

**DETERMINANTS OF OPERATIONAL RISKS AND LOSSES IN
MANUFACTURING FIRMS IN KENYA**

BY

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DECLARATION

This management research project is my original work and has not been presented for examination in any other university.

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This management research project has been submitted for examination as a university supervisor.

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DEDICATION

I dedicate this research project to family for the support and patience during the entire period of my study. Thank you and God bless you abundantly.

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ABSTRACT

Risk management is the practice of creating economic value in a firm by using financial instruments to manage exposure to risk, particularly credit risk and market risk. Despite the innovations in the manufacturing sector, operational risk is still the major single cause of firm failures. Risks are uncertainties resulting in adverse variations of profitability or in losses. Various risks faced by manufacturing firms include; market risks, interest rates risk, liquidity risk and operational risk. Studies in Kenya have only focused on risk management practices of firms in general without being specific on the operational risk management practices of manufacturing industry.

Descriptive research sought to establish factors associated with certain occurrences, outcomes, conditions or types of behavior. A target population is one that the researcher wants to generalize the result of the study. There were 60 manufacturing firms in Kenya. These formed the target population. The study covered 30 manufacturing firm in Kenya which was in operation as at 31st December 2012 for data consistency. Primary sources was used to collect data. The primary data was collected using questionnaires. The data collected was run through various models so as to clearly bring out the determinants of operational risks and losses in manufacturing firms in Kenya.

The study revealed that the determinants of operational risks and loses in manufacturing firms were governance, strategy, policy, periodic evaluation and organization structure. The study also revealed that a unit increase in governance would lead to decrease in operational risks and loses in manufacturing firms. The study further established that a unit increase in strategy would lead to decrease in operational risks and loses in manufacturing firms. The study also established that a unit increase in policy would lead to decrease in operational risks and loses in manufacturing firms. The study found that a unit increase in periodic evaluation would lead to decrease in operational risks and loses in manufacturing firms, it was further revealed that a unit increase in organization structure would lead to decrease in operational risks and loses in manufacturing firms. The study recommends that in order to effectively manage operations and reduce operational risks the management team needs carefully identify all the risks it may fall vulnerable of and establish the appropriate mechanisms to curb unexpected risks whenever they pop up.

Risk management will help to reduce surprises, improved planning, enhance performance and effectiveness and improved relationships with stakeholders. The study recommends that Corporate Social Responsibility is important because businesses are based on trust and foresight. Establishing and keeping trust with customers, communities and regulators isn't simple and can be easily damaged or lost. To be successful in the long-term, companies need to think beyond what's affecting them today to what's going to happen tomorrow. This isn't just about addressing changes to technology or the needs of customers, but also taking into account alterations in social, environmental and governance issues.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In the dynamic and highly competitive business environment, manufacturing industries are under tremendous pressure due to the free market economy, rapid technological development, and continuous changes in customer demands (Islam et al. 2006). To cope with the current business trends, the demands on modern manufacturing systems have required increased flexibility, higher quality standards, and higher innovative capacities (Monica and John 1999). ‘These demands emphasize the need for high levels of overall system reliability that include the reliability of all human elements, machines, equipment, material handling systems and other value added processes and management functions throughout the manufacturing system’ (Islam et al. 2006). Whatever the resources they possess, the manufacturing organizations encounter undesirable events and unwanted setbacks such as machine breakdowns, material shortages, accidents, and absenteeism that make the system unreliable and inconsistent (Monica and John 1999).

Generally, the manufacturing industry faces substantial financial, operational, strategic and hazard risks. Financial risks create uncertainty about future cash flows due to changes in general economic conditions and specific changes in revenues operating expenditure and financing costs. According to Dermont (2002) operational risk is not really one risk but many. It’s a sweep up of a term covering everything that does not fall under either market risk or credit risk. Operational risk management requires identification of its sources, measuring it and plans to address them .Operational risk can

be qualitative leading to reputational losses and quantitative leading to financial losses (Tapiero).

Doering (2003) argued that good risk management is a good competitive advantage since it helps maintain stability and business continuity through supported revenues and earnings in any industry. Risk can be measured using standard deviations though its management will always remain a blend of art and science as it's a daily struggle towards uncertainty and is a learning process each newer day. A recognized risk is less risky than an unidentified risk as risks are highly multifaceted, complex and often calls for its management rather than shying away from it. (Jorion,2001). Selecting the appropriate hedging strategy is often a daunting task due to the complexities involved in measuring operational risk and deciding on the appropriate degree of risk exposure that ought to be covered.

According to Rose, (1997) institutions are faced with many risks including such as market risk, which is the risk that the market value of an asset will decline resulting into capital losses when sold. She also observed that operating risk arises from the failure of internal controls in the business environment .Payle (1997) suggests that risks faced by financial institutions include: market risk, credit risk, performance risk and operational risk which results from cost incurred from mistakes made in carrying out transactions such as settlements, failure to meet regulatory requirements and untimely collections.

1.1.1 Operational Risk

Operational risk is as old as the manufacturing industry itself and yet the industry has only recently arrived at a definition of what it is. Operational risk is defined by the Basel Committee on Banking Supervision (2006) as: “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk but excludes strategic and reputational risk. Anecdotally, many corporate failures can be traced to operational losses. Classic examples include Barings Bank and Enron. The recent multi-billion dollar losses at Credit Suisse and AIG, attributed to trader error or “material weakness related to the valuation of subprime mortgage securities.

1.1.2 Operational losses

According to Basel II Agreement, the operational loss represents the loss resulted from an event of operational loss. This loss includes all the expenses related to this event, excepting opportunity costs, known income and the cost related to risk management and increased control operation, used to prevent future operational losses. Operational loss include items classified by manufacturing firms as production loss provision, depreciation, amortisation and other operating expenses in published financial statements (Basel Committee: Saunders 2000). Operational loss management is a decisive competitive advantage as it helps to maintain stability and continuity and supports revenue and earnings growth in institutions (Doering 2003). Risk management is an obligation of all stakeholders thus diligent and intelligent risk taking is an attitude towards stakeholders.

1.1.3 Determinants of Operational Risks

In the literature there are known two types of determinant factors for the operational risk that generate losses, internal factors for example the inadequate development of some internal activities, staff unprepared and improper systems .External factors include the economic situation, changes in the banking system or technological achievements. These factors include, the necessity to develop in a short period of time a high volume of transactions, the necessity of using the electronic funds transfer and other telecommunication system in order to transfer the property of big amounts of money, the necessity of developing operations in different regions, the management of a high volume of monetary elements, the necessity of monitoring and solving the important exposures.

These factors are very important and the companies have to be very carefully, by monitoring them, because in the last period of time it was recorded a higher level of the operational risk. Especially this is due to organizational, infrastructure and business area changes. Also, we have the development that generated a higher attention for the operational risk and its inclusion in the internal capital allocation process of a bank.

1.1.4 Factors of Operational Risks and Losses

Process Risks

Its caused by failed processes and procedures examples includes ,insufficient documentations, transactions errors ,wrong documentation procedures ,lack of in build controls and procedures, marketing errors, money laundering and incorrect or insufficient regulatory reporting.

People Risk

This is associated with people employed in the institutions. They include; Internal Fraud, High labor turns over, Poor training, Collusion and rogue trading.

System Risk

Its risk associated with the use of technology as a system. It is manifested through: Data corruption, Data entry errors, inadequate change control, inadequate project management and programming errors.

External Risk

Risk associated with events that are beyond the direct control of the Institution. They are usually low frequency or high impact events and consequently generate unexpected losses examples are, Large Scale robberies, Major terrorist attacks and Political violence.

And they are caused by, External fraud or theft, Fire and floods, Natural disasters, Failures of out sourcing arrangements, Implementation of new regulations, Riots and civil protests, Terrorism, Disruption in transportation systems and Utility failures like power cuts.

External risks are managed through a robust business continuity plan. This ensures that operations of the institutions continue with minimum or no disruptions of key operations services. Dermont, (2002) operational risk is not really one risk but many and includes all other risks not falling under credit or market risks and may cause both financial and non-financial losses (Reputational).

1.1.5 Management of Operational Risks and Losses

The risk management is a managerial process that involves all the techniques and methods to evaluate and analyze the risk. It is represented by different processes as, measuring, controlling, reporting or choosing that decisions which lead to the reduction of all risks. The main objectives of the manufacturing firm's management are profitability maximization and risk exposure minimization. In case the company achieve this the employees become more serious and responsible regarding their job and also the psychological effect of not doing frauds is more powerful. In conclusion the final goal and objective is to identify and eliminate the risks. But the identification of the risk factors, the evaluation, the control and the risk reduction are the main steps taken in the risk analysis and depends on the period of time taken into account, the costs and benefits, the data and information veracity, the possible externalities and interdependences between the events.

The operational risk management, as it is presented in the paper "Operational risk management" by Jack Copeland, has at basis six principles that are presented in the following ways,

Hazard identification – using strict traditional procedures what analyze more and more hazards with the one of the following basic instruments: operations analysis or financial flow diagram, the preliminary hazard analysis, scenarios, logic diagrams, change of analysis, cause-effect.

Risk evaluation – it is made in order to determine the fundamental causes and to establish the risk levels to use the risk evaluation matrix in order to make the risk a priority, from the biggest to the smallest.

The analysis of the risk control measures – it is made in order to develop the management of each type of risk. A good evaluation is made only if the control options are explored at macro level and the hazard control is identified.

The control decisions - they must be taken by the proper person and at the proper time on the basis of the proper support and data, but knowing the financial authority for taking decisions, the limits and the risks that must be take into account.

The risk control implementation supposes the implementation of the developed strategies. These strategies define the individual responsibilities, the accountancy and the involvement of each person. They have as a result a positive impact on the mission and the existence of more support package.

The surveillance and monitoring – suppose a systematic evaluation of the mission oriented on per formant results of the operational risk management determined in real time and on valid data for future applications. To accomplish the conditions of a good evaluation it has to exist a direct risk measure and a feedback mechanism.

1.1.6 Manufacturing Firms in Kenya

Manufacturing firms are the chief wealth producing sectors of any economy Teal, (2000).

These industries use various technologies and methods widely known as manufacturing process management. Manufacturing industries are broadly categorized into engineering industries, construction industries, electronics industries, chemical industries, energy industries, textile industries, food and beverage industries, metalworking industries, plastic industries, transport and telecommunication industries.

Doering (2003) argues that good risk management is a decisive competitive advantage as it helps to maintain stability and continuity and also supports revenue and earnings growth in any institution. Risk management is an obligation of all stakeholders, the Board of Directors, oversight, senior management, auctioning, risk management units ownership and management and the internal audit who are charged with assurance functions and each unit is charged with responsibility to help contain risk.

Risk can be measured by examining variables as standard deviation, but some risks are hard to measure and is therefore a daily struggle against uncertainty and a learning process. Risk is part of corporate life in all institutions both financial and Non-financial. Its not avoidable but its manageable and most of the institutions perform their day to day operation through taking and incurring risk (Jorion, 2001) Philipe (1997).

Rose (1997), notes the various risks facing financial institutions key among them including market risk, interest risk, default risk, counterparty risk, settlement risk and operational risks. Deregulation and globalization of financial and services together with the growing sophistication of financial technology make the risk profiles of institution more complex.

The Basel committee on Banking and supervision (2003) suggests that risk other than credit, markets and interest risks are becoming substantial and should therefore receive attention as their effect on the operations of any institution both financially and non-financially (reputational losses). The committee identifies the following as examples of

new and growing risks faced by institutions. Greater use of automated technology is transforming manual processing risks and errors to system failures as greater reliance is placed on globally integrated system. Besides, E commerce leads to increased internal and external frauds and system security issues.

The Credit Suisse Group (2001) argues that financial institutions may engage in risk mitigation techniques to optimize exposure to market and credit risk but which may in turn produce other forms of risks as organization risks, process risk, technology risk, internal and external risk.

1.2 Research Problem

Risk management is the practice of creating economic value in a firm by using financial instruments to manage exposure to risk, particularly credit risk and market risk. Despite the innovations in the manufacturing sector, operational risk is still the major single cause of firm failures. In the past, firms have relied entirely upon internal control mechanisms within business lines supplemented by audit functions to manage operational risks. A number of studies have been done in various firms viewing the problem of risk management as the need to control risks which make up most, if not all, of their risk exposure.

Risks are uncertainties resulting in adverse variations of profitability or in losses. Various risks faced by manufacturing firms include; market risks, interest rates risk, liquidity risk and operational risk. Studies in Kenya have only focused on risk management practices of firms in general without being specific on the operational risk management practices

of manufacturing industry. A search on studies on risk management in Kenya yielded studies done on credit risk management (Njiru, 2003; Kioko, 2008; Ngare, 2008; Simiyu, 2008; and Wambugu, 2008), information systems risk management (Weru,2008) foreign exchange risk management (Kipchirchir, 2008,Mangoli, 2012) and operational risks and losses in the banking industry (Idarus,2005); Ongera (2006); Ombaka (2010).

While the above research outcome provides valuable insights on risk management, they have not induced clear determinants and effects of operational risk management on efficiency of manufacturing firms. Given the research gaps poised by the above empirical studies, this study posed the research question: “what are the determinants of operational risks and losses and the management of manufacturing firms?”

The literature has tackled the concepts of determinants of operational risks and risk management. An empirical review has been provided with studies on operational risk-performance being evaluated. As it can be noted the factors affecting a manufacturing firms operational risks and losses have not been exhausted.

Risk increases with increase in factors like complexity, globalization and new technology types of risk, regulators requirements and pressure for rational capital allocation. Insurance is not a safety net for management failures. Insurance helps mitigate economy and reputational consequences and it’s not a substitute of sound operational risk management. Risk categorization by insurance causes that all manufacturing firms carry same risk methodology may lead to unfair pricing of the risk. Such a situation is also a

function of the insurance cycle and or availability of coverage through alternative risk transfers including capital markets. There is limited data exchange from insurance companies hence risk transfer is somehow opaque.

Insurance companies have come up with rather extended coverage for new risks and some also have more accommodating pay out solutions. Risk transfers by 3rd party insurance and risk financing options have to be carefully done. Firms traditionally spread risk coverage among various insurance in order to spread their counter party risk. Re-insurance aspect becomes more important with increased insurance coverage. Therefore other counter party exposures to insurance companies have to be judged on a consolidated basis. Insurance company quality, capital availability and the anticipated consolidation of the industry is therefore a challenge. Increased insurance demands might lead to major insurers becoming market makers for capital market transactions therefore spreading the risk on a global scale. Operational risk transfers into alternative risk transfer solution have been limited up to present because of absence of credible manufacturing operational risk stating low number of catastrophic events in manufacturing.

Young (1979) argues that models and qualifications are only as good as the data they are derived from gigo (garbage in garbage out) is of extreme importance when quantifying operation risk.

Data availability is pre-condition. Activities only turn out to be data if recorded in a retrieval manner at a later date. While recording data, manufacturing times cannot record everything in performance. Only bits and pieces of big operational risks and catastrophes feature from the past level at which operation risk data should be available is also the biggest challenge and how frequent do we need such data, monthly or quarterly. Many risk areas cannot be measured but requires judgment and so is the type of data used, qualitative and quantitative. They require different treatment interpretation and analysis thus the information to be captured in the data should be clearly defined in terms of content feature and unit.

Operation risk data of an entity is unique to availability, characteristics, causality objectivity, transactions and portfolio types. External loss and pooled data known to the market must be carefully interpreted. The operation risk figures, pure operational risks are combined with an element of market, credit or other risks. Are the operations risk losses relating to corporate in general? What are the specific losses composed with revenues, turnover, earning and equity of respective company.

Relevance should be ensured as times change, new environments and new products are put in place. Constant surveys of the data and used must be used to ensure realistic indicators. New data content have to be assessed and old, less trustworthy are weeded out. This is an ongoing process which is costly. Data access issues need to be sorted .Sources of operations risk data can be created through data sharing agreements or consortiums. Many shy away from such an approach understandably so given specific

circumstances such as confidentiality aspects, media and plain embarrassment (Jorion 1999)

1.3 Objective of the Study

The objective of the study was to provide an analysis of micro and macro-economic variables that contribute to the incidence of operational risk and losses and the management of manufacturing firms in Kenya.

1.4 Value of the Study

The following interest groups will find usefulness of this study:

Employees: These are the internal human resources of the company and further the internal customers.

The employees of manufacturing companies will use the study to find out different types of operational risks and in order to cut out operational costs and losses.

This can be done by following the well laid down procedures and policies in the operation manuals.

Management: These refer to the top level managers who oversee operational risk and actions of risk preventive and control measures for the company as a whole.

The management, especially the top level management of manufacturing firms will use the study to understand how operational risk management affects organizational performance and set up strategies in handling its effects.

Such strategies help to check the prevalence of operational risk.

Other Manufacturing Firms: These are other firms in the industry that act as competition and through which they can benchmark their services and products.

They will use the study to understand the significance of competition in order to increase the market of the organization.

This in turn leads to improved quality and fairly competitive pricing in the industry at large.

Other researchers and scholars: These are other academicians who could be interested in further researching on the subject topic.

Researchers will use the study to get information about operational risk management and use the information on other projects.

It would help bring out other perspectives of operational risks as this is a changing field where newer forms and ways to curd them keeps cropping up.

Management consultants: This study will benefit management consultants as they ponder on development of tools for the management and quantification of operational risks and losses.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This area seeks to explain what is contained in this chapter. This includes a detailed review of theories guiding the study, a review of empirical studies and past researches, determinants of operational risks and losses and a chapter summary and conclusion of literature review. Major categories of operational risk and risk management approaches that have been tried on by various researchers while trying to identify the research gaps in their studies.

2.2 Review of Theories Guiding the Study

According to the Credit Suisse Group(2001) operational risk may manifest itself in the forms of ;business disruptions, control failures, errors, misdeeds or external events and can be categorised as; organisational risk, process risk, technology risks, human risks and lastly external risks. Related theories studied here include:

2.2.1 Portfolio Theory

The concept of risk is closely related to the insights of portfolio theory. The most important paradigm of risk is part of a set of results known in the financial economics literature as the Capital Asset Pricing Model (CAPM) developed by Sharp (1964) and Lintner (1965) and later refined by Black (1972). It represents an extension and simplification of the model by Markowitz (1952). The Markowitz model was the first theorizing a relationship between risk and return. In his model, there are as many efficient

portfolios as there are investor risk preferences. All efficient portfolios must lie on the mean-variance investment frontiers where investors can get a higher return only by accepting a higher level of risk. The CAPM extends this theory to a situation of equilibrium. The CAPM argues that all investors will hold the same efficient portfolio (the market portfolio) regardless of their individual risk preferences. Thereby, the CAPM is capable of determining the market price for risk and an appropriate risk measure for a single asset (Gossy, 2008).

There have been numerous anomalies of the CAPM that have been discovered by finance researchers. This has initiated a discussion of the usefulness of the CAPM for the field of strategic management starting with the contribution by Bettis (1983). He detects a conundrum regarding the role of risk in strategic management context and states the main points of controversy between finance and strategy. In particular, he seriously questions the implications of the CAPM for strategic management but especially corporate risk management. The author identifies an implied recommendation in the CAPM to corporate management not to be concerned at all about firm-specific risks. Bettis (1983) argued that business risks are associated with firm specific resources and competencies and are strongly related to the firm-environment interface.

2.2.2 Modern Portfolio Theory

Modern Portfolio Theory (MPT) is a theory of investment which tries to maximize return and minimize risk by carefully choosing different assets (Markowitz, 1952). MPT is a mathematical formulation of the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively lower risk than any

individual asset. This is possible, in theory, because different types of assets often change in value in opposite ways. For example, when the prices in the stock market fall, the prices in the bond market often increase, and vice versa. A collection of both types of assets can therefore have lower overall risk than either individually (Mandelbrot, and Hudson, 2004). The Primary principle upon which Modern Portfolio Theory is based (MPT) is the random walk hypothesis which states that the movement of asset prices follows an Unpredictable path: the path as a trend that is based on the long-run nominal growth of corporate earnings per share, but fluctuations around the trend are random (Chandra, Siddharth and Shadel, 2007).

2.2.3 MM Model

There is a broad literature on risk management decisions for firms in general, beginning with Modigliani and Miller (1959): Their famous theorem states that in a world of perfect and complete markets, financial decisions are irrelevant as they do not alter the value of the shareholder's stake in the firm. The only way to increase shareholder's wealth is to increase value of the firm's assets. Neither the capital structure nor the risk management decisions have an impact on shareholder's wealth. Some important deviations from the perfect capital markets in the Modigliani Miller setting have been identified, giving motivations for firms to care about risk management, such as taxes, bankruptcy costs, agency costs and others. When these reasons for risk management are incorporated into the firm's objective function, one finds the following basic result: When all risks are perfectly tradable the firm maximizes shareholder value by hedging completely (Gossy, 2008). Modigliani and Miller (1959) state that under the restrictive neoclassical

assumptions, corporate financial decisions do not influence the value of the firm. These decisions simply redistribute the income stream among different investors.

As long as investors can act in the capital markets at the same terms and conditions as the firm itself, the only way to impact firm value is by influencing the expected level of firm cash flows (Gossy, 2008). Since risk management is part of an overall financing policy, the MM findings directly have important implications for the risk management strategy of the firm. Under the MM model, any investor's wealth position is unaffected by corporate risk management activities on the part of the firm (Gossy, 2008). Following this argument, a MM disciple would argue against doing any risk management at all since it is a purely financial transaction (Gossy, 2008). The immense importance of the MM-framework for corporate risk management, however, becomes apparent when it is used as a starting point for identifying conditions under which corporate risk management makes economic sense. Such a positive theory of corporate risk management can be derived by relaxing the neoclassical assumptions of the MM-framework.

2.3 Review of Empirical Studies

Several studies have analyzed the risk management-performance relationship for non-financial firms. For example, Allayannis and Weston (2001) analyze the use of foreign currency derivatives (FCDs) by nonfinancial and find a positive relationship between firm value and the use of FCDs. Nelson, Moffitt, and Affleck-Graves (2005) find that nonfinancial firms that hedge using derivatives outperform non-hedgers but that the effect is primarily due to the use of FCDs by relatively large firms. Finally, Jin and Jorion

(2006) find that risk management has no effect on oil industry firms' market value, and Dionne and Triki (2006) verify that risk management in the gold mining industry increases returns on assets. Cummins et al. (2006) and Ren (2007) examine the effects of risk management on insurance efficiency based on the respective econometric and nonparametric model, namely stochastic frontier analysis and data enveloped analysis (DEA) model, respectively.

Stochastic frontier approaches are set in a parametric framework and are able to depict the causality relations between the variables in a defined function (Lin and Lin; 2006 and 2007). Lin and Wen (2008) used the Property-Liability insurance companies as a research sample to investigate the relation between the enhancement of cost efficiency and the usage of reinsurance and financial derivatives as risk management tools. The stochastic frontier approach was applied to consider not only the mean of cost efficiency, but also its variance. The sample included both organizational forms of insurers, namely, stock and mutual insurers.

Empirical results showed that the use of financial derivatives to manage investment risks contributed to the enhancement of the mean of the cost efficiency, while the use of reinsurance to manage underwriting risks did not. That is, the more a firm used derivatives to hedge, the higher was the cost efficiency. On the other hand, while both mechanisms of risk management did not show their influences on the volatility of cost (in) efficiency, the ratio surplus to regulatory required risk-based capital (RBC) was a factor driving the variance of cost (in) efficiency of insurance firms.

Fiodelisi et al., (2010) analyzed the impact of efficiency on bank risk. The study also considered whether bank capital has an effect on this relationship. The authors modelled the inter-temporal relationships among efficiency, capital and risk for a large sample of commercial banks operating in the European Union. The study found that reductions in cost and revenue efficiencies increase banks' future risks thus supporting the bad management and efficiency version of the moral hazard hypotheses. In contrast, bank efficiency improvements contributed to shore up bank capital levels. The findings suggest that banks lagging behind in their efficiency levels might expect higher risk and subdued capital positions in the near future.

Niringiye et al., (2010) sought to establish the relationship between firm size and technical efficiency in East African manufacturing firms. This study used a two-step methodology to examine the relationships between technical efficiency and firm size in East African manufacturing firms. In the first step, technical efficiency measures were calculated using DEA approach. Secondly, using GLS technique, a technical efficiency equation was estimated to investigate whether technical efficiency is increasing in firm size. Contrary to our expectation, the results showed a negative association between firm size and technical efficiency in both Ugandan and Tanzanian manufacturing firms. The existence of a positive association between size squared and technical efficiency and a negative association between firm size and technical efficiency in Ugandan and Tanzanian manufacturing firms suggests an inverted U- relationship between firm size and technical efficiency in these countries.

2.4 Major Determinants of Operational Risks

There is no 'one-size-fits-all' approach to (Operational Risk Management) ORM – as every enterprise follows a framework that is specific to its own internal operating environment. When inquired about the standard ORM framework, a risk expert notes, “There is no "standard" standard. Ultimately, the Operational risk framework should not merely be Basel-compliant; it should also provide institutions with mechanisms for improving overall risk culture and behavior towards operational risk management. Understanding our risks should lead to better decision making and reflect in our performance”. According to credit Suisse Group (2001) operational risk manifest itself through business interruptions, control failure, errors, misdeeds, external events and can be captured in four risks categories: Technology Risks, human risk, organization risk and process risk. The Basel II committee defines operational risk as risk resulting from inadequate or failed internal processes, people, systems or external events. Overall, the hereby discussed are the determinants of operational risks in manufacturing firms:

Governance: It is the process by which the Board of Directors defines key objectives for an institution and oversees progress towards achieving those objectives. It defines overall operational risk culture in organization, and sets the tone as to how an institution implements and executes its operational risk management strategy. A successfully executed risk strategy often results in risk being firmly embedded in the vision, strategies, tools, and tactics of the organization. Governance sets the precedence for Strategy, Structure and Execution.

Strategy: A manufacturing firm's strategy for operational risk drives the other components within the management framework and provides clear guidance on risk appetite or tolerance, policies, and processes for day-to-day risk management.

Appetite and Policy: An ideal risk management process ensures that organizational behavior is driven by its risk appetite. Adopting an operational risk strategy aligned to risk appetite, leads to informed business and investment decisions. Clear Definition &

Communication of Policy: An organization's top management must identify, assess, decide, implement, audit and supervise their strategic risks. There should be a strategic policy at the board level to focus on managing risk all levels and conscious efforts should be made to ensure that these policies are communicated at all levels and across entire value chain.

Periodic Evaluations Based on Internal & External Changes: An ideal risk management process puts improvement of risk performance on a competitive level with other important mission concerns – periodically evaluating the ORM performance goals in the light of internal and external factors. Depending upon the criticality of internal operating environment and key external factors, organization must review the strategic policies inside out.

Structure: When designing the operational risk management structure, the manufacturing firm's overall risk scenario should serve as a guideline. This includes initiatives like laying down a hierarchical structure that leverages current risk processes, developing risk

measurement models to assess regulatory and economic capital, and allocating economic capital vis-à-vis the actual risk confronted. Centralized aggregation of operational risk information collected via various self assessments across the organization, further, provides useful insight for the desired hierarchical structure. The implementation of these concepts allows risk to be handled consistently throughout the organization.

Execution: Once operational risk management structure have been established by an organization adequate procedures should be designed and implemented to ensure execution of and compliance with these policies at business line level. The first step includes identification and assessment of operational risk inherent in day-to-day processes of the bank. After assessment of inherent risk, target tolerance limit of risk should be established. This is commonly accomplished by calculating the probability/likelihood of materialization of risk, by considering the drivers or causes of the risk together with the assessment of its impact. The results of the risk assessment and quantification process enables management to compare the risks with its operational risk strategy and policies identify those risk exposures that are unacceptable to the institution or are outside the institution's risk appetite, and select and prioritise appropriate mechanisms for mitigation.

2.5 Summary of Literature Review

The literature has tackled the concepts of operational risk management as well as theories that guide this study. An empirical review has been provided with studies on risk-performance being evaluated. As it can be noted, the debate on the relationship is not yet

settled. Idarus, 2005 studied operational risk management practices by commercial banks and observed that operational risk is an integral part of risk management in commercial banks and its occurrence is rampant day in day out. Ongera, 2006 observed that operational losses and risks have an inverse relationship with banks profitability and firms had to hedge so as to minimise these losses.

Kangethe, 2009 in his study of the relationship between operational efficiency and growth of commercial banks in Kenya observed that there is a positive relation between banking efficiency and operational risks. Most of these studies were done in the commercial banks (financial institutions) without concern to other firms in the economy such as non financial institutions where in this case a manufacturing firm is being studied. Such findings therefore cannot be generalized to developing countries especially Kenya. Studying the determinants of operational risks and losses in manufacturing firms and their management seeks to bridge this gap that has not been extensively researched on by other scholars.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This bit of study involves the methods that were used by the researcher to collect data. These methods included research design, target population, sampling design, data collection instruments, data collection procedures and data analysis procedures.

3.2 Research Design

Mugenda and Mugenda (1999) states that, research design is the outline plan or scheme that is used to generate answers to the research problems. It is the structure and plan (blue print) of investigation. The researcher used descriptive design. Descriptive research seeks to establish factors associated with certain occurrences, outcomes, conditions or types of behavior.

3.3 Target Population

A target population is one that the researcher wants to generalize the result of the study. There were 60 manufacturing firms in Kenya. These formed the target population.

3.4 Sample

The sample was drawn using stratified random sampling technique. This method is recommended when the researcher is dealing with a population, which is heterogeneous. The study covered 30 manufacturing firm in Kenya which was in operation as at 31st December 2012 for data consistency.

3.5 Data Collection

Primary was used to collect data. The primary data was collected using questionnaires.

3.6 Data Analysis and Presentation

Data was analyzed using Statistical Package for Social Sciences (SPSS Version 20.0) program. Both quantitative analysis and regression analysis was used as data analysis technique. The data collected was run through various models so as to clearly bring out the determinants of operational risks and losses in manufacturing firms in Kenya. Logit model was used to analyze the regression equation. The focus of this study is the link between determinants of operational risks and losses in manufacturing firms in Kenya. The study measured various determinants of operational risks and losses in manufacturing firms in Kenya. The set of determinants were governance, strategy, policy, evaluation and structure.

3.6.1 Conceptual Model

The following conceptual model was adopted in the study where operational risks and losses in manufacturing firms is a function of governance, strategy, policy, evaluation and structure. :

$$ORL_{it} = f(GOV, STGY, POL, EV, SC) \dots \dots \dots (1)$$

Where

ORL = is the operational risks and loses in manufacturing firms

GOV = is governance in the manufacturing firm

STGY = is strategy in manufacturing firms

POL = is policy used in manufacturing firms

EV = is the periodic evaluation in manufacturing firms

SC = is the organization structure in manufacturing firm

3.6.2 Analytical Model

To determinants of operational risks and losses in manufacturing firms in Kenya, the study formulated the following regression equation. Model developed by Shojai (1999) is used in this paper to determinants of operational risks and losses and Ordinary Least Square (OLS) was employed to ensure the fulfillment of the assumptions thereof. These assumptions include, linearity of the model, its non-stochastic characteristic, having mean value of 0, and distribution with equal variance etc, where the study sought to establish the relationship between operation risks and losses and governance in manufacturing firms, strategy, policy, periodic evaluation and organization structure

In the mathematical expression of the model is as follow:

$$ORL = \beta_0 + \beta_1 GOV + \beta_2 STGY + \beta_3 POL + \beta_4 EV + \beta_5 SC + \varepsilon \dots\dots\dots(2)$$

Operational risks and loses in manufacturing firms was measured using the total risk ratio of the firm.

Governance in the manufacturing firm was measured using the various governance structures in the organization and governance practices in the organization, which was measured using data collected through the questionnaires.

Strategy in manufacturing firms was measured using the various strategies employed to reduce operational risk and losses in these firms, which was measured using data collected through the questionnaires.

Policy in manufacturing firms was measured using the various policies employed by manufacturing firm in order to reduce risk, which was measured using data collected through the questionnaires.

Periodic evaluation in manufacturing firms was measured using the period evaluation techniques used by manufacturing firms, which was measured using data collected through the questionnaires.

Organization structure in manufacturing firm was measured using the organization structure adopted in manufacturing firms, which was measured using data collected through the questionnaires.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATIONS

4.1 Introduction

This chapter discusses the interpretation and presentation of the findings obtained from the field. Descriptive and inferential statistics have been used to discuss the findings of the study. The study targeted a sample size of 30 respondents from which 30 filled in and returned the questionnaires making a response rate of 100%. This response rate was satisfactory to make conclusions for the study.

4.2 Data Analysis

4.2.1 Demographic Information

Table 1: Period of Service in the Organization

Age bracket	Frequency	Percentage
5 to 10 years	5	16.7
11 to 15years	6	20.0
15 to 20 years	9	30.0
20 years and above	10	33.3
Total	30	100

The study requested respondent to indicate the Length of time service in the institution. From the findings 33.3% of the respondents indicated above 20 years, 30 % of the respondents indicated 15 to 20 years, 20% of the respondents indicated 11 to 15 years, whereas 16.7% of the respondents indicated 5 to 10 this implies that the majority of the

respondents had served for a considerable period which implies that they had vast knowledge on the challenges affecting the organizational performance.

Table 2: Nature of Company Ownership

Age bracket	Frequency	Percentage
local	12	40.0
Foreign	10	33.3
Local /foreign	8	26.7
Total	30	100

The study sought to determine the nature of ownership of the company, from the findings, the study established that 40% of the firms were locally owned, 10% of the firms were owned by foreigners, whereas 8% of the firms were owned by both locals and foreigners, this implies that the majority of the firms engaged in this study were locally owned. The study sought to determine the respondent department , from the findings the study found that respondent were from various department , finance , operation , marketing , administration , human resource and ICT department . This is an indication that all departments in the company were represented.

4.2.2 Operational Risks and Loses

Table 3: Extent to which Organization Face Various Operational Risk and Loses

	Frequency	Percentage
Very great extent	10	33.3
Great extent	12	40.0
Moderate extent	8	26.7
Total	30	100

The study sought to establish the extent to the organization face various operational risk and loses. From the findings 40% indicated o a great extent, 33.3% of the respondents indicated to a very great extent whereas 26.7% of the respondents indicated to a moderate extent. This implies that your organization face various operational risk and loses to a great extent.

Table 4: Aspect of Operational Risk and Loses in the Organization

Statement	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Mean	Standard Deviation
People risk	12	17	1	0	0	1.63	0.27
Process risk	13	16	1	0	0	1.60	0.26
System risk	11	15	4	0	0	1.77	0.22
External risk	14	11	5	0	0	1.70	0.21

The study sought to determine the magnitude of the above aspect of operational risk and loses in the organization, from the findings the study established that, majority of the

respondents agreed that the organization was faced by following risks: Process risk as show by a mean of 1.60, People risk as shown by a mean of 1.63, External risk as shown by a mean of 1.70, system risk as shown by a mean of 1.77. All the cases were supported by a low means which implies that majority respondents were of similar opinion.

Table 5: Determinants of Operational Risk in the Organization

Statement	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Mean	Standard Deviation
operational risk culture in the organization sets the tone as to how an institution implements and executes its operational risk management strategy	20	9	1	0	0	1.37	0.29
Successfully executed risk strategy often results in risk being firmly embedded in the vision, strategies, tools, and tactics of the organization	18	9	3	0	0	1.50	0.25
Governance sets the precedence for Strategy, Structure and Execution	11	17	2	0	0	1.70	0.25
The firms strategy for operational risk drives the other components within the management framework and provides clear guidance on risk appetite or tolerance, policies, and processes for day-today risk management	12	17	1	0	0	1.63	0.27
An ideal risk management process ensures that organizational behaviour is driven by its risk appetite	13	15	2	0	0	1.63	0.25

Adopting an operational risk strategy aligned to risk appetite, leads to informed business and investment decisions in the organization	14	15	1	0	0	1.57	0.26
The organization top management identify, assess, decide, implement, audit and supervise their strategic risks.	16	12	2	0	0	1.53	0.25
There are a strategic policy at the board level to focus on managing risk all levels and conscious efforts should be made to ensure that these policies are communicated at all levels and across entire value chain	12	16	2	0	0	1.67	0.25
There is an ideal risk management process that puts improvement of risk performance on a competitive level with other important mission concerns – periodically	13	17	0	0	0	1.57	0.28
operational risk management structure in the firms is the overall risk scenario which serves as a guideline	13	16	1	0	0	1.60	0.26
Centralized aggregation of operational risk information collected via various self-assessments across the organization, further, provides useful insight for the desired hierarchical structure	14	15	1	0	0	1.57	0.26

The study sought to determine the level at which respondents agreed or disagreed with the above statements which relate to determinant of operational risk in your organization, from the findings the study established that, majority of the respondents strongly agreed that, operational risk culture in the organization sets the tone as to how an institution implements and executes its operational risk management strategy as shown by mean of 1.37, others agreed that Successfully executed risk strategy often results in risk being firmly embedded in the vision, strategies, tools, and tactics of the organization as shown by a mean of 1.50, the organization top management identify, assess, decide, implement, audit and supervise their strategic risks as shown by a mean of 1.53 , Adopting an operational risk strategy aligned to risk appetite, leads to informed business and investment decisions in the organization, there is an ideal risk management process that puts improvement of risk performance on a competitive level with other important mission concerns – periodically, Centralized aggregation of operational risk information collected via various self-assessments across the organization, further, provides useful insight for the desired hierarchical structure as shown by a mean of 1.57 in each case, operational risk management structure in the firms is the overall risk scenario which serves as a guideline, as shown by a mean of 1.60, the firms strategy for operational risk drives the other components within the management framework and provides clear guidance on risk appetite or tolerance, policies, and processes for day-today risk management, An ideal risk management process ensures that organizational behaviour is driven by its risk appetite as shown by a mean of 1.63 in each case, and finally that there are a strategic policy at the board level to focus on managing risk all levels and conscious efforts should be made to ensure that these policies are communicated at all levels and

across entire value chain as shown by mean of 1.67. The finding above is in line with the findings in the study conducted by Suisse Group (2001) in an extract he argues that Once operational risk management structure have been established by an organization adequate procedures should be designed and implemented to ensure execution of and compliance with these policies at business line level.

Table 6: Extent to which the Following Factor Effect Operational Risk and Loses in the Organization

Statement	Very great	Great	Moderate	Little	No extent	Mean	Standard
Governance in the organization	12	14	4	0	0	1.73	0.22
Strategy execution in the organization	13	15	2	0	0	1.63	0.25
Organization structure	10	15	5	0	0	1.83	0.22
Periodic risk evaluation	15	9	6	0	0	1.70	0.21
Appetite for risk and policy	9	13	8	0	0	1.97	0.19

The study sought to determine the extent to which the above factors affect operational risk and loses in the organization, from the findings, the following factors were indicated to affect operational risk and loses in the organization to a great extent, Strategy execution in the organization as shown by a mean of 1.63, Periodic risk evaluation as shown by a mean of 1.70 Governance in the organization as shown by 1.73, Organization structure as shown by a mean of 1.70 and finally Appetite for risk and policy as shown by a mean of 1.97, all the cases were supported by a low mean which implies that respondents were of similar opinion.

4.2.3 Regression Analysis

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901 ^a	.811	.798	.88195

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.798 an indication that there was variation of 79.8% on operational risks and loses in manufacturing firms due to changes in governance, strategy, policy, periodic evaluation and organization structure at 95% confidence interval . This shows that 79.8 % changes in operational risks and loses in manufacturing firms could be accounted for by changes in in governance, strategy, policy, periodic evaluation and organization structure. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.901.

Table 8: Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	.510	.440		1.209	.000
	Governance	-.226	.129	-.026	-.205	.018
	Strategy	-.125	.112	-.152	-1.121	.026
	Policy	-.247	.125	-.262	-1.971	.043
	Periodic evaluation	-.560	.148	-.554	-3.794	.001
	Organization structure	-.295	.140	-.308	-2.109	.042

The established regression equation was

$$Y = 0.510 - 0.226 X_1 - 0.125 X_2 - 0.247X_3 - 0.560X_4 - 0.295X_5$$

From the above regression equation it was revealed that holding governance, strategy, policy, periodic evaluation and organization structure to a constant zero , operational risks and losses in manufacturing firms would stand at would stand at 0.510 , a unit increase in governance would lead to decrease in operational risks and losses in manufacturing firms by a factors of 0.226, a unit increase in strategy would lead to decrease in operational risks and losses in manufacturing firms by factors of 0.125 , unit increase in policy would lead to decrease in operational risks and losses in manufacturing firms by a factor of 0.247, a unit increase in periodic evaluation would lead to decrease in operational risks and losses in manufacturing firms by factors of 0.560, further unit increase in organization structure would lead to decrease in operational risks and losses in manufacturing firms by a factor of 0.295.

4.3 Summary of Findings and Interpretation

From the findings on the Adjusted R squared, the study revealed that there was greater variation in operational risks and losses in manufacturing firms due to changes in governance, strategy, policy, periodic evaluation and organization structure. The study found that there was a strong relationship between operational risks and losses in manufacturing firms and governance, strategy, policy, periodic evaluation and organization structure. From the regression equation it was revealed that there was a negative relationship between governance, strategy, policy, periodic evaluation and organization structure and operational risks and losses in manufacturing firms. The study revealed that a unit increase in governance would lead to a decrease in operational risks and losses in manufacturing firms. The study further established that a unit increase in strategy would lead to a decrease in operational risks and losses in manufacturing firms. The study established that a unit increase in policy would lead to a decrease in operational risks and losses in manufacturing firms. The study found that a unit increase in periodic evaluation would lead to a decrease in operational risks and losses in manufacturing firms, it was further revealed that a unit increase in organization structure would lead to a decrease in operational risks and losses in manufacturing firms.

The findings of the study concur with the findings of Nelson, Moffitt, and Affleck-Graves (2005) who found that nonfinancial firms that hedge using derivatives outperform non-hedgers but that the effect is primarily due to the use of FCDs by relatively large firms. Jin and Jorion (2006) found that risk management has no effect on oil industry firms'

market value, and Dionne and Triki (2006) verify that risk management in the gold mining industry increases returns on assets.

Lin and Wen (2008) showed that the use of financial derivatives to manage investment risks contributed to the enhancement of the mean of the cost efficiency, while the use of reinsurance to manage underwriting risks did not. That is, the more a firm used derivatives to hedge, the higher was the cost efficiency. On the other hand, while both mechanisms of risk management did not show their influences on the volatility of cost (in) efficiency, the ratio surplus to regulatory required risk-based capital (RBC) was a factor driving the variance of cost (in) efficiency of insurance firms.

Fiodelisi et al., (2010) found that reductions in cost and revenue efficiencies increase banks' future risks thus supporting the bad management and efficiency version of the moral hazard hypotheses. In contrast, bank efficiency improvements contributed to shore up bank capital levels. The findings suggest that banks lagging behind in their efficiency levels might expect higher risk and subdued capital positions in the near future. Niringiye et al., (2010) study used a two-step methodology to examine the relationships between technical efficiency and firm size in East African manufacturing firms.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

From the findings on the Adjusted R squared, the study revealed that there was greater variation in operational risks and losses in manufacturing firms due to changes in governance, strategy, policy, periodic evaluation and organization structure. The study found that there was strong relationship between operational risks and losses in manufacturing firms and governance, strategy, policy, periodic evaluation and organization structure. From the regression equation it was revealed that there was a negative relationship between governance, strategy, policy, periodic evaluation and organization structure and operational risks and losses in manufacturing firms. The study revealed that a unit increase in governance would lead to decrease in operational risks and losses in manufacturing firms. The study further established that a unit increase in strategy would lead to decrease in operational risks and losses in manufacturing firms. The study established that a unit increase in policy would lead to decrease in operational risks and losses in manufacturing firms. The study found that a unit increase in periodic evaluation would lead to decrease in operational risks and losses in manufacturing firms, it was further revealed that a unit increase in organization structure would lead to decrease in operational risks and losses in manufacturing firms.

The study established that organizations do face various operational risks and losses to a great extent, such among the risks encountered they include: Process risk, People risk, External risk and System risk. The study also revealed that, operational risk culture in

the organization sets the tone as to how an institution implements and executes its operational risk management strategy, Successfully executed risk strategy often results in risk being firmly embedded in the vision, strategies, tools, and tactics of the organization, the organization top management identify, assess, decide, implement, audit and supervise their strategic risks., adopting an operational risk strategy aligned to risk appetite, leads to informed business and investment decisions in the organization, there is an ideal risk management process that puts improvement of risk performance on a competitive level with other important mission concerns – periodically, Centralized aggregation of operational risk information collected via various self-assessments across the organization, further, provides useful insight for the desired hierarchical structure, operational risk management structure in the firms is the overall risk scenario which serves as a guideline, the firms strategy for operational risk drives the other components within the management framework and provides clear guidance on risk appetite or tolerance, policies, and processes for day-today risk management, an ideal risk management process ensures that organizational behaviour is driven by its risk appetite, and that there are a strategic policy at the board level to focus on managing risk all levels and conscious efforts should be made to ensure that these policies are communicated at all levels and across entire value chain.

5.2 Conclusions

The study revealed that a unit increase in governance would lead to decrease in operational risks and loses in manufacturing firms. The study further established that a unit increase in strategy would lead to decrease in operational risks and loses in

manufacturing firms. The study established that a unit increase in policy would lead to decrease in operational risks and losses in manufacturing firms.

The study found that a unit increase in periodic evaluation would lead to decrease in operational risks and losses in manufacturing firms, it was further revealed that a unit increase in organization structure would lead to decrease in operational risks and losses in manufacturing firms.

The study concludes that operational risk culture in the organization sets the tone as to how an institution implements and executes its operational risk management strategy, successfully executed risk strategy often results in risk being firmly embedded in the vision, strategies and tactics of the organization and that the organization top management identify.

The study revealed that centralized aggregation of operational risk information collected via various self-assessments across the organization provides useful insight for the desired hierarchical structure. Operational risk management structure in the firms is the overall risk scenario which serves as a guideline. The firm's strategy for operational risk drives the other components within the management framework and provides clear guidance on risk appetite or tolerance.

5.3 Policy Recommendations

From the summary and conclusion the study recommends that in order to effectively manage operations and reduce operational risks the management team needs carefully identify all the risks it may fall vulnerable off and establish the appropriate to mechanisms to curb unexpected risks whenever they pop up.

Risk management will help to reduce fewer surprises, improved planning, enhance performance and effectiveness and improved relationships with stakeholders. The study recommends that Corporate Social Responsibility is important because businesses are based on trust and foresight. Establishing and keeping trust with customers, communities and regulators isn't simple and can be easily damaged or lost.

To be successful in the long-term, companies need to think beyond what's affecting them today to what's going to happen tomorrow. This isn't just about addressing changes to technology or the needs of customers, but also taking into account alterations in social, environmental and governance issues.

5.4 Limitations of the Study

In attaining its objective the study was limited to manufacturing firms. Other firm were excluded from the study.

Primary data was collected from retail investors, thus the study was limited to the degree of precision of the data obtained from the primary sources.

The study was limited to establishing the determinants of operational risks and losses in manufacturing firms in Kenya.

The method used is descriptive research design whereby the variables cannot be controlled by the researcher. The study intended to use questionnaire as the instrument for collecting data. This is because time for the data collection will be limited to two weeks.

5.5 Suggestions for Further Studies

The study sought to establish the determinants of operational risks and losses in manufacturing firms in Kenya, there is need for a study to be conducted on the relationship between operational risks and losses on financial performance of manufacturing firm in Kenya.

There is need for a study to be conducted on the relationship between determinants of operational risks and losses and financial performance of manufacturing firm in Kenya.

The study recommends a study to be done on the relationship between corporate governance and operational risks and losses in manufacturing firms in Kenya.

There is need for a study to be done on the effects of strategy implementation on operational risks and losses in manufacturing firms in Kenya

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APPENDICES

Appendix 1: List of Manufacturing Firms in Kenya

African Kalu Works (Aluware) Division

Alpha Dairy Products Ltd

Apex Steel Limited

Ashut Quality Products

Athi River Mining Limited

Beta Health Care

Bidco Oil Refineries

Blue Triangle Cement

Bobmil Industries Limited

British American Tobacco K Ltd

Chandaria Industries Ltd

Chloride Exide Kenya

Colgate Palmolive

Cosmos Limited

Crown Berger (K)

Doshi Group of Companies

East African Breweries Ltd

East African Cables

East African Portland Cement

Eveready E. A Limited

Excel Chemicals

Farmers Choice Ltd
Foam Mattresses Ltd
Jet Chemicals (K) Ltd
Kapa Oil Refineries
Kenya Electricity Generating Co. Ltd
Kenya Power and Lighting Co.Ltd
Kim Fay e. A Ltd
Magadi Soda
Mombasa Canvas
Njoro Canning Factory Ltd
PZ Cussons E.A
Pwani Oil Co.
Polythene Industries Ltd
Pelican Signs
Print Fast Kenya Ltd
Orbit Chemicals
Ramco Printing Works
Unga Group Ltd
Unilever
Warren Concrete Ltd
Williamson Power Ltd
Reliable Concrete Works
Rhino Special Products

Sameer Group

Slumberland Kenya

Stainless Steel Products

Sunrays Solar Limited

(Source: Google Ads)

Appendix 2: Research Questionnaire

This questionnaire is designed to collect data on to establish the determinants of operational risks and losses in manufacturing firms in Kenya. The data shall be used for academic purpose only and it will be treated with confidentiality it deserves. The respondents are highly encouraged and persuaded to respond to the statements in this questionnaire in the most truthful and objected way possible. Your participation in facilitating this study will be highly appreciated. Kindly tick in the space provided with the correct answer or supply the required information where, required, please specify and elaborate.

Section A: Demographic Information

1. For how long has companies firm been in existences?

Less than 5 year []

5 to 10 years []

11 to 15 years []

15 to 20 years []

Above 20 years []

2. What is the nature of your company ownership?

Local []

Foreign []

Local /foreign []

3. What sector does your company belong?

.....

Operational Risks and Loses

4. To what extent does your organization face various operational risk and loses?

Very great extent []

Great extent []

Moderate extent []

Little extent []

No extent []

5. What is your level of agreement with the following aspect of operational risk and loses in the organization? (1-strongly agree, 2- agree, 3-neutral, 4-disagree, strongly disagree)

Statement	1	2	3	4	5
People risk					
Process risk					
System risk					
External risk					

6. What is your level of agreement with the following statements that relate to determinant of operational risk in your organization? (1-strongly agree, 2- agree, 3-neutral, 4-disagree, strongly disagree)

Operational risks and loses	1	2	3	4	5
operational risk culture in the organization sets the tone as to how an institution implements and executes its operational risk management strategy					

Governance					
Governance sets the precedence for Strategy, Structure and Execution					
The organization top management identify, assess, decide, implement, audit and supervise their strategic risks.					
Strategy					
Successfully executed risk strategy often results in risk being firmly embedded in the vision, strategies, tools, and tactics of the organization					
The firms strategy for operational risk drives the other components within the management framework and provides clear guidance on risk appetite or tolerance, policies, and processes for day-today risk management					
Policy					
There are a strategic policy at the board level to focus on managing risk all levels and conscious efforts should be made to ensure that these policies are communicated at all levels and across entire value chain					
Adopting an operational risk strategy aligned to risk appetite, leads to informed business and investment decisions in the organization					
Periodic evaluation					
Centralized aggregation of operational risk information collected via various self-assessments across the organization, further, provides useful insight for the desired hierarchical structure					
There is an ideal risk management process that puts improvement of risk performance on a competitive level with other important mission concerns – periodically					

Organization structure					
An ideal risk management process ensures that organizational behaviour is driven by its risk appetite					
operational risk management structure in the firms is the overall risk scenario which serves as a guideline					

7. To what extent does following factors effect operational risk and loses in the organization? (1-strongly agree, 2- agree, 3-neutral, 4-disagree, strongly disagree)

Statement	1	2	3	4	5
Governance in the organization					
Strategy execution in the organization					
Organization structure					
Periodic risk evaluation					
Appetite for risk and policy					

Thank you