overall risk information about the enterprise. In terms of equality in branch networks, a t-test analysis revealed $t(122) = 4.14$, $p < 0.05$ where the mean number of branches for MLIs was 4 against a mean of 1 branch for MSIs. This means that there exists a significant gap in size between MLIs and MSIs in terms of branch networks.

4.2.3 Type of Branch

The findings on the type of MLI branch studied are shown on Table 4.5. The findings on Table 4.5 show that 24(75%) of the MLIs branches studies were the organizations main branch or the headquarters.

Table 4.5: Type of Branch for MLIs

| Type of Branch | Frequency | Percent |
|----------------------|-----------|------------|
| Main | 24 | 75 |
| Regional | 5 | 15.6 |
| Distribution station | 3 | 9.4 |
| Total | 32 | 100 |

This confirms the findings on 4.2.2 that majority of the questionnaires were administered at the head offices of MLIs. Findings on the type of MSI branches studied are presented on Table 4.6. The findings indicate that 87 (94.1%) of the questionnaires for MSIs were administered at the head quarters.

Table 4.6: Type of Branch for MSIs

| Type of Branch | Frequency | Percent |
|-----------------------|------------------|----------------|
| Main | 87 | 94.6 |
| Regional | 4 | 4.3 |
| Distribution office | 1 | 1.1 |
| Total | 92 | 100 |

Similar to MLIs this implies that the information collected from the head offices of these enterprises reflect the risk situation in the enterprises.

4.2.4 Types of goods Manufactured

This was an open question where industries studies were asked to indicate the kind of goods they produced. The main type of goods cited by MLIs included animal feeds, maize and wheat meal, pyrethrum products, batteries, textiles, fertilizers, grain handling and processing. MSIs on the other hand cited animal feeds, maize meals, paper, pottery, hand crafts, textiles, metal work and furniture.

4.2.5 Reasons for the Choice of Nakuru

The findings on the reasons cited by both MLIs and MSIs for choosing Nakuru are presented on Figure 4.1. Majority 53% of MLIs and 71% of MSIs indicated that Nakuru was close to their target customers, 84% of MLIs termed the town as strategically placed for their business, 59% of MSIs cited closeness to their homes.

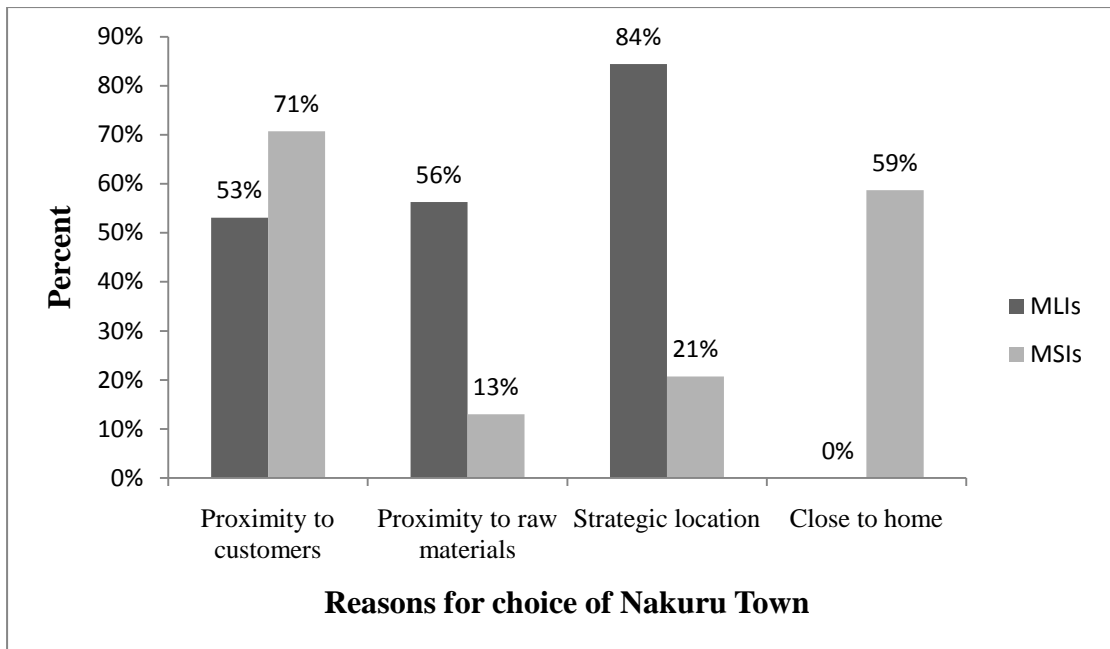


Figure 4.1: Reasons for the Choice of Nakuru

The reasons cited varied in the two categories while others cited more than one reason for choosing Nakuru Town for their manufacturing business. T-test analysis on the reasons cited for selecting Nakuru Town for their manufacturing operations revealed a significant difference between industries which cited proximity to customers $t(83) = 3.26, p < 0.05$, proximity to raw materials $t(32) = 2.16, p < 0.05$, strategic $t(41) = 3.78, p < 0.05$. While MLIs considered the strategic location of the town, proximity to customers and raw materials, MSIs considered closeness to customers and at the same time closeness to their homes.

4.2.6 Technology Used

Findings on the type of technology adopted by the industries are presented of Figure 4.2. Semi-automated technology was adopted by 65.6% of MLIs, while 18.8% had their systems fully automated on the other hand 72.8% of the MSIs heavily used manual technologies.

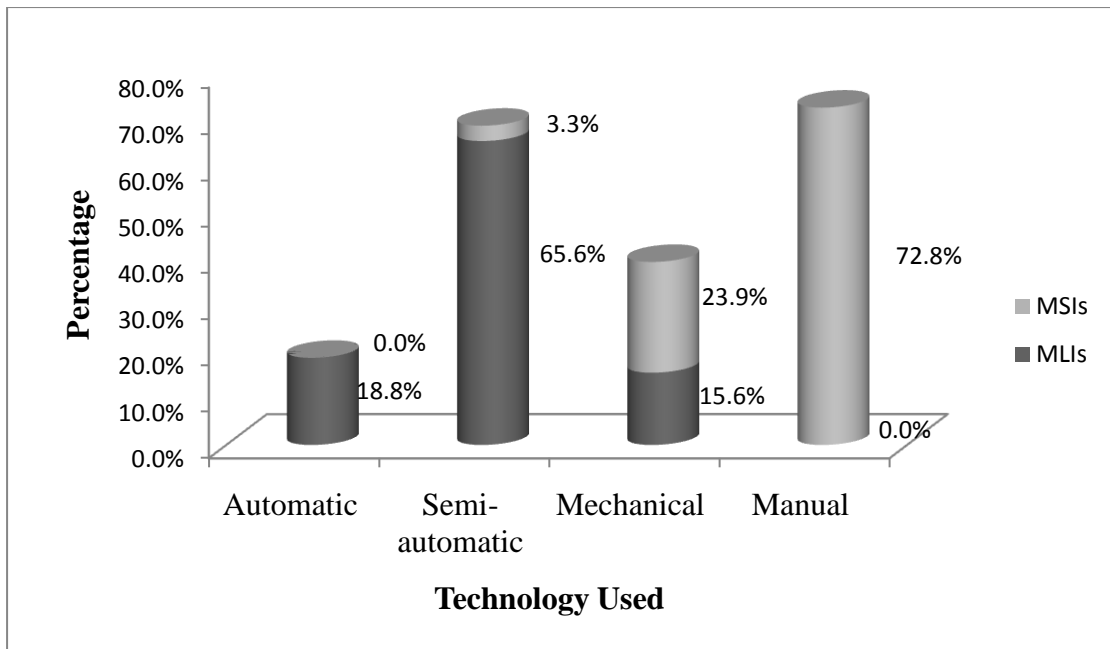


Figure 4.2: Technology Used

The two categories of enterprises were in the two extreme ends of sophistication in technology adopted with MLIs tending to fully automated technologies and MSIs tending towards manual technologies. Dynamics of operation of different technologies presents varied risks to the persons operating it.

4.2.7 Basic Risk Management Practices in Place

This section sought to establish the basic risk management practices in place for both categories of enterprises, that is, whether there were trainings on risk management, the presence of risk managers and risk management departments. The findings are presented on appendix v (a,b &c). Risk management training among staff of MLIs was present as indicated by 75% who had received the training as opposed to MSIs where 81.5% of owner managers indicated that they had not undergone training on risk management. The findings on presence of risk managers revealed that 61.3% of MLIs did not have risk managers while 94.6% of MSIs did not have. Majority 51.6%

of the MLIs had either a department or section dedicated to risk management in their management structure while 96.7% of MSIs did not.

4.3 Risks Facing MLIs and MSIs in Nakuru Municipality

In order to identify the risks experienced by manufacturing enterprises, owner managers and directors of industries surveyed were asked to rate from a list of fourteen risk factors their experiences on past occurrences, the likelihood of occurrence in future and the perceived magnitude of loss enterprises should the risk strike their enterprise. The likelihood of occurrence and magnitude of loss were rated on a five point scale as very high, high, medium, low, or very low.

4.3.1 Risks Previously Experienced by MLIs

Risks experienced were ranked using the frequency of occurrence of risk in the past. Inflation and changes in interest rates were the most experienced risk factors by 93.3% and 93.1% of MLIs respectively, followed by theft and personal injuries each experienced by 88%. The least experienced were natural calamities in 28.1% of MLIs. Ranking of all risk factors experienced by MLIs are presented on Table 4.7.

Table 4.7: Risks Previously Experienced by MLIs

| Risk Factors | Ever experienced | | Have not experienced | | Mean |
|---------------------------------|------------------|------------|----------------------|------------|------|
| | Frequency | Percentage | Frequency | Percentage | |
| Inflation | 28 | 93.3 | 2 | 6.7 | 0.93 |
| Changes in interest rates | 27 | 93.1 | 2 | 6.9 | 0.93 |
| Theft | 28 | 87.5 | 4 | 12.5 | 0.88 |
| Personal injuries and accidents | 28 | 87.5 | 4 | 12.5 | 0.88 |
| Economic recessions | 26 | 81.3 | 6 | 18.8 | 0.81 |
| Political instability | 26 | 81.3 | 6 | 18.8 | 0.81 |
| Critical machine breakdowns | 22 | 73.3 | 8 | 26.7 | 0.73 |
| Loss of key staff | 23 | 71.9 | 9 | 28.1 | 0.72 |
| Technological changes | 23 | 71.9 | 9 | 28.1 | 0.72 |
| Unfair competition | 21 | 70.0 | 9 | 30.0 | 0.70 |
| Property damage | 19 | 59.4 | 13 | 40.6 | 0.59 |
| Unfavourable regulations | 15 | 46.9 | 17 | 53.1 | 0.47 |
| Reputation damage | 12 | 37.5 | 20 | 62.5 | 0.38 |
| Natural calamities | 9 | 28.1 | 23 | 71.9 | 0.28 |

This implies that MLIs in Nakuru Municipality have in the past been affected by external risks key among them being financial and economic risks. These include volatile interest rates, inflation, economic recessions, and security leading to theft. Internal risk factors ranked low since majority are controllable by the enterprises themselves.

4.3.2 Risks Previously Experienced by MSIs

MSIs too had their own risk previously experienced as shown on the findings on Table 4.8. Unfair competition, economic recessions, unfavorable government regulations, and political instability were the most commonly experienced risks where 84.8%, 82.6%, 79.3% and 75.0% of MSIs cited to have experienced these risks respectively. The least was natural calamities experienced in 31.5% of the MSIs.

Table 4.8: Risks Previously Experienced by MSIs

| Risk Factors | Ever experienced | | Did not experience | | Mean |
|---------------------------------|------------------|------------|--------------------|------------|------|
| | Frequency | Percentage | Frequency | Percentage | |
| Unfair competition | 78 | 84.8 | 14 | 15.2 | 0.85 |
| Economic recessions | 76 | 82.6 | 16 | 17.4 | 0.83 |
| Unfavourable regulations | 73 | 79.3 | 19 | 20.7 | 0.79 |
| Political instability | 69 | 75.0 | 23 | 25.0 | 0.75 |
| Reputation damage | 60 | 65.2 | 32 | 34.8 | 0.65 |
| Theft | 56 | 60.9 | 36 | 39.1 | 0.61 |
| Personal injuries and accidents | 54 | 58.7 | 38 | 41.3 | 0.59 |
| Property damage | 44 | 47.8 | 48 | 52.2 | 0.48 |
| Loss of key staff | 42 | 45.7 | 50 | 54.3 | 0.46 |
| Technological changes | 41 | 44.6 | 51 | 55.4 | 0.45 |
| Critical machine breakdowns | 36 | 39.1 | 56 | 60.9 | 0.39 |
| Changes in interest rates | 32 | 34.8 | 60 | 65.2 | 0.35 |
| Changes in inflation | 29 | 31.5 | 63 | 68.5 | 0.33 |
| Natural calamities | 29 | 31.5 | 63 | 68.5 | 0.32 |

Looking at the risk ranking in MSIs, it is evident that, external environment risks still pose greater risks to MSIs. However, competition and unfavorable government regulations are risk that enterprises can manage through internal mechanisms. The findings also confirm the regulatory challenges experienced by MSEs owing to the many government legislations, licensing and regulating bodies in the sector.

4.3.3 Comparison of Risks Previously Experienced by MLIs and MSIs

Figure 4.3 presents a comparative plotting of the risks previously experienced by MLIs and MSIs. The number of industries experiencing natural calamities were low in both categories; 31.5% MSIs and 28.1% MLIs. Critical machine breakdowns, changes in technology, loss of key staff, personal injuries, theft and property damages were more prevalent among MLIs. Reputational damage, unfavorable government regulations and unfair competition were more prevalent in MSIs.

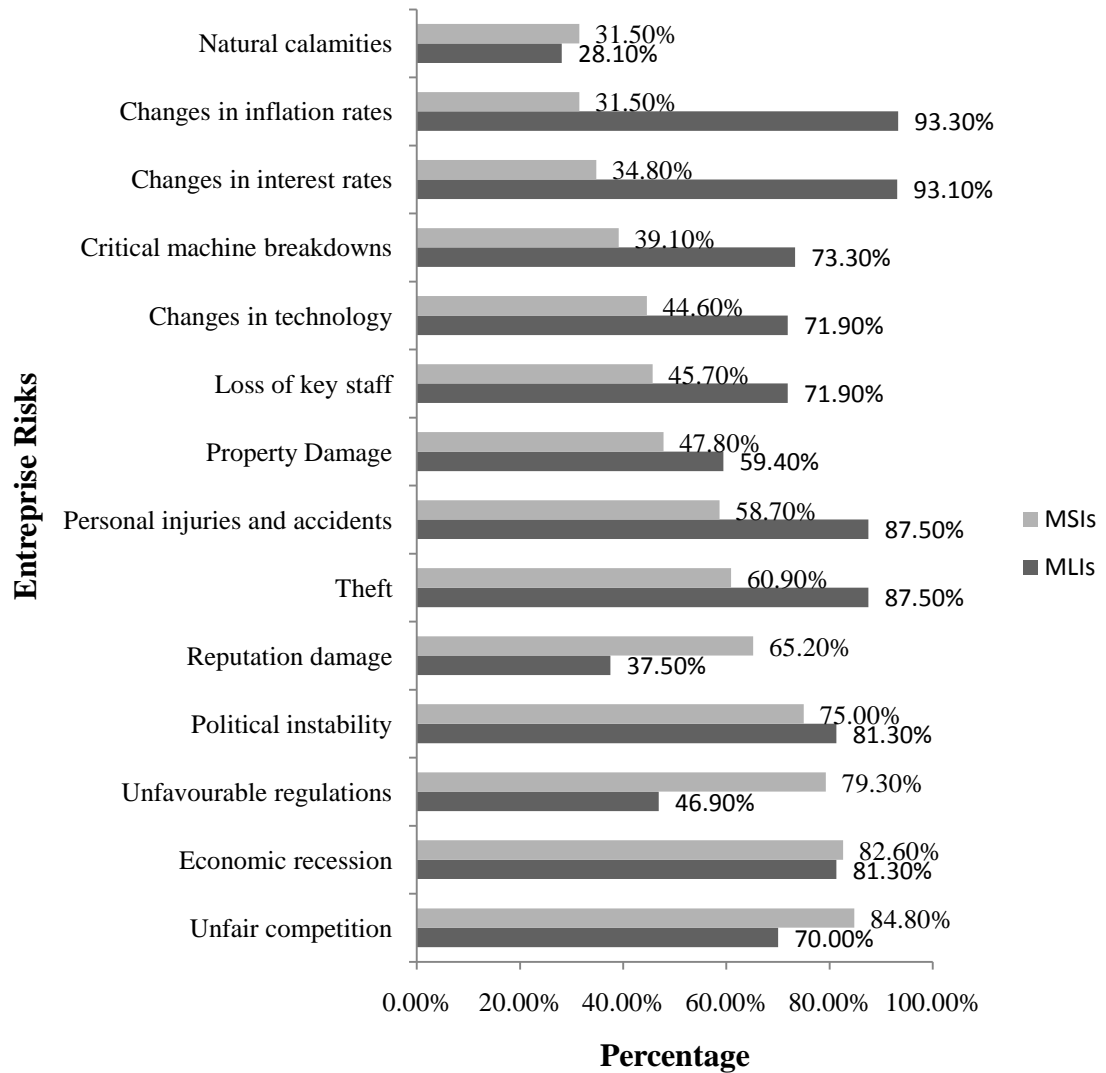


Figure 4.3: Comparison of Risks Experienced By MLIs and MSIs

The results indicate that, risk experienced by the two categories of industries differed significantly for most of the risk factors surveyed. A statistical comparison on the risk experiences by the two categories of manufacturing industries is shown on Table 4.9. The t-test results indicated that risk experiences were significantly different for: theft, personal injuries and accidents, changes in inflation rates, changes in interest rates, loss of key staff, critical machine breakdowns, reputation damage, changes in technology, and unfavourable government regulations.

Table 4.9: T-test on Risks Experienced by MLIs and MSIs

| Risk Factor | Sig. | | | Mean |
|---------------------------------|-------|-----|------------|------------|
| | t | df | (2-tailed) | Difference |
| Property Damage | 1.122 | 122 | .264 | .11549 |
| Natural calamity | 0.356 | 122 | .722 | -.03397 |
| Theft | 2.843 | 122 | .005 | .26630 |
| Personal injuries and accidents | 3.052 | 122 | .003 | .28804 |
| Economic recession | 0.172 | 122 | .864 | -.01359 |
| Changes in inflation rates | 6.910 | 120 | .000 | .61812 |
| Changes in interest rates | 6.266 | 119 | .000 | .58321 |
| Loss of key staff | 2.607 | 122 | .010 | .26223 |
| Critical machine breakdowns | 3.381 | 120 | .001 | .34203 |
| Reputation damage | 2.801 | 122 | .006 | -.27717 |
| Unfair competition | 1.807 | 120 | .073 | -.14783 |
| Political instability | 0.715 | 122 | .476 | .06250 |
| Changes in technology | 2.720 | 122 | .007 | .27310 |
| Unfavourable regulations | 3.641 | 122 | .000 | -.32473 |

This implies that despite that, these enterprises operate within the same environment, risk experiences vary based on the size of the enterprises.

4.3.4 Likelihood of Risk Occurrence

All risks have two dimensions in them: likelihood of occurrence, and severity of the potential consequences. Therefore in assessing the risks experienced by manufacturing enterprises in Nakuru, respondents were also asked to rate the risk factors on the likelihood of occurrence and severity of the risk if it occurred. Likelihood of occurrence was measured on a five point lickert scale rated on a scale of 0.2-1.0. That is: very likely (1.0), likely (0.8), not sure (0.6) unlikely (0.4) and very unlikely (0.2). The responses on likelihood of risk occurrence are presented in the following section.

4.3.4.1 MLI Rating on the Likelihood of Risk Occurrence

The findings on the likelihood of risk occurrence rating by managers and directors of Medium and Large Manufacturing Enterprises are presented on Table 4.10. The findings revealed that, based on the future projections on the likelihood of risk occurrence, technological changes, injuries and industrial accidents were the most likely risk factors ranked at a mean of 0.79, followed by theft, changes in interest rates, critical machine breakdowns and unfair competition. The least likely risks were political instability and reputational damage at a mean of 0.56 and 0.59 respectively.

Table 4.10: MLI Rating on the Likelihood of Risk Occurrence

| Risk Factor | Likelihood of Occurrence | | | | | Mean Rating |
|---------------------------------|--------------------------|-----------------|-------------------|-------------------|------------------------|-------------|
| | Very likely (1.0) | Likely (0.8) | Not sure (0.6) | Unlikely (0.4) | Very unlikely (0.2) | |
| Property Damage | 4(12.5%) | 12(37.5%) | 7(21.9%) | 8 (25.0%) | 1(3.1%) | 0.66 |
| Natural calamity | 2(6.3%) | 10(31.3%) | 11(34.4%) | 5(15.6%) | 4(12.5%) | 0.61 |
| Theft | 4(13.3%) | 17(56.7%) | 5(16.7%) | 3(10.0%) | 1(3.3%) | 0.73 |
| Personal injuries and accidents | 7(21.9%) | 19(59.3%) | 4(12.5%) | 2(6.3%) | 0(0.0%) | 0.79 |
| Economic recessions | 2(6.3%) | 13(40.6%) | 15(46.9%) | 1(3.1%) | 1(3.1%) | 0.69 |
| Changes in inflation | 1(3.1%) | 16(50.0%) | 12(37.5%) | 2(6.3%) | 1(3.1%) | 0.69 |
| Changes in interest rates | 2(6.3%) | 19(59.4%) | 9(28.1%) | 1(3.1%) | 1(3.1%) | 0.73 |
| Loss of Key staff | 1(3.1%) | 19(59.4%) | 7(21.9%) | 4(12.5%) | 1(3.1%) | 0.69 |
| Critical machine breakdowns | 9(28.1%) | 12(37.5%) | 3(9.4%) | 5(15.6%) | 3(9.4%) | 0.72 |
| Reputation damage | 1(3.1%) | 10(31.3%) | 12(37.5%) | 5(15.6%) | 4(12.5%) | 0.59 |
| Unfair competition | 4(13.3%) | 17(56.7%) | 3(10.0%) | 4(13.3%) | 2(6.7%) | 0.71 |
| Political instability | 0(0.0%) | 6(18.8%) | 16(50.0%) | 7(21.9%) | 3(9.4%) | 0.56 |
| Changes in technology | 10(31.3%) | 16(50.0%) | 1(3.1%) | 4(12.5%) | 1(3.1%) | 0.79 |
| Unfavourable regulations | 6(20.0%) | 13(43.3%) | 5(16.7%) | 5(16.7%) | 1(3.3%) | 0.72 |

This implies that as enterprises grew to medium and large where they adopted more sophisticated technologies, technology related risks became more prevalent. The rating on the likelihood of risk occurrence were above 0.5 for all risks which implies that all the risks under investigation were potential in the manufacturing industries.

4.3.4.2 MSI Rating on the Likelihood of Risk Occurrence

Similar to risk likelihood by MLIs, the findings on MSIs rating on likelihood of risk occurrence as identified by owner/mangers are shown on Table 4.11. The findings revealed that according to MSIs, unfair competition was the most likely risk to occur rated at a mean of 0.78, closely followed by personal injuries at a mean of 0.76, reputation damage and unfavorable government regulations rated at a mean of 0.75. The risk least likely to occur was critical machine break downs rated at a mean of 0.58, and changes in inflation rated at a mean of 0.57.

Table 4.11: MSI Rating on the Likelihood of Risk Occurrence

| Risk Factor | Likelihood of Occurrence | | | | | Mean Rating |
|---------------------------------|--------------------------|-----------------|-------------------|-------------------|------------------------|-------------|
| | Very likely (1.0) | Likely (0.8) | Not sure (0.6) | Unlikely (0.4) | Very unlikely (0.2) | |
| Property Damage | 8(8.7%) | 44 (47.8%) | 16 (17.4%) | 23 (25.0%) | 1(1.1%) | 0.68 |
| Natural calamity | 4(4.3%) | 36(3.91%) | 15(16.3%) | 31(33.7%) | 6(6.5%) | 0.60 |
| Theft | 13(14.1%) | 53(57.6%) | 12(13.0%) | 14(15.2%) | 0 (0.0%) | 0.74 |
| Personal injuries and accidents | 18(19.6%) | 55(59.8%) | 4(4.3%) | 13(14.1%) | 2(2.2%) | 0.76 |
| Economic recessions | 1(1.15%) | 29(31.5%) | 55(59.8%) | 6(6.5%) | 1(1.1%) | 0.65 |
| Changes in inflation | 4(4.3%) | 17(18.5%) | 35(38.0%) | 34(37.0%) | 2(2.2%) | 0.57 |
| Changes in interest rates | 1(1.1%) | 43(46.7%) | 19(20.7%) | 23(25.0%) | 6(6.5%) | 0.62 |
| Loss of Key staff | 7(7.6%) | 45(48.9%) | 13(14.1%) | 23(25.0%) | 4(4.3%) | 0.66 |
| Critical machine breakdowns | 11(12.0%) | 27(29.3%) | 3(3.3%) | 42(45.7%) | 9(9.8%) | 0.58 |
| Reputation damage | 18(19.6%) | 52(56.5%) | 7(7.6%) | 12(13.0%) | 3(3.3%) | 0.75 |
| Unfair competition | 19(20.7%) | 58(63.0%) | 6(6.5%) | 8(8.7%) | 1(1.1%) | 0.78 |
| Political instability | 5(5.4%) | 17(18.55) | 56(60.9%) | 9(9.8%) | 5(5.4%) | 0.62 |
| Changes in technology | 14(15.2%) | 27(29.3%) | 14(15.2%) | 28(30.4%) | 9(9.8%) | 0.62 |
| Unfavourable regulations | 22(23.9%) | 41(44.6%) | 14(15.2%) | 12(13.0%) | 3(3.3%) | 0.75 |

The finding presented on Table 4.11 imply that, reputational damages and unfair competition were common scenarios that affected Micro and Small manufacturing businesses. This could be due to the clustered nature of MSIs in the three regions under study, Bondeni, Shabaab, and Central regions where enterprises producing similar products operated within the same area. Government regulations also

presented challenges to MSIs which again could be linked to the periodic licensing and harassment by council police men.

4.3.4.3 Comparative Analysis Using T-test

A comparative analysis on the rating on the likelihood of risk occurrence was done between MLIs and MSIs and the results are presented on Table 4.12. The test results indicate that there was no significant difference in projection on the likelihood risk occurrence in the future for nine out of the fourteen risk factors under investigation. These include property damage $t(122) = -0.325$, $p > 0.05$, natural calamities $t(122) = -0.091$, $p > 0.05$, theft, personal injuries and accidents, economic recession, loss of key staff, unfair competition, political instability and unfavorable government regulations. However, there was a significant difference on rating on the likelihood of risk occurrence for changes in inflation rates $t(122) = 3.357$, $p < 0.05$, changes in interest rates, critical machine breakdowns, reputational damage and changes in technology

Table 4.12: T-test on Likelihood of Risk Occurrence between MLIs and MSIs

| Risk Factors | t | df | Sig. (2-tailed) | Mean Difference |
|---------------------------------|--------|-----|--------------------|--------------------|
| Property Damage | -.325 | 122 | .746 | -.01359 |
| Natural calamities | .091 | 122 | .928 | .00408 |
| Theft | -.208 | 120 | .836 | -.00797 |
| Personal injuries and accidents | .854 | 122 | .395 | .03288 |
| Economic recession | 1.335 | 122 | .184 | .03750 |
| Changes in inflation rates | 3.357 | 122 | .001 | .11889 |
| Changes in interest rates | 2.621 | 122 | .010 | .10326 |
| Loss of key staff | .784 | 122 | .435 | .03288 |
| Critical machine breakdowns | 2.705 | 122 | .008 | .14266 |
| Reputation damage | -3.743 | 122 | .000 | -.15842 |
| Unfair competition | -1.909 | 120 | .059 | -.07362 |
| Political instability | -1.746 | 122 | .083 | -.06114 |
| Changes in technology | 3.350 | 122 | .001 | .16793 |
| Unfavourable regulations | -.566 | 120 | .572 | -.02565 |

This implies that the likelihood of occurrence of majority of the risk factors in the manufacturing industry was the same regardless of enterprise size. These risks when they occur they do so across the industry. Some internal risk factors such as theft loss of key staff, and property damages by fire and other human causes are equally likely to occur in both categories of enterprises. Technological risks however increase as the enterprise grows and engages more sophisticated technologies. Reputation damages are more common in MSIs due to the nature of their operating environment.

4.3.5 Level of Loss

The second component of describing the level of risk facing an organization is the probable level of loss should the risk occur. Similar to the likelihood of occurrence, respondents in the two categories of enterprises MLIs, and MSIs were asked to rate the highest probable level of loss that could be experienced in their businesses, should the risk factor in question strike uncontrolled. Level of loss was rated on a five point lickert scale and coded as: very likely (1.0), likely (0.8), Not sure (0.6) unlikely (0.4) and very unlikely (0.2). The following sections discuss the findings on enterprise rating on the level of loss.

4.3.5.1 MLI Rating on the Level of Loss

Findings on the level of loss according to MLIs managers and directors are shown on Table 4.13. Natural calamities would result to the greatest loss rated at a mean of 0.856, followed by property damages by human causes such as fire at a mean of 0.838, political instability at a mean of 0.775 and critical machine breakdowns at a mean of 0.719. Unfair competition would lead to the least loss to MLIs rated at a mean of 0.638 followed by changes in technology at a mean of 0.663, changes in

inflation interest rates at a mean of 0.675 and changes in inflation rates at 0.681. The rest of the findings on the likely level of loss are presented on Table 4.13.

Table 4.13: MLI Rating on the Level of Loss

| Risk Factor | Likelihood of Occurrence | | | | | Mean Rating |
|---------------------------------|--------------------------|-----------|-----------|----------|----------|-------------|
| | Very High | High | Moderate | Low | Very low | |
| | (1.0) | 0.8 | 0.6 | 0.4 | 0.2 | |
| Property Damage | 17(53.1%) | 8 (25.0%) | 4 (12.5%) | 2(6.3%) | 1(3.1%) | 0.838 |
| Natural calamity | 18(56.3%) | 9(28.1%) | 2(6.3%) | 2(6.3%) | 1(3.1%) | 0.856 |
| Theft | 5(15.6%) | 10(31.3%) | 12(37.5%) | 3(9.4%) | 2(6.3%) | 0.681 |
| Personal injuries and accidents | 5(15.6%) | 14(43.8%) | 5(15.6%) | 7(21.9%) | 1(3.1%) | 0.694 |
| Economic recessions | 4(12.5%) | 11(34.4%) | 13(40.6%) | 4(12.5%) | 0(0.0%) | 0.694 |
| Changes in inflation | 2(6.3%) | 13(40.6%) | 13(40.6%) | 4(12.5%) | 0(0.0%) | 0.681 |
| Changes in interest rates | 1(3.1%) | 13(40.6%) | 15(46.9%) | 3 (9.4%) | 0(0.0%) | 0.675 |
| Loss of Key staff | 6(18.8%) | 10(31.3%) | 8(25.0%) | 8(25.0%) | 0(0.0%) | 0.688 |
| Critical machine breakdowns | 11(34.1%) | 8(25.0%) | 5(15.6%) | 5(15.6%) | 3(9.4%) | 0.719 |
| Reputation damage | 6(18.8%) | 11(34.4%) | 6(18.8%) | 6(18.8%) | 3(9.4%) | 0.669 |
| Unfair competition | 2(6.3%) | 13(40.6%) | 10(31.3%) | 3(9.4%) | 4(12.5%) | 0.638 |
| Political instability | 8(25.0%) | 18(56.3) | 1(3.1%) | 4(12.5%) | 1(3.1%) | 0.775 |
| Changes in technology | 4(12.5%) | 7(21.9%) | 16(50.0%) | 5(15.6%) | 0(0.0%) | 0.663 |
| Unfavourable regulations | 4(12.5%) | 14(43.8%) | 9(28.1%) | 4(12.5%) | 1(3.1%) | 0.700 |

The findings presented on Table 4.13 above imply that, the maximum possible loss from a risk also varied independent of the likelihood of occurrence. MLIs perceived financial risks such as changes in interest rates and changes in inflation rates to have the least loss impact as seen in the loss rating. In the manufacturing sector where investment in machinery and equipments is key, risks with potential to damage capital machines, equipments and stocks of raw materials have the greatest likely loss. This is evident from the high rating for natural calamities and property damages.

4.3.5.2 MSI Rating on the Level of Loss

Findings on MSIs opinion on the highest level of loss that could occur in the event of the risk factors in question striking uncontrolled are presented on Table 4.14. According to MSI owner managers, property damages by human causes such as fire present the highest possible loss rated at a mean of 0.898, followed by loss as a result

of theft at a mean of 0.887, and loss from natural calamities rated at a mean of 0.757. The risk of changes in technology would present the least loss to MLIs rated at a mean of 0.437, followed by changes in interest rates rated at a mean of 0.452. The rating on the likely level of loss are presented on Table 4.14.

Table 4.14: MSI Rating on the Level of Loss

| Risk Factor | Likelihood of Occurrence | | | | Mean Rating | |
|---------------------------------|--------------------------|---------------|-------------------|--------------|-------------|-------|
| | Very High (1.0) | High (0.8) | Moderate (0.6) | Low (0.4) | | |
| Property Damage | 65(70.7%) | 14 (15.2%) | 8 (8.7%) | 3(3.3%) | 2(2.1%) | 0.898 |
| Natural calamity | 35(38.0%) | 21(22.8%) | 19(20.7%) | 15(16.3%) | 2(2.2%) | 0.757 |
| Theft | 30(32.6%) | 22(23.9%) | 21(22.8%) | 16(20.7%) | 3(3.3%) | 0.887 |
| Personal injuries and accidents | 14(15.2%) | 16(17.4%) | 20(21.7%) | 32(34.8%) | 10(10.9%) | 0.583 |
| Economic recessions | 7(7.6%) | 13(14.1%) | 32(34.9%) | 27(29.3%) | 13(14.1%) | 0.544 |
| Changes in inflation | 8(8.7%) | 6(6.5%) | 23(24.0%) | 29(31.5%) | 26(28.3%) | 0.589 |
| Changes in interest rates | 4(4.3%) | 7(7.6%) | 22(23.9%) | 35(38.0%) | 24(26.1%) | 0.452 |
| Loss of Key staff | 8(8.7%) | 9(9.8%) | 16(17.4%) | 34(37.0%) | 25(27.2%) | 0.472 |
| Critical machine breakdowns | 11(12.0%) | 10(10.9%) | 16(17.3%) | 25(27.2%) | 30(32.6%) | 0.485 |
| Reputation damage | 9(9.8%) | 3(3.3%) | 26(28.2%) | 41(44.6%) | 13(14.1%) | 0.500 |
| Unfair competition | 5(5.4%) | 10(10.9%) | 37(40.2%) | 29(31.5%) | 11(12.0%) | 0.533 |
| Political instability | 23(25.0%) | 19(20.6) | 26(28.3%) | 16(17.4%) | 8(8.7%) | 0.672 |
| Changes in technology | 6(6.5%) | 7(7.6%) | 19(20.7%) | 26(28.3%) | 34(37.0%) | 0.437 |
| Unfavourable regulations | 12(13.0%) | 11(12.0%) | 20(21.7%) | 33(35.9%) | 16(17.4%) | 0.535 |

Similar to MLIs, MSIs would experience greatest loss if the risks striking involved the loss of machines and equipments. Therefore, loss levels due to property damages and natural calamities would be highest. Theft in MSIs has the potential to cause high levels of loss. This could be attributed to the use of hand operated machines and technologies among MSIs, and the volume of stocks held by these industries. Economic risks such as economic recessions, interest rates and inflation were projected to have minimal loss among MSIs in. The low rating on the economic risks could be attributed to the level of understanding on economic factors among MSI owner managers. Also, the low rating on level of loss due to machine break downs

could be due to the machines could be because majority use hand operated tools. Reputation damages although they were identified as a common form of risk with high likelihood of occurrence, the level of loss would not be high,

4.3.5.3 Comparative Analysis of the Level of Loss

A comparative analysis of the rating on the potential level of loss in the event of occurrence of the risks was done using two independent sample t-tests and the findings presented on Table 4.15. The t-test results revealed that there was no significant difference in the level of loss experienced by both MLIs and MSIs except for property damage $t(122) = -1.495$, $p > 0.137$, theft $t(122) = -1.055$, $p > 0.293$ and changes in inflation rates $t(122) = 0.611$, $p > 0.543$.

Table 4. 15: T-Test Results on the Level of Loss

| Risk Factors | t | df | Sig. (2-tailed) |
|---------------------------------|----------|-----------|------------------------|
| Property Damage | -1.495 | 122 | 0.137 |
| Natural calamity | 2.108 | 122 | 0.037 |
| Theft | -1.055 | 122 | 0.293 |
| Personal injuries and accidents | 2.221 | 122 | 0.028 |
| Economic recession | 3.460 | 122 | 0.001 |
| Changes in inflation rates | 0.611 | 122 | 0.543 |
| Changes in interest rates | 6.656 | 82 | 0.000 |
| Loss of key staff | 4.414 | 122 | 0.000 |
| Critical machine breakdowns | 4.186 | 122 | 0.000 |
| Reputation damage | 3.610 | 122 | 0.000 |
| Unfair competition | 2.462 | 122 | 0.015 |
| Political Instability | 2.278 | 66 | 0.026 |
| Changes in technology | 4.848 | 122 | 0.000 |
| Unfavourable regulations | 3.349 | 122 | 0.001 |

This implies that the level of loss is not dependent on the size of the business enterprise. The level of loss in this study was measured in terms of proportion of the

entire investment in all enterprises. Total loss in a MLI and total loss in MSI would only vary in monetary value but remain proportionately the same. An MSI who loses all machines and equipments used in production would experience the same level of loss as an MLI who loses all their machines and equipments regardless of their value.

4.3.6 Rating on Enterprise Risk Level

The level of risk can be expressed as a product of the likelihood of risk occurrence and the potential level of loss caused by the risk factor. To determine the enterprise risk level, a product of these two variables was obtained for all risk factors.

4.3.6.1 Risk Level Rating by MLIs

The results on computed risk level for MLIs are presented on Table 4.16. From these results it can be seen that theft presented the greatest risk challenge for MLIs rated at a mean of 0.66 followed by industrial injuries and accidents, and property damage by human causes such as fire rated at a mean of 0.56. The least rated risk factors were reputational damage at a mean of 0.41, political instability at a mean of 0.44, changes in inflation rates at a mean of 0.47.

Table 4.16: Risk Level rating by MLIs

| Risk Factor | Risk Level | | | | | Mean Rating |
|---------------------------------|-------------------------|---------------------|-------------------------|--------------------|-----------------------|-------------|
| | Very High (0.81-1.0) | High (0.61-0.80) | Moderate (0.41-0.60) | Low (0.21-0.40) | Very low (0.0-0.2) | |
| Property Damage | 4(12.5%) | 7(21.9%) | 10(31.3%) | 9(28.1%) | 2(6.3%) | 0.56 |
| Natural calamity | 2(6.3%) | 7(21.9%) | 11(34.3%) | 7(21.9%) | 5(15.6%) | 0.52 |
| Theft | 1(13.3%) | 17(56.7%) | 2(6.7%) | 2(6.7%) | 5(15.6%) | 0.66 |
| Personal injuries and accidents | 3(9.4%) | 13(41.7%) | 7(21.9%) | 5(15.9%) | 2(6.3%) | 0.56 |
| Economic recessions | 1(3.2%) | 9(28.2%) | 8(25.0%) | 13(40.7%) | 1(3.1%) | 0.49 |
| Changes in inflation | 1(3.2%) | 6(18.8%) | 14(43.8%) | 10(31.3%) | 1(3.1%) | 0.47 |
| Changes in interest rates | 1(3.2%) | 8(25.0%) | 15(46.9%) | 6(18.8%) | 2(6.3%) | 0.50 |
| Loss of Key staff | 0(0.0%) | 11(34.4%) | 8(25.0%) | 10(31.3%) | 3(9.4%) | 0.48 |
| Critical machine breakdowns | 1(9.4%) | 10(31.3%) | 6(18.8%) | 8(25.0%) | 5(15.6%) | 0.54 |
| Reputation damage | 1(3.1%) | 7(21.9%) | 7(21.9%) | 12(37.5%) | 5(15.6%) | 0.41 |
| Unfair competition | 1(3.3%) | 11(36.7%) | 9(30.0%) | 2(6.6%) | 7(23.3%) | 0.48 |
| Political instability | 0(0.0%) | 5(15.6%) | 14(43.8%) | 8(25.0%) | 5(15.6%) | 0.44 |
| Changes in technology | 3(9.4%) | 6(18.8%) | 16(50.0%) | 4(12.5%) | 3(9.4%) | 0.54 |
| Unfavourable regulations | 2(6.7%) | 11(36.7%) | 6(20.0%) | 9(30.0%) | 2(6.6%) | 0.51 |

This implies that security within Nakuru municipality posed the greatest challenges to large manufacturers evident from the high risk of theft identified. Internal operating environment also presented a high risks to medium and Large manufacturing enterprises as seen from the high rating on industrial accidents, property damages by fires and other related causes. Risks from external environment were eminent although they did not pose great risks to the MLIs. Therefore as manufacturing enterprises grow from small to medium, they should put in place measures to ensure security of machines and equipments against loss through theft of damages in addition to the loss they are likely to cause, these are insurable risks.

4.3.6.2 Risk Level Rating by MSIs

Computed risk level based on the rating by MSIs are presented on Table 4.16. The rating on the risk level revealed that property damage presented the greatest risk to MSIs rated at a mean of 0.61, followed by theft at a mean rating of 0.49 and natural calamities at a mean rating of 0.48. The least ranked risks on the other hand were

changes in interest rates, and changes in technology all ranked at a mean of 0.29 and critical machine breakdowns at a mean rating of 0.30.

Table 4.17: Risk level rating by MSIs

| Risk Factor | Risk Level | | | | | Mean Rating |
|---------------------------------|-------------------------|---------------------|-------------------------|--------------------|-----------------------|-------------|
| | Very High (0.81-1.0) | High (0.61-0.80) | Moderate (0.41-0.60) | Low (0.21-0.40) | Very low (0.0-0.2) | |
| Property Damage | 6(6.5%) | 40(43.5%) | 14(15.2%) | 29(31.5%) | 3(3.3%) | 0.61 |
| Natural calamity | 2(2.2%) | 30(32.6%) | 17(18.5 %) | 28(30.4%) | 15(16.3%) | 0.48 |
| Theft | 13(14.2%) | 36(39.1%) | 3(3.3%) | 4(4.3%) | 36(39.1%) | 0.49 |
| Personal injuries and accidents | 3(3.3%) | 21(22.9%) | 15(16.3%) | 38(42.1%) | 15(16.3%) | 0.44 |
| Economic recessions | 1(1.1%) | 6(6.6%) | 16(17.4%) | 56(60.8%) | 13(14.1%) | 0.35 |
| Changes in inflation | 1(1.1%) | 6(6.6%) | 13(14.1%) | 31(33.6%) | 43(46.6%) | 0.36 |
| Changes in interest rates | 0(0.0%) | 4(4.4%) | 14(15.2%) | 39(42.6%) | 35(38.0%) | 0.29 |
| Loss of Key staff | 2(2.2%) | 6(6.6%) | 13(14.2%) | 39(41.2%) | 33(35.8%) | 0.32 |
| Critical machine breakdowns | 1(1.1%) | 12(13.0%) | 12(13.0%) | 21(22.9%) | 46(50.0%) | 0.30 |
| Reputation damage | 2(2.2%) | 8(8.7%) | 21(22.8%) | 42(47.6%) | 19(20.7%) | 0.38 |
| Unfair competition | 0(0.0%) | 14(15.2%) | 30(32.2%) | 35(38.1%) | 13(14.1%) | 0.42 |
| Political instability | 1(1.1%) | 4(4.4%) | 47(51.1%) | 23(25%) | 17(18.5%) | 0.42 |
| Changes in technology | 3(3.3%) | 5(5.5%) | 16(17.4%) | 21(22.9%) | 47(51.1%) | 0.29 |
| Unfavourable regulations | 3(3.3%) | 17(18.5%) | 20(21.7%) | 27(29.5%) | 25(27.2%) | 0.42 |

This implies that, similar to MLIs, MSIs have their greatest risks emanating from those risks that are likely to cause machine and equipment losses which include property damages, theft and natural calamities. These risks are however insurable and policy covers. Technological risks in MSIs are very low since majority identified the use of manually operated tools to carry out their operations. However as they grow to medium and large technological risks are inevitable.

4.3.6.3 Comparison on the Level of Risk

To compare the risk levels as identified by the two categories, a comparative plotting of the risk level rating was done to bring out the pictorial view and a t-test to establish their statistical similarity. The pictorial view is shown on Figure 4.4.

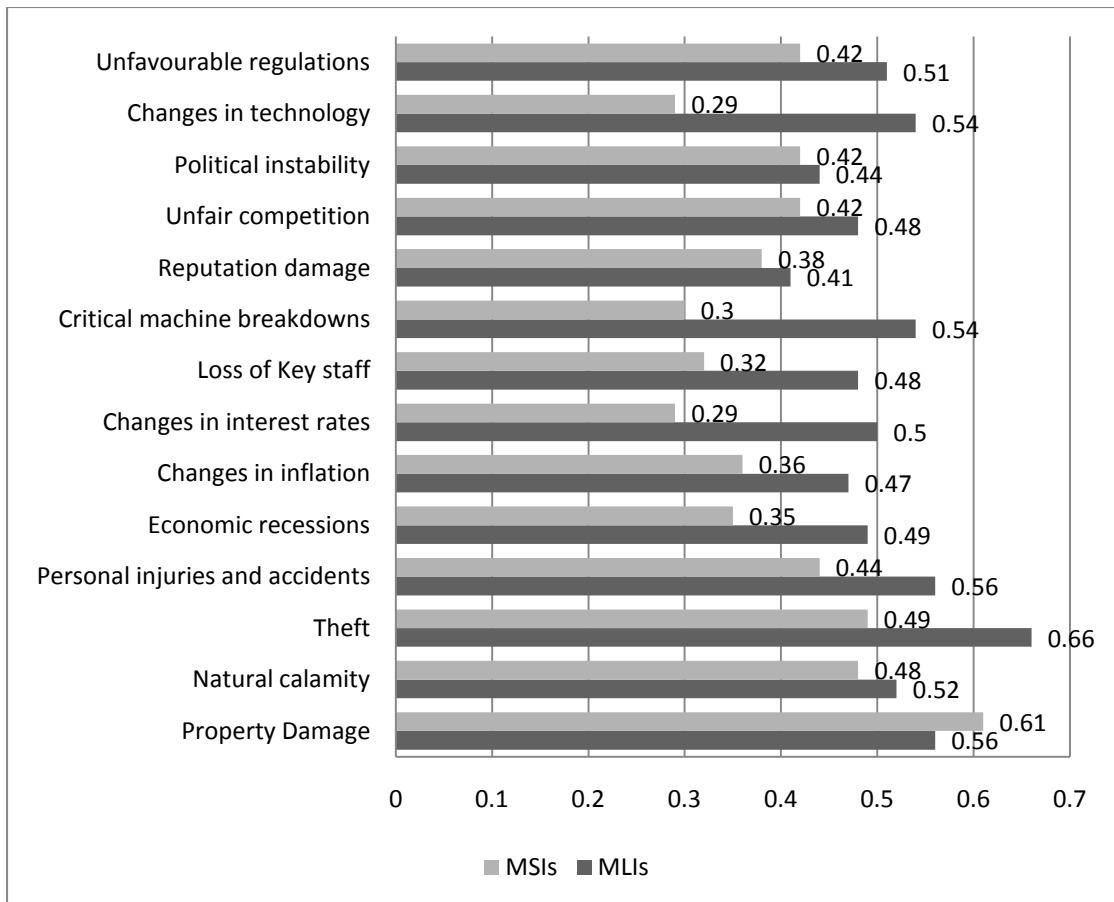


Figure 4.4: Comparison on the Level of Risk by MLIs and MSIs

This implies that there is a difference in the level of risk exposure between MLIs and MSIs.

Testing Hypothesis I

The first hypothesis was that there was no significant difference in the risks facing MSIs and MLIs in Nakuru Municipality.

$$H_{01}: \mu_1 - \mu_2 = 0$$

$$H_{11}: \mu_1 - \mu_2 \neq 0$$

At $\alpha = 0.05$

To test for this a comparison of the risk exposure was done by comparing the risk level for all risks using two independent sample t-test to determine which risks were experienced the same or differently in these two categories of enterprises. The tests were done at a significance level $\alpha = 0.05$. The t-test statistics are presented on Table 4.18.

The test results revealed that there was no significant difference in the mean rating of seven enterprise risk factors which included property damage $t(122) = -0.964$, $p > 0.05$, natural calamities $t(122) = 0.694$, $p > 0.05$, changes in inflation $t(122) = 1.159$, $p > 0.05$, reputational damages, unfair competition, political instability and unfavorable government regulations. These are all risks emanating from business macro environment. However there was a significant difference in the level of risks between MLIS and MSIs on the following risk factors: theft $t(122) = 3.343$, $p < 0.05$, personal injuries and accidents $t(122) = 2.548$, $p < 0.05$, critical machine breakdowns, changes in technology, economic recessions, changes in interest rates and the loss of key staff.

Table 4. 18: t-test Results the Level of Risk by MLIs and MSIs

| Risk Factor | t | df | Sig. (2-tailed) | Mean Difference |
|-------------------------------------|--------|-----|--------------------|--------------------|
| Property damage | -0.964 | 122 | .337 | -.04609 |
| Natural calamities | 0.694 | 122 | .489 | .03582 |
| Theft | 2.343 | 122 | .022 | .16870 |
| Personal injuries and accidents | 2.548 | 122 | .012 | .11832 |
| Economic recessions | 3.838 | 122 | .000 | .13745 |
| inflation | 1.159 | 122 | .249 | .11024 |
| Changes in interest rates | 5.835 | 122 | .000 | .20543 |
| Loss of key staff | 3.994 | 122 | .000 | .16386 |
| Critical machine breakdowns | 4.472 | 122 | .000 | .23152 |
| Reputational damage | .682 | 122 | .497 | .02989 |
| Unfair competition | 1.536 | 120 | .127 | .06351 |
| Political instability | .463 | 122 | .644 | .01793 |
| Changes in technology | 5.005 | 122 | .000 | .24190 |
| Unfavourable government regulations | 1.867 | 120 | .064 | .09548 |

The study therefore rejects H_{01} and accepts H_{11} . There is a significant difference in the level of risk experienced in MSIs and MLIs. Majority of the risks experienced from

the external business environment were equally experienced in industries across all sizes, these included natural calamities, inflation, political instability and unfavourable government regulations. MSIs were neither more vulnerable nor exempted. However, risks profiles from internal environment varied as the enterprises grew in size. For instance, theft and injuries from industrial accidents. Other risks were however from internal or external environment but varied against this theory.

4.4 Risk Management Strategies

In the previous sections, the study has revealed that indeed there exists a variation in risk exposure between MLIs and MSIs for risks stemming from internal environment. This section sought to identify and compare the risk mitigation strategies adopted by the two categories of industries. Findings on the risk management strategies adopted are presented and a comparison of both MLIs and MSIs.

4.4.1 Measures Taken Against Property Damage Risk

Findings on the measures taken by both MSIs and MLIs on property risks are plotted on Figure 4.5. The study indicated that MSIs and MLIs shielded their businesses differently against property damage by perils such as fire which is the most common. A larger proportion of MSIs (50 %) took no action, 28% kept aside savings to replace stocks, 17% had insurance. On the other hand majority (93%) of MLIs had insurance cover for their property.

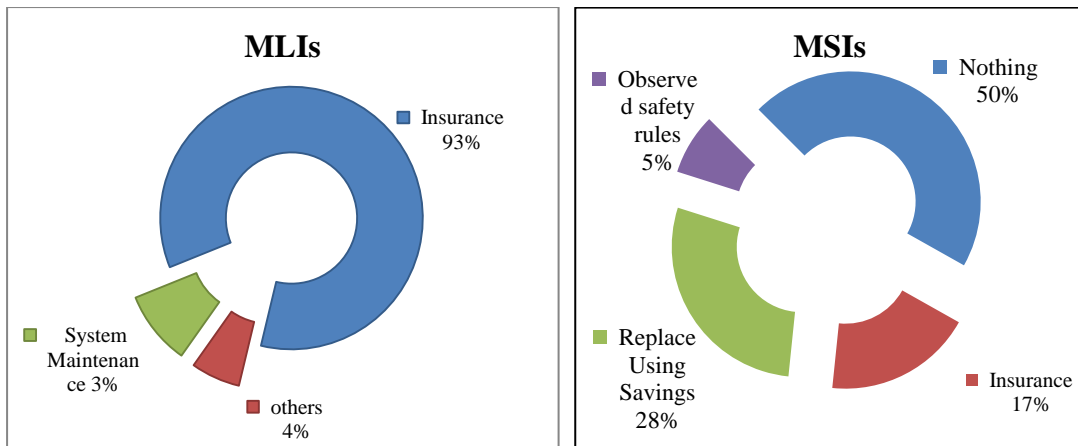


Figure 4.5: Strategies for managing property damage

This implies while most of MSIs took no actions against property damage, self insurance was the easiest method to manage risks of property damage by fire or other human causes although it is a very unsuitable in the event of big losses.

4.4.2 Measures Taken Against Natural Calamities

Findings on the mitigation measures taken by industries to cushion themselves against natural calamities are presented on Figure 4.5. The findings revealed that 56% of MLIs have transferred this risk to insurance companies while 44% have taken no action. On the contrary 73% of MSIs have not taken any action, 12% have insurance policies while 16% have savings for self insurance.

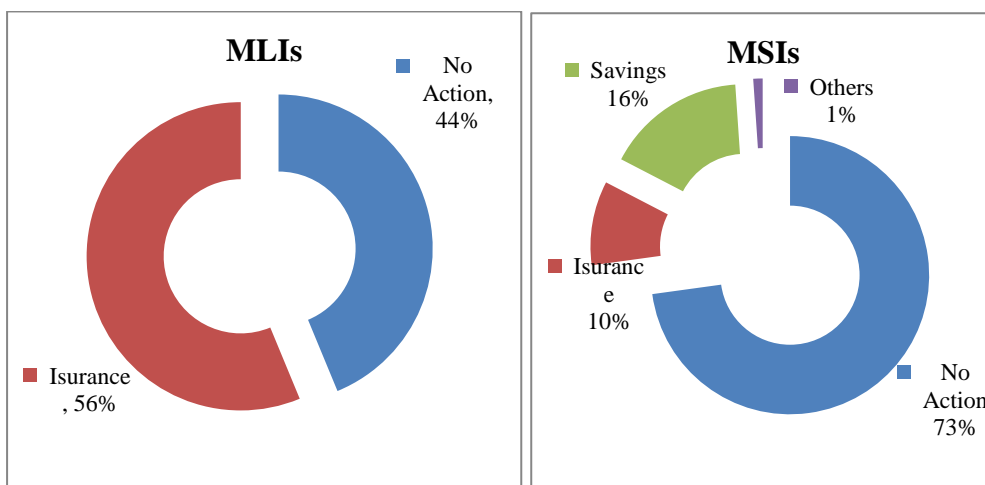


Figure 4.6: Strategies for managing Natural Calamities

This implies that while majority of MLIs opt to transfer the risk to a third party, majority of MSIs take no action and those who do they retain the risk through self insurance. The variation in risk management exists despite the findings indicating that natural calamities equally affect both MLIs and MSIs regardless of their sizes.

4.4.3 Measures Taken Against Theft

The measures taken by manufacturing industries in Nakuru municipality to cushion themselves against theft are shown on Figure 4.7. According to the findings 56% of MLIs had insurance against theft in addition to security, 35% had security measures in place. On the other hand, 49% of MSIs had put in place tight security measures, 41% had taken no action while 7% had insurance policies against theft.

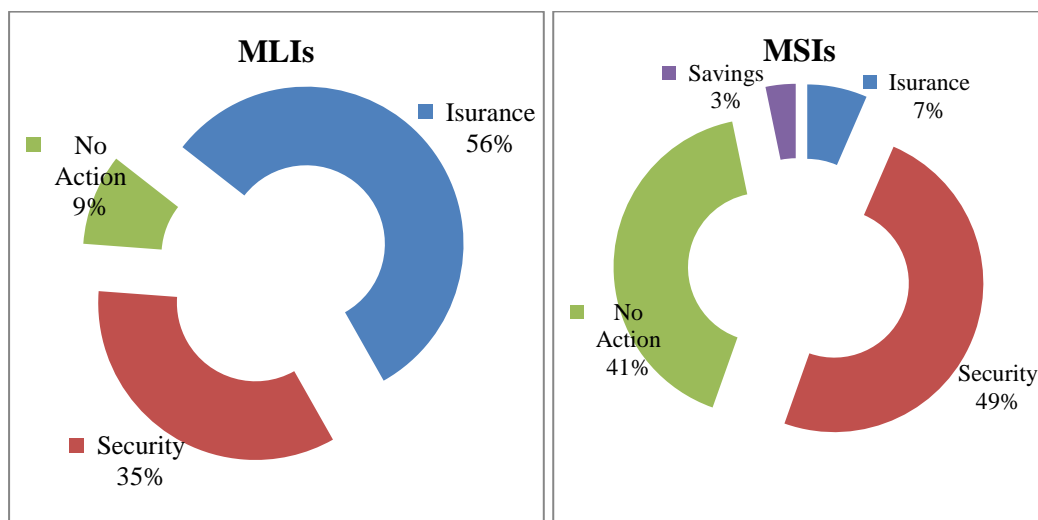


Figure 4.7: Strategies for managing theft of property

Theft presented a major risk to manufacturing enterprises both large and small especially where this involved loss of capital equipments and machines. However, the findings imply that Micro and small industries prefer risk reduction through security as opposed to medium and large industries who adopt a combination of risk reduction and risk transfer to a third party.

4.4.4 Measures Taken Against Personal Injury

The measures taken by both MSIs and MLIs to cushion themselves against personal injuries and accidents in the course of their duties are presented on Figure 4.8. The study found out that, majority of MLIs 66% had insurance cover against personal accidents and injuries for their staff in addition to observing safety rules, while on the other hand majority 81% of MSIs took no action against personal injuries and accidents in the work place, 4% observed safety.

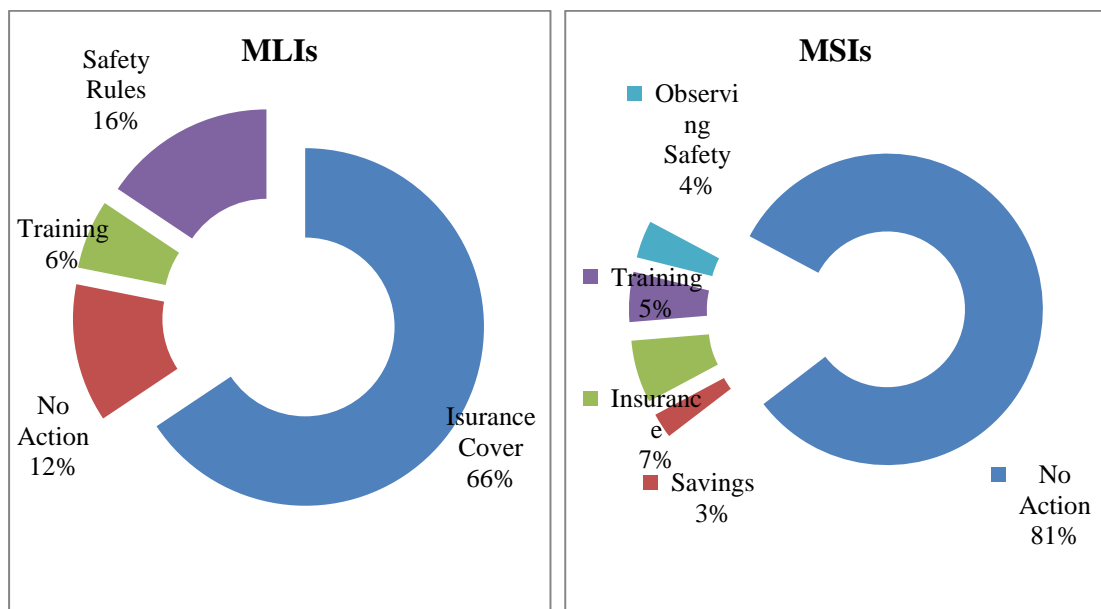


Figure 4.8: Strategies for managing Personal Injuries

Manufacturing in both categories of enterprises is carried out using machines, most of them electrically powered and a few manually powered which have the potential to cause injury. Lack of measures by the MSIs and part of MLIs implies that there is little knowledge on the requirements of Work Injury and Benefits Act, 2007, and the Occupation Safety and Health Act 2007 which are meant to reduce the risks of industrial accidents and ensure compensations to victims in case of injuries.

4.4.5. Measures Taken Against Economic Recessions

Economic recessions are macro environment risks that enterprises have no control over but actions are required to adjust internal business environment to ensure that the business is less vulnerable to economic risks. The findings on Figure 4.9 indicate that majority (88%) of MLIs and 97% of MSIs took no action to cushion themselves against future economic recessions.

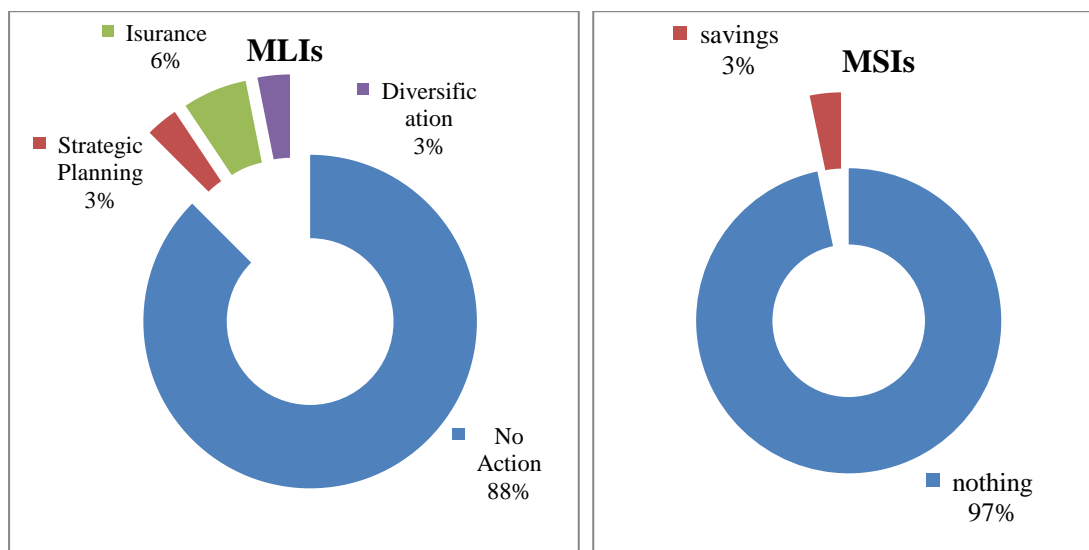


Figure 4.9: Strategies for managing Economic Recessions

The low level of application of risk mitigation measures against economic risks across all manufacturing enterprises regardless of size imply lack of understanding on the available measures to cushion manufacturers from economic vulnerabilities.

4.4.6 Measures Taken Against Changes in Inflation Rates

Findings on the strategies adopted by both MLIs and MSIs to cushion their businesses against the risk of changes in inflation rates are presented on Table 4.10. The findings show that, majority 94% of MLIs have done nothing to cushion themselves while 6%

cited to have diversified to non-fluctuating securities. All MLIs cited to have taken no actions at all to mitigate against inflation in their businesses.

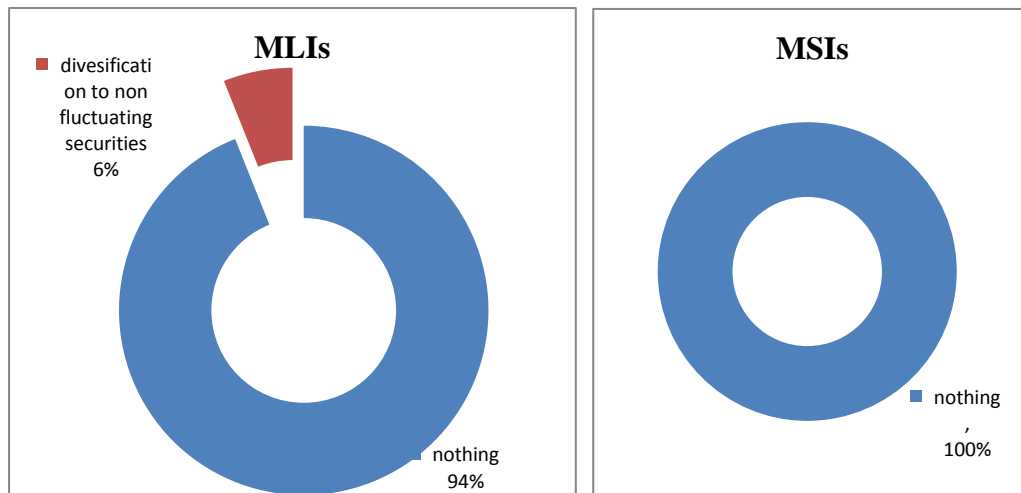


Figure 4. 10: Strategies for Managing Changes in Inflation Rates

Both categories of enterprises have shown difficulties in putting actions to mitigate against these risks. The only measure available was diversification to non fluctuating securities. This implies that there is very low level of understanding among manufacturing enterprises in Nakuru Municipality on how to manage inflation risks.

4.4.7 Measures Taken Against Changes in Interest Rates

Findings on strategies taken by manufacturing enterprises in Nakuru Municipality to cushion themselves against changes in interest rates presented on Figure 4.11 revealed that 94% of MLIs and 99% of MSIs have done nothing to cushion themselves from the risk of changes in interest rates.

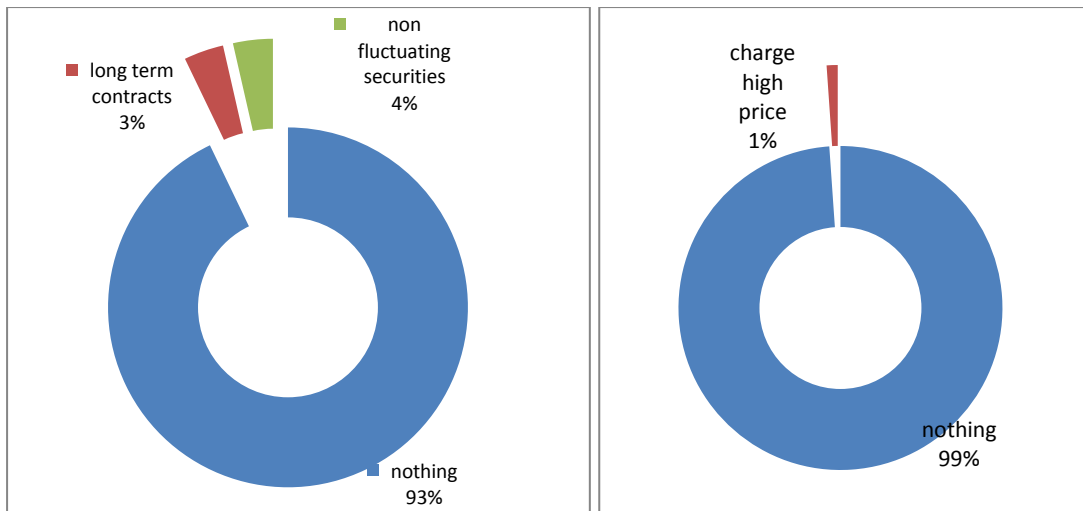


Figure 4.11: Strategies for managing Changes in Interest Rates

This implies that nearly all manufacturing enterprises have not put in any measures to cushion themselves from changes in interest rates. This also implies higher vulnerability of manufacturing enterprises in Nakuru Municipality to interest rate risks which is not transferable.

4.4.8 Measures Taken Against Loss of Key Staff

Manufacturing industries surveyed cited various strategies employed to cushion their businesses against the effects of loss of key staff. The findings are as shown on Figure 4.12. The findings indicated that 47% of MLIs invest in training more staff, while 16% have key man insurance for their businesses. On the other hand 94% of MSIs do nothing, while 3% train more staff.

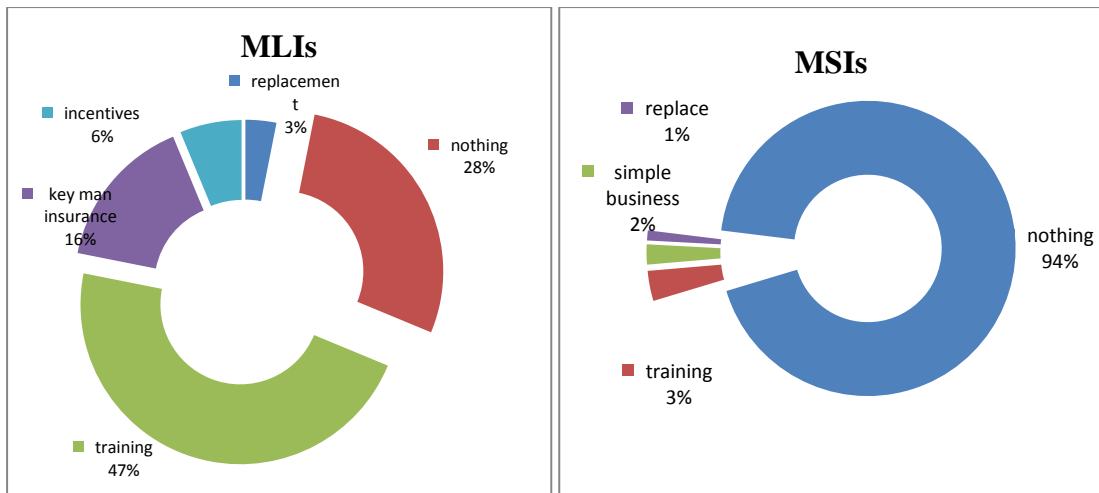


Figure 4.12: Strategies for managing Loss of Key Staff

Whereas MLIs apply various strategies to manage this risk, MSIs do nothing in most cases. This implies little knowledge on the strategies for cushioning themselves and managing losses of key staff among MSIs in Nakuru Municipality.

4.4.9 Measures Taken Against Critical Machine Breakdowns

Findings on the strategies adopted by MLIs and MSIs to cushion themselves against the risks of critical machine breakdowns are presented on Figure 4.13. While 45% of MLIs had efficient maintenance systems, 13% had insurance cover while 13% had standby machines. Majority 81% of MSIs had no measures in place while 16% performed regular maintenance and servicing of their machines.

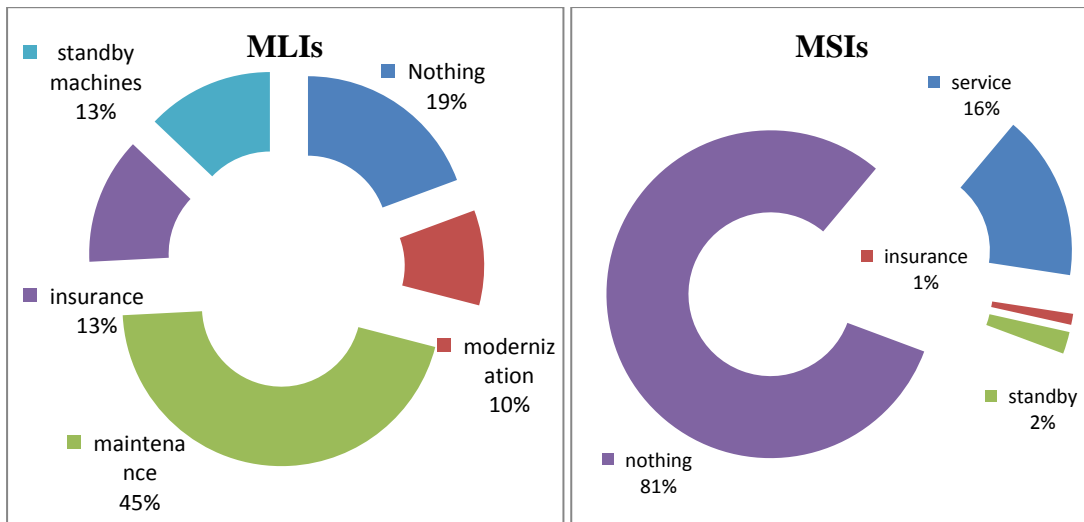


Figure 4.13: Strategies for the Management of Critical Machine Breakdowns

Machine breakdowns require time and resources to fix, and also lead to business interruptions by not being able to deliver goods to customers. Lack of measures to cushion themselves against critical machine breakdowns implies exposure of MSIs to losses since breakdowns are common in machinery. Lack of strategies among MSIs could be as a result of limited knowledge, or lack of resources to invest in insurance, standby machines and maintenance.

4.4.10 Measures Taken Against Reputational Damages

The strategies adopted by MSIs and MLIs in cushioning themselves against reputation damages vary as shown in the findings on Figure 4.14. The findings show that, majority of MLIs 68% do nothing while 14% maintain good customer relations, similarly majority of MSIs 87% take no action while 9% maintain good customers relationships, to cushion themselves from reputational damages.

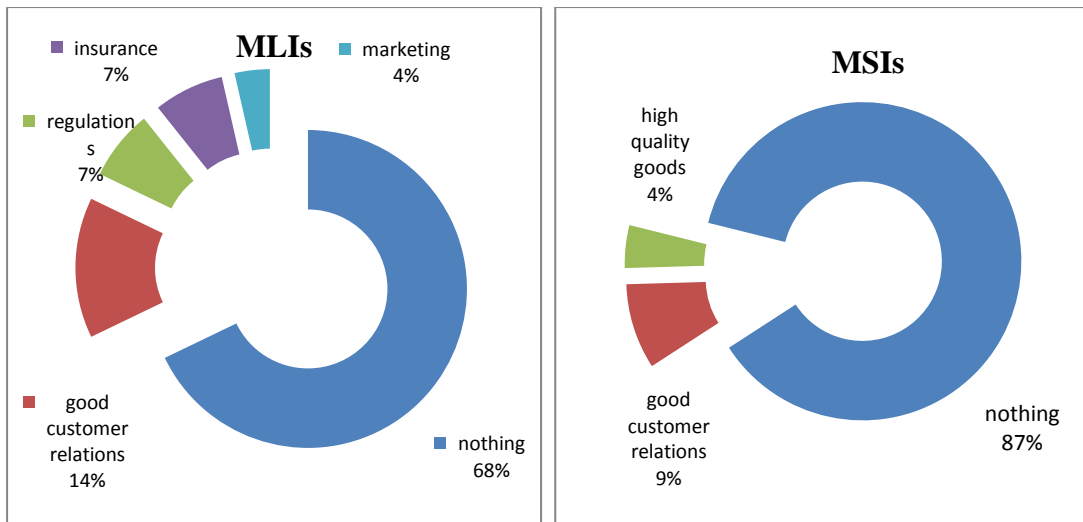


Figure 4.14: Strategies for Managing Reputational Damages

These are very common risks among MSIs in the market place especially among MSIs due to their clustered nature although the loss associated with it is small, yet they take no action against it. This risk is also expected to increase in this era of increased competition which faces all the enterprises. Lack of measures for this risk among MSIs also indicate limited knowledge on marketing and customer relations as way of managing competition in their businesses.

4.4.11 Measures Taken Against Unfair Competition

The findings on strategies adopted by manufacturing enterprises in Nakuru municipality to cushion themselves against unfair competition are presented on Figure 4.15. Most of MLIs 41% indicated that they had put no measures in place, 22% ensured that they offered high quality goods while 19% had aggressive marketing strategies. Majority 81% of MSIs put in place no measures while 8% relied on good customer relationships.

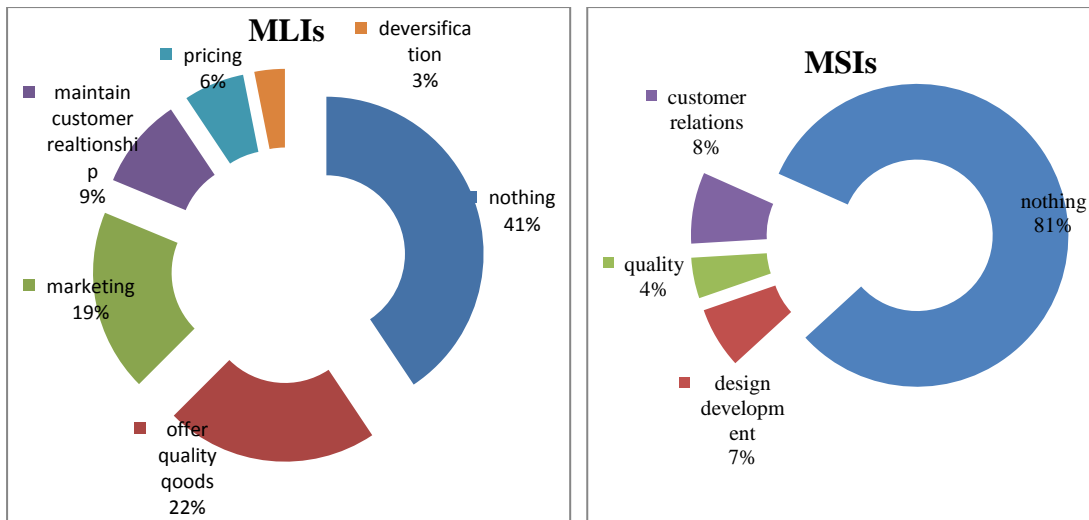


Figure 4.15: Strategies for Managing Unfair Competition

The strategies adopted by the two categories of enterprises are in agreement. This implies that regardless of the size, the war for the customer can only be won by delivering customer expectations, and winning customers loyalty.

4.4.12 Measures Taken Against Political Instability

The findings presented on Figure 4.16 revealed that despite the previous experiences of political violence in the country, 88% of MLIs have not taken any action, and all to cushion their businesses,

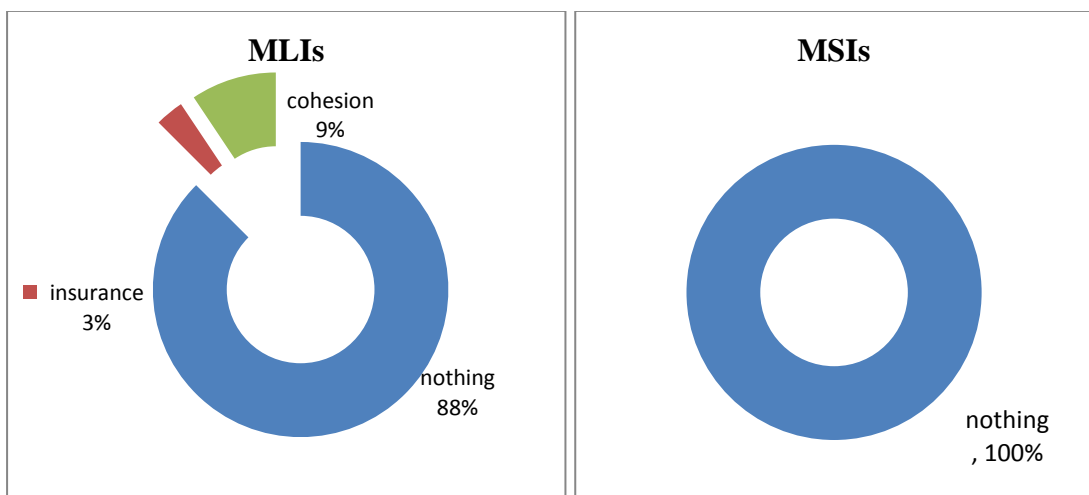


Figure 4.16: Strategies for managing political Instability

The country, especially Nakuru municipality was adversely affected by the 2007/08 post election violence. Many businesses were affected either directly or indirectly. However, majority of the industries have put in no measures to cushion themselves against such risks in future although they have rated the. This implies that this risk factor may not have been well understood by enterprises to trigger them to put in measures to cushion themselves.

4.4.13 Measures Taken Against Changes in Technology

The actions taken by manufacturing industries in Nakuru Municipality to cushion themselves against technological changes are shown on the findings in Figure 4.17. Majority of the MLIs 53% indicated that they used regular technology upgrading strategy to remain at par with technology while 41% did nothing, on the other hand majority of MSIs 78% did not take any action while 21% did regular technology upgrading to cushion from obsolescence as a result of technological changes.

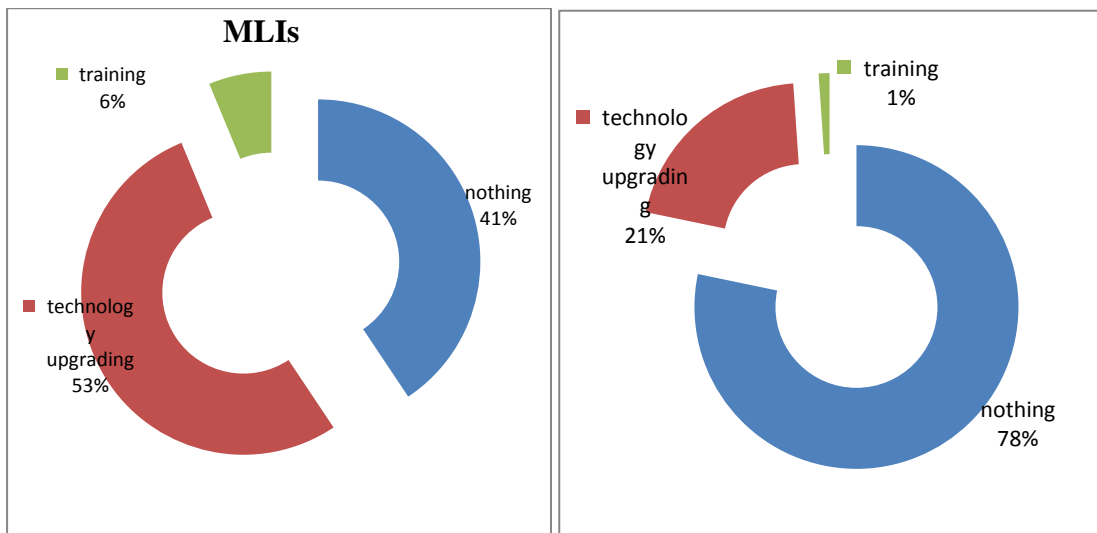


Figure 4.17: Changes in Technology

This implies that large manufacturing enterprises ensured that they upgrade to the latest technologies in the market to remain relevant and to avoid the risk of obsolescence as a result of newer more efficient and competitive technologies. However few MSIs had proactive actions to cushion themselves from technological risks.

4.4.14 Measures Taken Against Unfavorable Government Regulations

Strategies adopted by both MLIs and MSIs to cushion themselves against unfavorable government regulations are presented on the findings in Figure 4.18. Majority 78% of MLIs indicated that they did nothing 19% were members of manufacturers associations who advocate for the rights of manufacturers, while 3% just complied with the existing laws. On the other hand 88% of MSIs did nothing, 3% were members of associations who advocate for their rights as small scale manufacturers, while 8% complied with all laws.

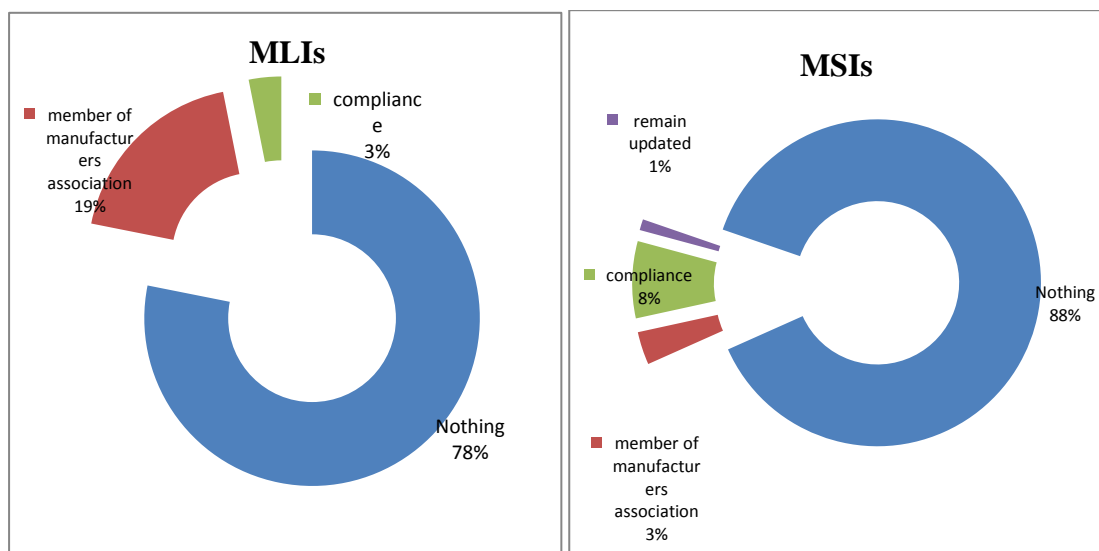


Figure 4.18: Strategies for Managing Unfavorable Government Regulations

This implies that the single most efficient way of ensuring protection against the risks unfavorable government regulations was through membership to manufacturers associations who advocate for the rights of their members through which they can lobby for inclusion of their interest in the laws, exemptions, and smooth transition in the event of new policies.

4.5 Comparison of Risk Management Practices

Testing Hypothesis II

The second hypothesis was meant to establish whether there was a significant difference in the risk mitigation measures adopted by MLIs and MSIs in cushioning themselves against the risks identified.

$$H_{02}: \mu_1 - \mu_2 = 0$$

$$H_{12}: \mu_1 - \mu_2 \neq 0$$

At $\alpha = 0.05$

To test for this, a comparison of the risk mitigation measures was done using two independent sample t-test of the risk management strategies by the MLIs and MSIs. Results of the tests are presented on Table 4.19. The measures taken by MSIs and MLIs to cushion themselves from all risks stemming from internal environment varied significantly despite similarities in the rating on risk levels. Risks with different mitigation strategies include property damage $t(97) = 9.40$, $P < 0.01$, theft $t(46) = 7.05$, $P < 0.01$, personal injuries and accidents $t(53) = 14.55$, $P < 0.01$, loss of key staff, critical machine breakdowns, reputation damage, unfair competition, changes in technology and unfavorable government regulations.

The measures adopted by MLIs and MSIs to cushion themselves from all external risks studied were significantly different except for natural calamities $t(37) = 4.85$, $P < 0.01$. Measures for the other external risks were similar, that is: economic recessions $t(37) = 1.215$, $P > 0.05$, changes in inflation $t(32) = 1.304$, $P > 0.05$, changes in interest rates $t(31) = 1.646$, $P > 0.05$, and political instability $t(34) = 1.500$, $P > 0.05$.

Table 4. 19: t-test of risk management strategies by MLIs and MSIs

| Test Variable | t | df | Sig. (2-tailed) | Mean Difference |
|---------------------------------|-------|----|-----------------|-----------------|
| Property Damage | 9.40 | 97 | .000 | 1.61957 |
| Natural calamities | 4.85 | 37 | .000 | 1.34239 |
| Theft | 7.05 | 46 | .000 | 1.44973 |
| Personal injuries and accidents | 14.55 | 53 | .000 | 2.37819 |
| Economic recession | 1.22 | 37 | .232 | .13315 |
| Changes in inflation rates | 1.30 | 32 | .202 | .14538 |
| Changes in interest rates | 1.65 | 31 | .110 | .18750 |
| Loss of key staff | 5.33 | 33 | .000 | .79891 |
| Critical machine breakdowns | 5.16 | 37 | .000 | .90077 |
| Reputation damage | 2.77 | 33 | .009 | .34327 |
| Unfair competition | 5.32 | 38 | .000 | .50421 |
| Political instability | 1.50 | 34 | .143 | .21459 |
| Changes in technology | 5.86 | 44 | .000 | .53533 |
| Unfavourable regulations | 2.95 | 31 | .006 | .21875 |

Therefore the study rejects H_{02} and adopts H_{12} : There is a significant difference in the risk mitigation measures adopted by MLIs and MSIs. A closer look at the strategies reveal that, majority of MLIs had organized strategies for managing most of the enterprise risks facing them. In most cases MLIs transferred the risk to a third party, that is, insurance companies especially in cases where the risk involved capital losses. In addition, appropriate risk reduction strategies were put in place to minimize the likelihood of risk occurrence and the level of loss should the risk strike. On the other

hand, the most common risk management practice applied by MSIs was self insurance where the enterprise put aside some funds to reinstate their operations in case of a risk occurrence. Majority of MSIs however took no actions at all against all the risks in question which implied low risk management knowledge among MSIs.

4.6 Effects of Risk Management of Industry Performance

In analyzing the effects of risk management on manufacturing industry performance, first the enterprise performance was determined, then rating on the comprehensiveness of risk management in industries established. A correlation analysis was then done to establish the relationship between enterprise risk management and respective enterprise performance.

4.6.1 MLIs Performance

Both MLIs and MSIs were also asked to rate their enterprises performance on a scale of 1-5, on six variables: the level of capital investment, profitability of the enterprise, enterprise growth rate, sales volumes, production and business operating expenses. The findings on performance of MLIs are presented on Table 4.20. From the findings 34.4% revealed that the capital invested in their business was high and 56.3% rated their business profitability as moderate. Of all the performance indicators, capital invested was rated highest followed by production.

Table 4.20: MLIs Performance

| Performance measure | MLI performance | | | | | Mean |
|---------------------|-----------------|-----------|------------|-----------|----------|------|
| | Very High | High | Moderate | Low | Very low | |
| | (5) | (4) | (3) | (2) | (1) | |
| Capital invested | 11(34.4%) | 10(31.2%) | 11(34.4%) | 0(0.0%) | 0(0.0%) | 4.00 |
| Profitability | 4(12.5%) | 7(21.8%) | 18(56.3 %) | 3(9.4%) | 0(0.0%) | 3.38 |
| Growth rate | 3(9.4%) | 6(18.8%) | 12(37.5%) | 10(31.3%) | 1(3.1%) | 3.00 |
| Sales volumes | 1(3.2%) | 9(29.0%) | 18(58.1%) | 2(6.5%) | 1(3.2%) | 3.23 |
| Production | 4(12.5%) | 11(34.4%) | 15(46.9%) | 1(3.1%) | 1(3.1%) | 3.50 |
| Expenses | 0(0.0%) | 18(56.3%) | 12(37.5%) | 2(6.2%) | 0(0.0%) | 3.50 |

This implies that performance in majority of MLIs varied from moderate to high. As seen in the average performance, the least ranked dimension of enterprise performance was growth rate at 3.00 out of 5.00 while the highest ranked performance dimension was in the level of investment at 4.00.

4.6.2 MSIs Performance

Performance of MSIs was also established on a similar scale, using the same variables as that of MLIs and the findings are presented on Table 4.21. The capital invested in 40.2% of MSIs was relatively high and moderate in 31.5%. Profitability was moderate in 72.6% of the MSIs while growth rate was moderate in majority of MSIs 56.5%. Sales volumes were moderate in 71.7% of MSIs, while production volumes were moderate in 65.1%.

Table 4.21: MSIs Performance

| Performance measure | MSI performance | | | | | Mean |
|---------------------|-----------------|-----------|------------|-----------|----------|------|
| | Very High | High | Moderate | Low | Very low | |
| | (5) | (4) | (3) | (2) | (1) | |
| Capital invested | 17(18.5%) | 37(40.2%) | 29(31.5%) | 5(5.4%) | 4(4.4%) | 3.63 |
| Profitability | 0(0.0%) | 12(13.0%) | 67(72.6 %) | 9(9.8%) | 4(4.4%) | 2.95 |
| Growth rate | 3(3.3%) | 14(15.2%) | 52(56.5%) | 18(19.6%) | 5(5.4%) | 2.91 |
| Sales volumes | 1(1.1%) | 12(13.0%) | 66(71.7%) | 11(12.0%) | 2(2.2%) | 2.99 |
| Production | 1(1.1%) | 23(25.0%) | 60(65.1%) | 4(4.4%) | 4(4.4%) | 3.13 |
| Expenses | 7(7.8%) | 58(64.4%) | 17(18.9%) | 7(7.8%) | 1(1.1%) | 3.70 |

This implies that majority of micro and small enterprises rated their enterprise performance moderately except for expenses which were high in majority of industries. The high expenses may be linked to low profitability identified by the owner managers of MSIs in Nakuru Municipality.

4.6.3 Comparison of Performance between MLIs and MSIs

Performance rating on MLIs and MSIs were also compared to determine whether there was a significant difference in performance, relative to enterprise size. The results of independent sample t-test are presented on Table 4.22. The results indicate that, there was no significant difference on rating on the relative level of capital invested $t(122)= 1.884$, $p > 0.05$, growth rate $t(122)= 0.479$, $p > 0.05$, sales volumes $t(121)= -0.154$, $p > 0.05$ and expenses. On the other hand there was a significant difference in the rating on profitability $t(44)= 2.660$, $p < 0.05$, and productivity in the two categories of enterprises differed significantly, $t(147)= 2.126$, $p < 0.05$.

Table 4.22: t-test analysis on enterprise performance

| Performance Measure | t | df | Sig. 2-tailed) | Mean | Mean |
|---------------------|--------|-----|-------------------|------|------|
| | | | | MLI | MSI |
| Capital invested | 1.884 | 122 | 0.062 | 4.0 | 3.6 |
| Profitability | 2.660 | 44 | 0.011 | 3.4 | 2.9 |
| Growth rate | 0.479 | 122 | 0.633 | 3.0 | 2.9 |
| Sales volumes | -0.154 | 121 | 0.878 | 3.2 | 3.3 |
| Production | 2.126 | 47 | 0.039 | 3.5 | 3.1 |
| Expenses | -1.321 | 120 | 0.189 | 3.5 | 3.7 |

This implies that as a result of the different risk management strategies applied in MLIs, productivity and profitability were significantly higher compared to their MSI counterparts.

The overall enterprise performance was then obtained by calculating the average of profitability, growth rate, production, and sales volumes. Capital invested and the expenses were excluded since expenses were factored in the profitability while the capital invested was excluded since performance was measured relative to enterprise size. The findings on overall enterprise performance are shown on appendix v (d). T-test was also done to establish the equality in overall enterprise performance between MLIs and MSIs. The results revealed that the overall enterprise performance for MLIs was slightly higher than that of MSIs at a mean rating of 3.25 and 2.99 respectively. T-test results revealed that $t(121) = 2.16$, $p < 0.033$. This implies that MLIs performed significantly better than MSIs operating in the same environment.

4.6.4 Comprehensiveness in Risk Management Strategies

Descriptive statistics on the comprehensiveness of risk management in enterprises are presented on Table 4.23. The findings revealed that MLIs had put in measures in an average of 7 risks and at most all 14 risks. MSIs on the other hand had strategies to cushion themselves against an average of 2 risks and at most 8 risk factors.

Table 4.23: Comprehensives in risk management

| | N | Minimum | Maximum | Mean | Std. Deviation |
|------|----------|----------------|----------------|-------------|-----------------------|
| MLIs | 32 | 4.00 | 14.00 | 7.1875 | 1.94169 |
| MSIs | 92 | 0.00 | 8.00 | 2.0652 | 2.16772 |

This implies that MLIs had more comprehensive risk management strategies in place covering majority of the risks experienced compared to MSIs who showed to have scanty risk management strategies in place covering very few risk factors. T-test analysis on the comprehensiveness of risk management strategies revealed $t(122) =$

11.814, $p < 0.05$, meaning that there was a significant difference in the comprehensiveness of risk management strategies between MLIs and MSIs.

4.6.5 Relationship between Risk Management Practices and Industry Performance

Testing Hypothesis III

The third hypothesis was designed to establish if risk management strategies adopted by manufacturing industries significantly affected enterprise performance.

$$H_{03} : \rho = 0$$

$$H_{13} : \rho \neq 0$$

$$\alpha = 0.05.$$

This hypothesis was tested by determining the relationship between enterprise risk management practices and enterprise performance, Pearson correlation analysis was done on the comprehensiveness on risk management practice and the enterprise performance for all manufacturing industry studied under one category. Correlation results are shown on Table 4.24. The findings revealed that there was a significant positive correlation between industry's risk management practice and overall industry performance $r = 0.247$, $P < 0.05$, profitability $r = 0.25$, $P < 0.05$, growth rate $r = 0.061$, $P < 0.05$, and productivity $r = 0.261$, $P < 0.05$. There was no significant relationships between risk management and sales and expenses.

Table 4.24: Pearson correlation on comprehensiveness of risk management practice and enterprise performance

| | | Profitability | Growth | Sales | Production | Expenses | Overall performance |
|--|-------|---------------|--------|-------|------------|----------|---------------------|
| Comprehensive risk management practice | r_s | 0.295** | 0.061 | 0.106 | 0.261** | 0.039 | 0.247 |
| | Sig | 0.001 | 0.017 | 0.254 | 0.004 | 0.678 | 0.006 |
| | N | 117 | 117 | 117 | 117 | 115 | 122 |

The study therefore rejects H_{03} and accepts H_{13} : The risk management practice adopted by manufacturing industries significantly affects the industry performance. Having a comprehensive risk management practice with strategies to mitigate all the probable risks would enhance performance of enterprises. Having proper risk management strategies in place led to better productivity, profits and industry growth in both MSIs and MSIs. Also, risk management does not increase organizational expenses. As observed in previous sections, MLIs performed significantly better than MSIs within the same operating environment, a factor that could be closely associated with their ability to put in measures to cushion themselves against many risk factors as possible.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS, AND RECOMMEDATIONS

5.1 Introduction

This chapter contains the summary and discussion of research findings, conclusions and recommendations drawn from the research findings.

5.2 Discussion of Findings

The main aim of the study was to compare the risk management practices adopted by micro, and small industries compared to, medium and large manufacturing enterprises in Nakuru Municipality, Kenya. The specific objectives were to identify and compare the risks facing MSIs and MLIs, identify and compare the risk management practices and establish the effects of risk management on performance of MLIs and MSIs in Nakuru Municipality. This was done by administering a questionnaire to MSIs owner managers and senior managers of MLIs in Nakuru Municipality.

5.2.1 General Information

There was a significant difference in the mean ages of MLIs and MSIs where the mean age for MLIs was higher by 15 years. Their experience in business imply that MLIs have experience with the eminent risks in the industry and also have been able to overcome them to survive. In terms of branch networks the mean number of branches for MLIs was 4 against a mean of 1branch for MSIs. This gap in size based on branch network between MLIs and MSIs was significant. Enterprises as they grew, increased in branch networks, similarly as the branch network expanded, so did the risk liabilities increase. Majority of the questionnaires were administered in the head offices which provided the risk situation about the entire business.

Several reasons were cited for the choice of Nakuru Municipality for enterprise operation. While MLIs considered the strategic location of the town, proximity to customers and raw materials, MSIs considered closeness to customers and at the same time closeness to their homes. Dahl and Sorenson (2007) argue that location has impacts on the market potential and growth opportunities of new firms. In addition to the business advantage offered by locations, MSEs due to their abilities consider other personal convenience factors which also limit their ability to fully exploit business opportunities. It is also difficult to separate the MSE owner manager from the business itself.

Technology wise, the two categories of enterprises adopted different technologies in their operations, majority of MLIs adopted semi –automated technology, while a few had their systems fully automated on the other hand majority of the MSIs used manual technologies. MSIs remain to be basic and operate with simple technologies. Mwaniki (2006) concurs with this fact that most of MSEs continue to use simple technologies.

5.2.2 Risks Facing MSIs Compared to MLIs in Nakuru Municipality

Based on the previous risk experiences by the two categories of enterprises, the findings revealed that: inflation and changes in interest rates were the most experienced risk factors, followed by theft and personal injuries experienced, economic recessions and political instability. The least experienced risks were natural calamities. On the other hand MSIs cited that the most experienced risk factors were: unfair competition, economic recessions, unfavorable government regulations and political instability. The least experienced was natural calamities.

These findings concur with a study by Olawale and Garwe (2010) in South Africa which identified crimes, high interest rates, high taxes, recession in the economy, high

inflation rate and high exchange rate as some of the risk factors that affected MSEs in South Africa. Similarly in Kenya, and especially in Nakuru Municipality, these challenges continue to pose risks to businesses particularly in the manufacturing sector.

The test results indicated that previous risk experiences were significantly different between the two categories of industries notably on: theft, personal injuries and accidents, changes in inflation rates, changes in interest rates, loss of key staff, critical machine breakdowns, reputation damage, changes in technology, and unfavourable government regulations. Based on the projected risks by manufacturing enterprises, risks experienced from the external business environment would be equally experienced in industries across all sizes, these included natural calamities, inflation, political instability and unfavorable government regulations.

Risks profiles from internal environment varied as the enterprises grew in size. For instance, theft and injuries from industrial accidents. A close study by Islam and Tedford (2012) on the risk determinants of SMEs in New Zealand also acknowledges that manufacturing enterprises experience a wide range of risks which could be broadly categorized as internal and external environment risks. Variations in the projections on future risk occurrence and previous risk experiences also show that the projection on the likelihood on future risk occurrence is not necessarily informed by previous risk experiences although ideally this should be the case. This is also an indicator of lack of clearly documented and standardized procedures for identification and analysis of enterprise risks among MSEs.

5.2.3 Risk Management Practices Adopted by MSIs compared to those adopted by MLIs

The basic risk management practices included training, having a functional risk management department and personnel. The findings revealed that most of MLIs managers had received the training on risk management compared to majority of MSIs owner managers who had not. Also slightly above half of MLIs and nearly all MSIs did not have risk managers in place, similar situation prevailed in the presence of a functional departments or sections dedicated to risk management. Although there was lack of establish risk management functions across the manufacturing industries, the situation was worse in MSIs. These concur with Mwaniki (2006) who stated that most MSEs tend to remain basic in their management structure and skills, this also included having a risk management function a factor that hinders growth.

The findings on the risk management strategies adopted indicated that majority of MLIs had organized strategies for managing most of the enterprise risks facing them as opposed to MSIs. This compares with the situation in even developed countries, (Islam and Tedford, 2012) also identified that majority of manufacturing SMEs in Switzerland also did not have systematic risk management strategies in place. The most commonly adopted risk mitigation strategy for MLIs was the risk transfer to a third party that is insurance companies especially where the risk involved capital losses. In addition appropriate risk reduction strategies were put in place to minimize the likelihood of risk occurrence and the level of loss should the risk strike. On the other hand, the most common risk management strategy applied by MSIs was self insurance where the enterprises put aside some funds to fund their operations in case of a risk occurrence for business continuity in addition to risk reduction strategies. However, majority of MSIs however took no actions at all against all the risks in

question. Raghavan (2005) indicates that MSEs may not have wherewithal to manage and control risks due to their very size and several limitations.

The measures taken by MSIs and MLIs to cushion themselves from all risks stemming from internal environment varied significantly despite some similarities in the rating on risk levels. Risks mitigation strategies differed in theft, personal injuries and accidents, loss of key staff, critical machine breakdowns, reputation damage, unfair competition, changes in technology and unfavorable government regulations. Similarities in risk mitigation measures were observed in for: natural calamities but varied in other external risks such as economic recessions, changes in inflation, changes in interest rates, and political instability. Lai (2012) in a study in malaysia revealed that corporates in Malaysia implemented enterprise risk management practices by tightening internal operations as a result each corporate manages internal affairs differently therefore the difference internal environment risk management practices.

5.2.4 Effects of Risk Management Practices on Enterprise Performance

Majority of MSI owners rated their enterprise performance moderately except for expenses which were high. On the other hand performance in majority of MLIs varied from moderate to high. The least ranked dimension of enterprise performance was growth rate in both categories of industries implying that growth was a major challenge in the manufacturing industry. There was no significant difference on rating on the relative level of capital invested, growth rate, sales volumes and expenses. However, there was a significant difference in the rating on profitability and productivity in the two categories of industries. Overall, MLIs performed significantly better than MSIs on the parameters investigated.

On the comprehensiveness of the risk management practice in covering the potential enterprise risks, MLIs had put in measures in an average of 7 potential risks while some MLIs put in measures in all the 14 risks. On the contrary, MSIs had risk mitigation strategies to cushion themselves against an average of 2 risks and at most 8 risk factors. Therefore, there was a significant difference in the comprehensiveness of risk management strategies between MLIs and MSIs where MLIs had more comprehensive risk management portfolio. Spearman correlation therefore revealed a significant positive correlation between comprehensiveness in industry's risk management practice and overall industry performance, profitability, growth rate and productivity. There were no significant relationships between risk management practice and sales and expenses. This concurs with (Tatum, 2003) that, risk management plays a key role in protecting enterprise assets and resources by ensuring that risks are reduced to an acceptable level. This transforms to better productivity and profitability. Barson (2007) also states that risks can prevent companies from achieving strategic goals.

5.3 Conclusions

The research was guided by the following hypotheses: there is a significant difference in the risks facing MSIs and MLIs in Nakuru Municipality; the risk management practices adopted by MSIs are significantly different from those adopted by MLIs. The third was the risk management practices by manufacturing industries in Nakuru Municipality affected their performance. Inflation, changes in interest rates, theft and personal injuries were the most experienced risk factors among MLIs while unfair competition, economic recessions, unfavorable government regulations and political instability were the most experienced risks in MSIs. Based on previous experiences

by manufacturing enterprises, the risk exposure was significantly different between MLIs and MSIs. However, similarities were observed in the risk exposures between the two categories of enterprises for risks stemming from the external business environment such as natural calamities, inflation political instability and unfavourable government regulations. Risks from internal business environment varied significantly.

Majority of MSIs have not put in the basic risk management initiatives in place such as training staff on risk management, having risk management personnel and structures in place as opposed to MLIs who showed an organized and functional risk management structures and systems in place. The comprehensiveness in risk management practice among MSIs was significantly low compared to MLIs. Most of the MSIs took no actions on majority of the risks studied as opposed to MLIs who have risk management actions against majority of the risks in question. The most common risk management practice applied by MSIs was self insurance where the enterprises put aside some funds to reinstate their operations in case of a risk occurrence. On the other hand, MLIs preferred to transfer risks to a third party that is insurance companies especially where the risk involved capital losses. Risk reduction strategies were employed across all the industries. The measures taken by MSIs and MLIs to cushion themselves from risks stemming from internal environment varied significantly while those for managing external risks were significantly similar.

In overall enterprise performance, MLIs performed significantly better than MSIs on the parameters investigated. There was a significant difference in the rating on profitability and productivity in the two categories of industries. Further, the risk management practice in MLIs was significantly better than that in MSIs. Consequently, a positive relationship was established between comprehensiveness of

coverage in risk management and enterprise performance. Enterprises, big or small who managed risks better performed better. Specifically risk management significantly affected industry profitability, growth and productivity positively.

5.4 Recommendations

- (i) Both MSIs and MLIs should be enlightened develop an enterprise risk profile encompassing all the potential risk the magnitude and likelihood of occurrences in order to put in the right prevention and mitigation measures.
- (ii) As manufacturing enterprises grow in size and technology the risk profiles change. This is a factor that MSIs should be wary of in planning for growth from one stage to the other. MSIs should therefore keep on scanning both internal and external environment for
- (iii) MSIs should consider developing an organized risk management framework workable in their own small way in order to be able to respond to emerging risks which are a challenge to enterprise performance, survival and growth.
- (iv) Owing to the better risk management practices in MLIs, a mentorship program should be developed through which MSI owners and managers can be attached to MLIs to borrow experiences on how to manage their own risks.

5.5 Suggestions for Further Research

Areas requiring further research are:

- (i) This study showed that there was some level of variation in the rating of risk factors based on previous experiences and the future projections across all enterprises. Therefore a follow-up study is important to establish the role

played by previous risk experiences on future risk projections in manufacturing industries.

- (ii) Self insurance also came out as a key strategy adopted by MSIs in managing enterprise risks. However by theory, this is only applicable for low-risk low - loss risks. Therefore there is a need to establish the effects of using self insurance on enterprise performance as opposed to the use of risk transfer.

REFERENCES

- Ai, J., Brockett, W., Cooper, L. & Golden. L. (2012). Enterprise Risk Management through Strategic Allocation of Capital. *Journal of Risk and Insurance*, 79(1), 29–56.
- Ankomah, K. (2012). *Promoting Micro and Small Scale Industries in Ghana for Local Development: A Case Study of the Rural Enterprises Project in Asante Akim South District*. (Unpublished MBA Thesis). Kwame Nkrumah University of Science and Technology, Kumasi.
- Asian Disaster Reduction Center.(2005). Total Disaster Risk Management - Good Practices. Retrieved from: www.adrc.asia/publications. Retrieved on 27/11/2011.
- Barson, G. (2007). Enterprise risk management: the new imperative. *An executive white paper*. Houston: Lexicon systems.
- Bartholomew, D., Steel, F., Moustaki, I., & Galbraith, J., (2008). *Analysis of Multivariate Social Science Data* (2nd ed.). London: Tylor & Francis Group.
- Best, J., & Kahn, J. (1998). *Research in Education* (8th ed.). Boston, MA: Allyn & Bacon.
- Buchanan, L. (2004). Breakthrough ideas for 2004. *Harvard Business Review*, 2, 13-16.
- Churchill, N., & Lewis, V. (1983). The five stages of small business growth. *Harvard Business Review*, 61, 30-50.
- COSO. (2004). *Enterprise Risk Management Integrated Framework*. Durham: Committee of Sponsoring Organizations of the Treadway Commission.
- Cunningham, S. (2008). SME Risk Management Series. *Conference organized by Singapore Business Federation (SBF) and SPRING Singapore on November 2008*. Singapore.
- Dae Suh, J. (2011). *Risks and Opportunities Facing SMEs in the Post-Crisis Era*. Seoul: Small Business Institute.
- Dahl, M., Sorenson, O. (2007). Home sweet Home? Social capital and location decisions. Retrieved from. <http://www.druid.dk/fileadmin/images/dokumenter/sorenson.pdf>.
- Deloitte. (2006). *MSME Lending in Nigeria*. London: Deloitte and Touché.
- Deloitte. (2008) *Global risk management survey* (7th ed). London: Deloitte and Touche.
- Eckles, D., Hoyt, R., & Miller, S. (2011). The Impact of Enterprise Risk Management on the Marginal Cost of Reducing Risk: Evidence from the Insurance Industry. *Working Paper Series No 5*, 11-15.
- Economic Intelligent Unit. (2007). Best practice in risk management: a function comes of age. *A report by the Economist Intelligence Unit*. London.
- FERMA.(2002). *Risk Management Standard*. Retrieved From: <http://www.ferma.eu/Default.aspx?tabid=195>. Retrieved 27/2/2012.

- Fraenkel, J., & Wallen, N. (2000). *How to Design and Evaluate Research in Education*. New York: McGraw-Hill Publishing Co.
- FSD. (2008). *SME Risk Capital Funds: Constraints to Kenyan Institutional Investors*. Nairobi: Finance Sector Deepening.
- Gates, S., & Nantes A. (2006). Incorporating strategic risk into Risk Management: A survey of current corporate practice. *Journal of Applied Corporate Finance*, 18 (4), 81–90.
- Giesecke, A., Burns, W., Barrett, A., Bayrak, E., Rose, A., Slovic, P., & Suher, M. (2012). Assessment of the regional economic impacts of catastrophic events: CGE analysis of resource loss and behavioral effects of an RDD attack scenario. *Journal of Risk Anal*, 32(4),583-600.
- Gravetter, R., and Forzano, S. (2003). *Research Methods for Behavioural Sciences*. Belmont: Wardsworth.
- Hodgetts, R., & Kuratko, D. (2001). *Effective Small Business Management* (7th ed.). London: Harcourt College Publishers.
- ILO. (2009). *The Global Economic Crisis Sectoral Coverage*. Geneva: International Labour Office.
- Ingirige, B., Wedawatta, G., & Amaratunga, D. (2008). *Investigating SME resilience and their adaptive capacities to extreme weather events: A literature review and synthesis*. Salford: University of Salford.
- Institute of Chartered Accountants. (2002). Risk management for SMEs: A briefing document from The Faculty of Finance and Management of The Institute of Chartered Accountants.Wales.
- Institution of Occupation Safety and Health. (2002). *SME Risk Management Tool Kit*. London: Institution of Occupation Safety and Health.
- International Trade Centre. (2009). *How to access trade finance a guide for exporting SMEs*. Geneva: International Trade Centre.
- Islam, A., and Tedford, D. (2012). Risk determinants of small and medium-sized manufacturing enterprises (SMEs) - an exploratory study in New Zealand. *Journal of Industrial Engineering International*, 8(12), 1-13.
- Jung Dae, S. (2011) *Risks and Opportunities Facing SMEs in the Post-Crisis Era*. Seoul, Korea: Small Business Institute.
- Kombo, A., Wesonga,J., Murumba, N., & Makworo, E., (2011). An Evaluation of the Impact of Risk management Strategies on Micro-Finance Institutions' Financial Sustainability: A case of Selected Micro finance institutions in Kisii Municipality, Kenya. *Journal of Educational Research*, 2 (5), 1149-1153.
- Kombo, D., & Tromp, D., (2006). *Proposal and. Thesis Writing*. Nairobi: University of. Nairobi Press.
- Kuratko, D., & Hodgetts, R. (2004). *Entrepreneurship: Theory, Process, Practice*. Mason: South-Western Publishers.

- Lai, F. (2012). A Review of Enterprise Risk Management Practices among Malaysian Public Listed Companies. *World Academy of Science, Engineering and Technology*, 68, 315 – 321.
- Megginson, L., Byrd, M., & Megginson, W. (2003). *Small Business Management: An Entrepreneur's Guidebook* (4th ed.). New York: McGraw-Hill.
- Mills, M., Bunt, G., & Bruijn, J. (2006). Comparative Research Persistent Problems and Promising Solutions. *Journal of International Sociology*, 21(5), 619–631.
- Moser, C., & Kalton, G. (1971). *Survey Methods in Social Investigation*. London: Biddles Ltd.
- Mugenda, A., & Mugenda, O. (2003). *Research methods: Quantitative & Qualitative Approaches*. Nairobi: African Center for Technology Studies.
- Mwaniki, R., (2006). *Supporting SMEs Development & the Role of Microfinance in Africa*. Nairobi: INAFI Africa Trust.
- Nassiuma, D. (2000). *Survey sampling: Theory and methods*. Njoro, Kenya: Egerton University Press.
- Nicholas, C. (2009). *The Startup Entrepreneur's Guide to Risk Management*. Retrieved from: <http://www.businessinsider.com/the-startup-entrepreneur-guide-to-risk-management-2009-6>. Retrieved on 3/6/2011.
- Nocco., B. and Stulz, R., (2006). Enterprise risk management: Theory and practice. *Journal of Applied Corporate Finance*, 18(4), 8-20.
- Oboh, G. (2004). Contemporary Approaches for Financing Micro, Small and Medium Enterprises. *Conference proceedings on SME held at the International Conference Centre on July 19 – 22, Abuja, Nigeria*. pp. 2-15.
- Odeh, O. (2005). The Impact of Federal Government Reform Programme on the Development of the SMEs Sector. *A paper presented at the National Seminar on "Facilitating Easy Accessibility to the SMEEIS Funds by SME operators on 10th – 11th October*. Lagos. pp 34.
- Olawale, F., & Garwe, D. (2010) Obstacles to the growth of new SMEs in South Africa: A principal component analysis approach. *African Journal of Business Management*, 4(5), 729-738.
- Osoimehin, K., Jegede, C., Akinlabi, H., & Olajide, O. (2012). An Evaluation of the Challenges and Prospects of Micro and Small Scale Enterprises Development in Nigeria. *American International Journal of Contemporary Research*, 2(4), 174 -185.
- Raghavan, R. (2005). Risk Management in SMEs. *The Chartered Accountant*, 530-535, Available on: <http://www.icaew.com/index.cfm?route=124661>. Retrieved 26/8/2011.
- Ravi, S (2009). *Entrepreneurship Development in the Micro Small and Medium Enterprise Sector in India*. Hyderabad: Indian School of Business.
- Salleh, F., & Ibrahim, M. (2011). Demographic Characteristics Differences of Risk Taking Propensity among Micro and Small Business Owners in Malaysia. *International Journal of Business and Social Science*, 2(9), 149-153.

- Satchu, A. (2009) *Navigating the Global Financial Markets Turn your business on its head*. Retrieved from <http://www.rich.co.ke>. Retrieved on 22/9/2010.
- Shenkir, W., & Walker, P. (2007). *Enterprise Risk Management: Tools and Techniques For Effective Implementation*. Montvale: Institute of Management Accountants.
- Stokes, M. (2004) Taking full advantage of enterprise-wide risk management. *The Treasurer* (May ed). London: Association of Corporate Treasurers.
- Stoneburner, G., Goguen, A., & Feringa, A. (2002). *Risk Management Guide for Information Technology Systems*. Gaithersburg: National Institute of Standards and Technology.
- Tatum, M., (2003); *what is risk management?* Retrieved from: <http://www.wisegeek.com/what-is-risk-management.htm>. Retrieved on 4/7/2010.
- Technoserve. (2007). *Backgrounder on Kenya's Urgent Need for Youth Entrepreneurship Development*. Retrieved from www.technoserve.org Retrieved on 2/4/2011.
- The Institute of Chartered Accountants. (2002). *Risk management for SMEs*. London: Faculty of Finance and Management.
- Tolentino, A. (1996). Guidelines for the Analysis of Policies and Programs for Small and Medium Enterprise Development Enterprise and Management Development. *ILO Working Paper*.
- Wendel, C., & Harvey, M. (2006) SME Credit Scoring: Key Initiatives, Opportunities and Issues. *Access Finance*, 10, 34-38.
- Zhou, Y., & Liu, M. (2012). Risk assessment of major hazards and its application in urban planning: A case study. *Risk Anal*, 32, 566–577.

SECTION B: ENTERPRISE RISK IDENTIFICATION AND MEASUREMENT

This section contains information on risks experienced by enterprises, their likelihood of occurrence, potential loss and the measures (strategies) that enterprises have taken to minimize their effects or eliminate them completely.

1. For each of the risks listed below have you experienced them before? Are they likely to happen in future? **(Tick appropriately)**

| No. | RISK FACTOR | Have you Experienced it before? | | Is it likely to happen in future? | | | | |
|-----|------------------------------------|---------------------------------|----|-----------------------------------|--------|----------|----------|---------------|
| | | Yes | No | Very likely | Likely | Not sure | Unlikely | Very unlikely |
| B1 | Property damage | | ✓ | | | | ✓ | |
| B2 | Natural calamities | ✓ | | | | | ✓ | |
| B3 | Theft | | ✓ | | | | ✓ | |
| B4 | Personal injury & accidents | | ✓ | | | | ✓ | |
| B5 | Economic recessions | ✓ | | | ✓ | | | |
| B6 | Changes in inflation rates | ✓ | | ✓ | | | | |
| B7 | Changes in interest rates | ✓ | | ✓ | | | | |
| B8 | Loss of key staff | ✓ | | | ✓ | | | |
| B9 | Critical machine beak downs | | ✓ | | | | ✓ | |
| B10 | Reputational damage | | ✓ | | | | ✓ | |
| B11 | Unfair Competition | ✓ | | | | ✓ | | |
| B12 | Political instability | ✓ | | | | ✓ | | |
| B13 | Changes in technology | ✓ | | | ✓ | | | |
| B14 | Unfavorable government regulations | ✓ | | ✓ | | | | |
| B15 | Any other (specify) | | | | | | | |

2. What level of loss would you incur if these risks uncontrollably struck your business?
 (Tick appropriately)

| No. | RISK FACTOR | What level of loss would you incur if these risks struck your business? | | | | |
|-----|------------------------------------|---|------|----------|-----|----------|
| | | Very high | High | Moderate | Low | Very low |
| B16 | Property damage | ✓ | | | | |
| B17 | Natural calamities | | ✓ | | | |
| B18 | Theft | | ✓ | | | |
| B19 | Personal injury & accidents | | | ✓ | | |
| B20 | Economic recessions | | ✓ | | | |
| B21 | Changes in inflation rates | ✓ | | | | |
| B24 | Changes in interest rates | | ✓ | | | |
| B23 | Loss of key staff | | ✓ | | | |
| B24 | Critical machine beak downs | | ✓ | | | |
| B25 | Reputational damage | | | ✓ | | |
| B26 | Unfair competition | | | ✓ | | |
| B27 | Political instability | | ✓ | | | |
| B28 | Changes in technology | | | ✓ | | |
| B29 | Unfavorable government regulations | ✓ | | | | |
| B30 | Any other (specify) | | | | | |
| | Risk factor same as B29 | | | | | 12 |

Best factor low - 0-1 -
 Comparison - Regression / Correlation
 T-test - Compare means

3. Have you taken any measures (strategies) to ensure that if these risks strike, they will not suppress your business or push you out of the market? (Tick appropriately)

If yes, state the measures you have taken on the last column

| No. | RISK FACTOR | Have you taken any measures to prevent losses incase these risks occur? (tick where appropriate) | | |
|-----|-----------------------------|--|----|--------------------------------------|
| | | Yes | No | If yes, state the actions taken here |
| B31 | Property damage | ✓ | | Insurance |
| B32 | Natural calamities | | ✓ | |
| B33 | Theft | | | |
| B34 | Personal injury & accidents | ✓ | | Insurance |
| B35 | Economic recessions | | ✓ | |
| B36 | Inflation rates | | ✓ | |
| B37 | Interest rates | | ✓ | |
| B38 | Loss of key staff | ✓ | ✓ | Training |
| B39 | Critical machine beak downs | ✓ | | |
| B40 | Reputational damage | ✓ | | Strong Customer Relationship & Mktg. |
| B41 | Competition | ✓ | | " |
| B42 | Political instability | | ✓ | |
| B43 | Changes in technology | ✓ | | keeping with technology |
| B44 | Government regulations | ✓ | | |
| B45 | Any other (specify) | | | |

SECTION C: ENTERPRISE PERFORMANCE

This section contains information on subjective enterprise performance based on various performance indicators.

1. How would you rate your business performance in terms of the following parameters?

(Respond by ticking in appropriately)

| No. | Performance indicator | Very high | high | Moderate | low | Very low |
|-----|-----------------------|-----------|------|----------|-----|----------|
| C1 | Capital invested | | ✓ | | | |
| C2 | Profitability | | | ✓ | | |
| C3 | Growth rate | | | | ✓ | |
| C4 | Sales volume | | | ✓ | | |
| C5 | Production | | | ✓ | | |
| C7 | Expenses | | ✓ | | | |
| C8 | Any other specify | | | | | |

2. What would you recommend for small manufacturing enterprises to better control their risks.....

Thank you,

May God bless you and your business

Appendix ii: Letter of Introduction from Moi University

MOI UNIVERSITY
ISO 9001:2008 Certified Institution
OFFICE OF THE DEAN
SCHOOL OF HUMAN RESOURCE DEVELOPMENT

P.O. Box 3900
ELDORET, KENYA.

254-053-43153/43620 Ext.2448

REF: MU/SHRD/PG/77

13th August, 2012

TO WHOM IT MAY CONCERN

RE: BARNABAS MUSYOKA MUTHUSI – SHRD/PGE/12/08

The above named is a Master of Science student at Moi University, School of Human Resource Development, Department of Quantitative skills and Entrepreneurship Studies.

It is a requirement of his Master of Science Studies that he conducts a research and produces a Thesis. The topic of his Thesis is “**Enterprise Risk Management: A Comparative Study of Small And Medium Manufacturing Industries In Nakuru Municipality, Kenya**”.

Any assistance accorded to him will be highly appreciated.

PROF. J. KWONYIKE
DEAN: SCHOOL OF HUMAN RESOURCE DEVELOPMENT

Appendix iii: Authorization Letter from NCST

REPUBLIC OF KENYA



NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471, 2241349
 254-020-310571, 2213123, 2219420
 Fax: 254-020-318245, 318249
 When replying please quote
 secretary@ncst.go.ke

P.O. Box 30623-00100
 NAIROBI-KENYA
 Website: www.ncst.go.ke

Our Ref: **NCST/RCD/14/012/1187**

3rd September 2012
 Date:

Barnabas Musyoka Muthusi
 Moi University
 P.O.Box 3900-30100
 Eldoret.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Enterprise risk management: A comparative study of Micro and Small Industries against Medium and Large Manufacturing Industries in Nakuru Municipality, Kenya.*" I am pleased to inform you that you have been authorized to undertake research in **Nakuru District** for a period ending **30th October, 2012.**

You are advised to report to the **Chief Executive Officers/Directors of Medium and Large Manufacturing Firms, Nakuru** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. M. K. RUGUTT, PhD, HSC
DEPUTY COUNCIL SECRETARY


Copy to:

The Chief Executive Officers/Directors
 Medium and Large Manufacturing Firms
 Nakuru District.

Appendix iv: Research Permit

CONDITIONS

1. You must report to the District Commissioner and the District Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officers will not be interviewed with-out prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2)/four(4) bound copies of your final report for Kenyans and non-Kenyans respectively.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice



REPUBLIC OF KENYA

RESEARCH CLEARANCE PERMIT

GPK6055t3mt10/2011 (CONDITIONS—see back page)

PAGE 2 **PAGE 3**


THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Barnabas Musyoka Muthusi
 of (Address) **Moi University**
P.O.Box 3900-30100, Eldoret,
has been permitted to conduct research in

| | |
|--------------------|-----------------|
| Nakuru | Location |
| Rift Valley | District |
| | Province |

Research Permit No. NCST/RCD/14/012/1187

Date of issue 3rd September, 2012

Fee received KSH. 1,000



on the topic: Enterprise risk management: A comparative study of Micro and Small Industries agains Medium and large Manufacturing Industries in Nakuru Municipality, Kenya.

Applicant's Signature

Secretary
National Council for Science & Technology

for a period ending: 30th October, 2012.

Appendix v: Additional Data

(a) Risk management training

| Risk Management Training | MLIs | | MSIs | |
|---------------------------------|------------------|----------------|------------------|----------------|
| | Frequency | Percent | Frequency | Percent |
| No | 8 | 25.0 | 75 | 81.5 |
| Yes | 24 | 75.0 | 17 | 18.5 |
| Total | 32 | 100.0 | 92 | 100.0 |

(b) Presence of Risk Managers

| Presence of Risk Managers | MLIs | | MSIs | |
|----------------------------------|------------------|----------------|------------------|----------------|
| | Frequency | Percent | Frequency | Percent |
| No | 19 | 61.3 | 87 | 94.6 |
| Yes | 12 | 38.7 | 5 | 5.4 |
| Total | 31 | 100.0 | 92 | 100.0 |

(c) Presence of Risk Management Department

| Risk Management Departments | MLIs | | MSIs | |
|------------------------------------|------------------|----------------|------------------|----------------|
| | Frequency | Percent | Frequency | Percent |
| No | 15 | 48.4 | 89 | 96.7 |
| Yes | 16 | 51.6 | 3 | 3.3 |
| Total | 31 | 100.0 | 92 | 100.0 |

d) Industries overall performance rating

| | N | Minimum | Maximum | Mean | Std. Deviation |
|------|----------|----------------|----------------|-------------|-----------------------|
| MLIs | 31 | 1.50 | 5.00 | 3.2500 | .70711 |
| MSIs | 92 | 1.00 | 4.50 | 2.9946 | .51619 |