



Electronic Theses and Dissertations

2024

Organizational factors influencing risk management practices by the Kenya Tea Development (KTDA) factories in Kenya.

Abdi, Abdishakur Abdulle
Strathmore Business School
Strathmore University

Recommended Citation

Abdi, A. A. (2024). *Organizational factors influencing risk management practices by the Kenya Tea Development (KTDA) factories in Kenya* [Strathmore University]. <https://hdl.handle.net/11071/16535>

Follow this and additional works at: <https://hdl.handle.net/11071/16535>

**ORGANIZATIONAL FACTORS INFLUENCING RISK MANAGEMENT
PRACTICES BY THE KENYA TEA DEVELOPMENT (KTDA) FACTORIES IN
KENYA**

ABDI, ABDISHAKUR ABDULLE

148522

Research Dissertation submitted in partial fulfillment of the requirements for the Degree of
Master of Management of Agribusiness

STRATHMORE UNIVERSITY BUSINESS SCHOOL

NAIROBI, KENYA

VT OMNES VNVM SINT

MAY 2024

DECLARATION

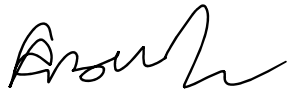
Declaration by the Student

This Dissertation is my original work and has not been previously presented to any other examination body. No part of this research proposal should be reproduced without my consent or that of the Strathmore University Business School.

Student Name: Abdi, Abdishakur Abdulle

148522

Signature:



Date: 28th May 2024

APPROVAL

This Dissertation has been presented for examination with my approval as the Strathmore Business School Supervisor

Name: Dr Geoffrey Injeni

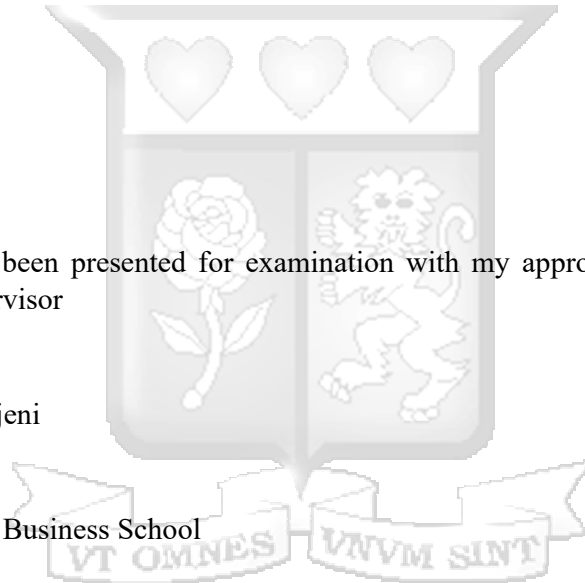
Lecturer,

Strathmore University Business School

Signature:



Date: 28th May 2024



ABSTRACT

Tea is one of the leading agricultural products in Kenya, earning the country more than \$120 million from exporting and contributing to 2% of the country's GDP. However, despite efforts by various stakeholders in the tea sector in Kenya such as the Kenya Tea Development Authority (KTDA), to improve and stabilize the tea production value chain, recent global and local events have posed significant risks to tea production, more specifically processing and sale of tea. Empirical studies have highlighted these risks and categorized them into strategic, financial, and operational among others. However, these studies have not assessed, among these risks, the important ones and the effective ways to manage the risks for tea processing. Therefore, this study had three main objectives. First, evaluate the key risks that KTDA factories prioritize and manage. Secondly, to establish company factors influencing risk prioritization and management, and finally, the management perspectives on the risk priorities and their management. Guided by the agency and resource-based theories, the study targeted the senior management of all 71 KTDA factories in the year 2023. Secondary data was collected from the annual reports of the factories, while primary data was collected using an online questionnaire. Descriptive statistics were used on various aspects of risk prioritization and management, ordinal logistic regression multivariate analysis was used to establish organizational factors influencing the risk management practices. 69 factories responded to the study. Overall, the results and findings show that financial risks are ranked as the most important risk for tea processing factories. The tea factories are concerned with economic risks and environmental risks, tea price risk, exchange rate risks and credit risks. As well as production risks and risk and marketing risks. Risk reduction is the overall strategy for the majority of the risks from political, socio cultural, Human resource and marketing and sales. The factories next apply risk avoidance for credit, sustainability production and reputational risks. Overall, tea factories with a risk committee, and older factories rank strategic risks as more important while those that are profitable will rank strategic risks as less important. Meanwhile profitable factories and those that have operated for long rank environmental risks as minor but those with high leverage rank environmental risks as major. In terms of assets, those factories that are large in terms of revenue rank legal risks as minor but major when size is measured in terms of Total assets. In terms of challenges with risk management for tea processing factories, Leadership was ranked as the top challenge, followed by communication and complexity of risk issues lack of resources and finally awareness. Tea processing factories

have experienced a lot of challenges with risk management especially in the period after Covid. The production managers requested various government agencies to stabilize the local currency and also have a favorable tax regime for tea producers, especially if exporting. They feel that KTDA needs to play a more practical role in aiding factories to manage risks. There is more reliance on risk professional consultants to aid tea factories in managing risks due to capacity at board level. Risk management poses work constraints for some factories and new laws such as data protection. These findings are important as they provide information for tea processing to review their risk management strategies and for regulators and stakeholders in the tea sector to guide on policy. Similar studies can be conducted to other agribusiness players in the tea sector.



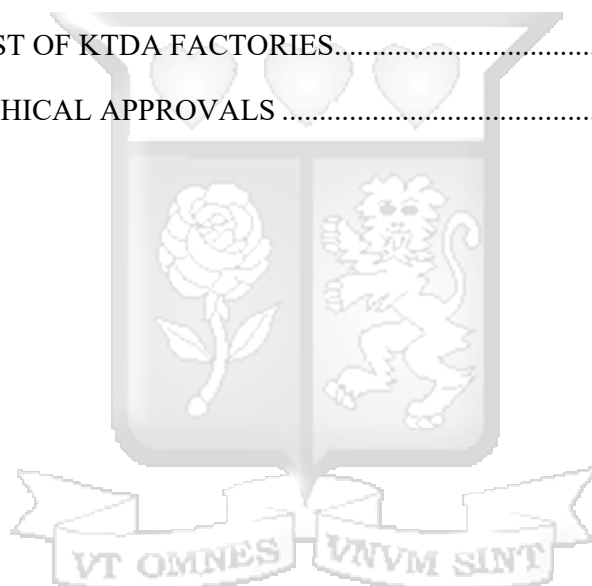
Contents

DECLARATION	i
ABSTRACT.....	ii
DEDICATION.....	x
ACKNOWLEDGEMENTS.....	xi
LIST OF ABBREVIATIONS.....	xii
DEFINITION OF TERMS	xiii
CHAPTER 1: INTRODUCTION TO THE STUDY.....	1
1.1 Background to the study.....	1
1.1.1 Introduction	1
1.1.2 Key Risks for Tea Factories and their management.....	3
1.1.3 Kenya Tea Development Agency (KTDA) factories	4
1.2 Statement of the Problem	5
1.3 Research objectives and Questions	5
1.4 Significance of the study	6
1.4.1 The Tea Processing factories.....	6
1.4.2 Regulators and policy makers in the tea sector	6
1.4.3 Academicians.....	7
1.5 Scope of the Study.....	7
CHAPTER TWO	8
LITERATURE REVIEW	8
2.1 Introduction.....	8
2.2 Theoretical Review	8
2.2.1 Agency Theory Application	8
2.2.2 Resource-Based View (RBV) Theory	9
2.3 Empirical Review.....	10
2.3.1 Risk Prioritization and Management	10

2.3.2 Organizational Factors Influencing Risk Prioritization.....	12
2.3.3 Management Perspectives on Risk Management	13
2.4 Conceptual Framework	15
2.5 Operationalisation of the Variables.....	17
CHAPTER 3:	19
RESEARCH METHODOLOGY.....	19
3.1 Introduction	19
3.2 Research Philosophy	19
3.3 Research Design.....	20
3.4 Population and Sampling	20
3.5 Data Collection Tools and Methods.....	20
3.6 Data Analysis	21
3.7 Research Quality	21
3.6 Ethical Consideration	22
CHAPTER 4:	23
RESULTS AND FINDINGS.....	23
4.1 Introduction.....	23
4.2 Respondents Information	23
4.2.1 Position and Duration of working in the factory	23
4.3 Factory Information.....	24
4.3.1 County of Operations.....	24
4.3.2 Years of Operation.....	25
4.3.3 Number of Board Members	25
4.3.4 Number of Factories with a risk committee	26
4.3.5 Financial Metrics for the Factories.....	26
4.4 Risk Management Practices	27
4.4.1 Risk Prioritisation	27

4.4.2 Strategic Risks Ranking.....	28
4.4.3 Financial Risk Ranking	29
4.4.4 Operational Risks Ranking.....	30
4.4.5 Other Risks Category Ranking.....	31
4.4.6 General Risk Management Strategies for Strategic Risks.....	31
4.4.7 General Risk Management Strategies for Financial Risk.....	33
4.4.8 General Risk Management Strategies for Operational Risks	34
4.4.9 General Risk Management Strategies for Other Risks.....	35
4.5 Correlation Analysis.....	35
4.6 Multivariate Analysis.....	36
4.6.1 Organizational Factors Influencing Strategic Risk Prioritization.....	36
4.6.2 Organizational Factors Influencing Financial Risk Prioritization.....	37
4.6.3 Organizational Factors Influencing Operational Risk Prioritization.....	38
4.6.4 Organizational Factors Influencing Strategic Risk Ranking	38
4.6.5 Organizational Factors Influencing Financial Risk Ranking	40
4.6.6 Organizational Factors Influencing Operational Risk Ranking	41
4.6.7 Organizational Factors Influencing Strategic Risk Management.....	42
4.6.8 Organizational Factors Influencing Financial Risk Management	43
4.6.9 Organizational Factors Influencing Operational Risk Management	45
4.7 Managements' perspectives on risk management practices by KTDA Factories.....	46
CHAPTER 5:	49
DISCUSSIONS AND CONCLUSIONS	49
5.1 Introduction.....	49
5.2 Discussions.....	49
5.2.1 Objective 1 Risk Management Practices.....	49
5.2.2 Objective 2 Organizational Factors influencing risk management practices	50
5.2.3 Objective 3 Management perspectives on risk management practices	52

5.3 Conclusions	53
5.3.1 Contribution to Theory	53
5.3.2 Contribution to Empirical literature.....	53
5.4 Limitations of the study.....	54
5.5 Recommendations for Further Studies	54
REFERENCES	55
APPENDICES	61
APPENDIX 1: INTRODUCTORY LETTER.....	61
APPENDIX II: RESEARCH QUESTIONNAIRE	62
APPENDIX III: LIST OF KTDA FACTORIES.....	67
APPENDIX IV: ETHICAL APPROVALS	69



LIST OF FIGURES

Figure 3: Conceptual Framework	16
Figure 4: Respondents Position	23
Figure 5: Location of KTDA Tea factories, by County	25
Figure 6: Board Sizes of KTDA Tea Factories.....	26
Figure 7: Risk Ranking by the Tea Factories.....	27
Figure 8: Summary of Strategic Risk Ranking	28
Figure 9: Finacial Risks Ranking.....	29
Figure 10: Operational Risk Ranking	30
Figure 11: Risk Management Strategies	32
Figure 12: Financial Risk Management Strategies	33
Figure 13: Operational Risk Management Strategies	34
Figure 14: Challenges of Risk Management.....	47



LIST OF TABLES

Table 2.1: Operationalization of variables.....	17
Table 4.1: Respondents Position.....	23
Table 4.2: Average duration in years in which a respondent has been in the factory	24
Table 4.3: County in which the Factory operates	24
Table 4.4: Summary of the number of years a factory has operated	25
Table 4.5: Number of Factories With a Risk Committee.	26
Table 4.6: Summary of the various financial metrics for the factories.....	26
Table 4.7: Risk Prioritisation	27
Table 4.8: Summary of Strategic Risk Ranking	28
Table 4.9: Financial Risks ranking	29
Table 4.10 Operational Risks Ranking	30
Table 4.11 Other Risks Ranking Categories.....	31
Table 4.12 General Risk Management Strategies for strategic Risks.....	31
Table 4.13 General Risk Management Strategies for Financial Risks	33
Table 4.14 General Risk Management Strategies for Operational Risks	34
Table 4.15 General Risk Management Strategies for Other Risks	35
Table 4.16 Correlation analysis for Independent Variables.....	35
Table 4.17 Organizational Factors Influencing Strategic Risk Ranking	36
Table 4.18 Organizational Factors Influencing Financial Risk Prioritization	37
Table 4.19 Organizational Factors Influencing Operational Risk Prioritization	38
Table 4.20 Organizational Factors Influencing Strategic Risk Ranking	38
Table 4.21 Organizational Factors Influencing Financial Risk Ranking.....	40
Table 4.22 Organizational Factors Influencing Operational Risk Ranking.....	41
Table 4.23 Organizational Factors Influencing Strategic Risk Management	42
Table 4.24 Organizational Factors Influencing Financial Risk Management	43
Table 4.25 Organizational Factors Influencing Operational Risk Management	45
Table 4.26 Summary Ranking of Challenges in Risk Management.....	46

DEDICATION

I wish to dedicate this dissertation to my family and friends.



ACKNOWLEDGEMENTS

The development of this dissertation has been possible by Allah and support from my family, my supervisor Dr. Geoffrey Injeni and the entire Strathmore University Business School community. I thank them all for their valued support.



LIST OF ABBREVIATIONS

AFA: Agriculture and Food Authority

GDP: Gross Domestic Product

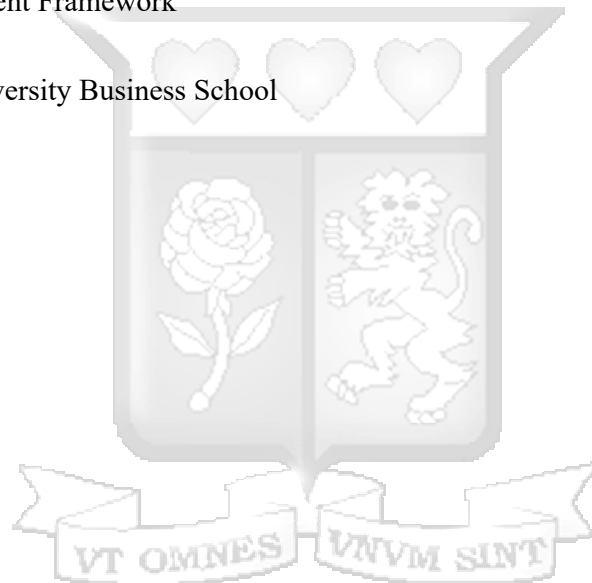
ICT: Information, & Communication Technology

KTDA: Kenya Tea Development Agency

MS: Management Services (KTDA Subsidiary)

RMF: Risk management Framework

SBS: Strathmore University Business School



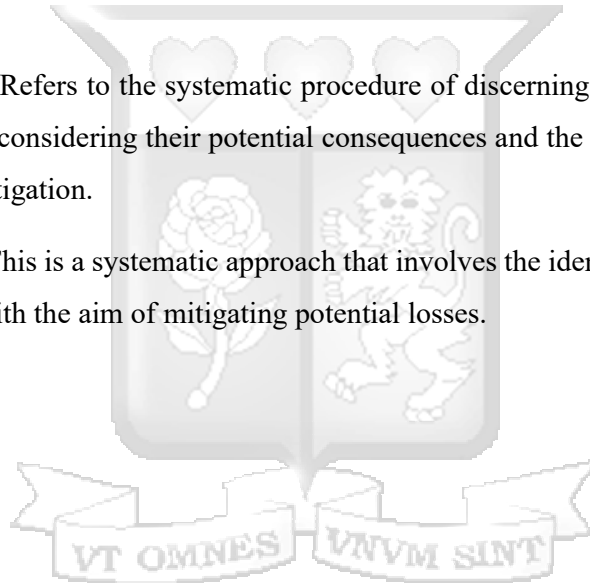
DEFINITION OF TERMS

KTDA: The Kenya Tea Development Agency (KTDA) is a prominent Kenyan corporation that offers a wide range of services to over 600,000 small-scale tea growers (KTDA Holdings LTD, 2018). These services encompass several aspects of tea farming, including agricultural extension support, transportation, processing, and marketing.

Risk: According to Cambridge Dictionary (2019), risk is the possibility of something bad happening. Risk is defined as the potential for experiencing negative consequences or encountering hazards that individuals or organizations may face. The assessment of prospective loss or damage is a critical subject within various industries, including banking, insurance, and investment.

Risk Prioritization: Refers to the systematic procedure of discerning and arranging risks in order of significance, considering their potential consequences and the allocation of resources necessary for their mitigation.

Risk Management: This is a systematic approach that involves the identification, assessment, and control of risks with the aim of mitigating potential losses.



CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 Background to the study

1.1.1 Introduction

Tea production is one of Kenya's most important agricultural exports; it not only contributes to the country's gross domestic product but also gives a substantial number of people a means to make a significant contribution to their livelihood. According to ACBF (2017), tea provides livelihoods to over 600,000 smallholders who contribute about 60% of tea production. KTDA is at the vanguard of this important industry. It is responsible for overseeing the operation of 72 tea processing firms, which collectively constitute an essential force powering the economy of the country. This industry's ability to produce big amounts of hard money and to provide major contributions to the overall financial well-being of a vast population of farmers exemplifies the strategic relevance of this sector's role, which in turn underscores the strategic importance of this industry. In 2016, tea accounted for 40% of Kenya's marketed agricultural production and contributed 25% of total export earnings (ACBF, 2017), and in 2019, approximately 1.5% of the nation's GDP revenues were generated by this industry (KIPPRA, 2020). The increase in tea production and exports to the global market is primarily responsible for the high GDP contribution (KIPPRA, 2020). The resiliency of this business, on the other hand, is inextricably intertwined with the difficulties it must overcome.

The 72 tea processing businesses, which are important gears in the economic machinery, are faced with a variety of operational risks, each of which is capable of having reverberating repercussions throughout the entirety of the value chain. Within this sophisticated setting, the industry contends with a complex web of uncertainties, which range from vulnerabilities in factory accounts to nuanced financial intricacies managed by the Department of Finance and operational difficulties traversed by the Department of Operations. All these aspects are interconnected and contribute to the overall complexity of the environment.

The Department of Finance, which is responsible for the complex financial administration of these businesses, must contend with a unique set of issues because of the responsibility it was given. The integrity of financial records is put in jeopardy when faced with the loss of documents, a danger that is amplified when vital data is misplaced and there is a lack of information control. An

unhealthy reliance on information and communication technology (ICT) creates vulnerabilities that are linked to the possibility of software and hardware breakdowns (Kizza, 2020). These vulnerabilities pose a threat to the efficient operation of financial processes. The department also faces operational risks as a result of workforce challenges. These challenges include problems with integrity, a lack of segregation of jobs, and an over-dependence on specific members of staff for essential procedures. The mistakes in financial statements, the delayed approval processes, and the interconnectivity of operations with other departments all add to the complexity of financial management, which necessitates a nuanced and adaptable strategy for risk management.

While everything is going on, the Operations Department must contend with its very own unique and difficult set of obstacles. A significant reliance on electricity from the national grid, insufficient amounts of power generated internally, and the costly costs of imported furnace oil are all contributing factors that drive up the cost of energy, which in turn drives up the financial pressure. The operational landscape is further complicated by issues such as prolonged machinery downtime, mistakes in weighing green leaf, unpredictability in weather conditions, and the prevalence of green leaf that does not satisfy quality standards. These problems can all have an impact on the operational landscape. In the face of additional challenges, such as breakdowns and inefficiencies in the machinery, excessive staffing levels, and price shifts in tea caused by variations in the market, strategic management becomes very necessary (Nyaoga et al., 2015).

In conclusion, although the growing of tea and the processing of tea in Kenya are significant contributors to the nation's economic vitality, these activities are not without their share of complex difficulties. The 72 tea processing businesses that fall within the purview of the KTDA negotiate a complex environment of hazards, which calls for an approach to risk management that is strategic, flexible, and thorough. Not only will the successful mitigation of these difficulties strengthen the resilience of the tea industry, but it will also assure the industry's continued expansion and ensure that it continues to contribute to the economic prosperity of Kenya.

1.1.2 Key Risks for Tea Factories and their management

The identification, ranking, and management of the risks that are faced by the 71 tea processing enterprises that KTDA manages are the primary focuses of this study. Tea factories are exposed to various risks in the entire value chain from inputs, processing and selling the tea (Bouwer, Arajao, Mittal, & Watkiss, 2021).

According to Naude, and Chiweshe (2017), there are several ways to classify the risks but the common way is using strategic, operational and financial risks. Other alternatives include the risks emanating from internal sources of the organization and those emanating from sources outside the organization.

Strategic risk refers to the threats that tea factories confront in pursuing their strategic goals (Frigo and Anderson, 2011). These arise from the macro level; political, economic, sociocultural, technological, environmental and legal and industry level. According to Singh and Hong (2020), Operational risk is chance of loss arising from poor internal processes, inherent challenges of employees, operational processes and systems, which may disrupt operations of the tea factories. Corelli (2014) defines financial risk as a chance of loss arising from various aspects that the tea factory face, usually grouped into five components. First, price risk is the risk of loss arising from changes in the market price of raw materials for processing tea and eventually the selling prices. Adverse changes in market prices lead high cost of inputs and low selling prices. Second, interest rate risks arise when the borrowing rates on loans change and may lead to higher financing costs for the tea factories. Third, exchange rate risks, which arise from adverse changes in the value of the local exchange rate, such that tea exports become less valuable. Liquidity risks arise when the tea factory is not able to meet its short-term maturing obligations due to low funds. Finally, credit risk is where a factory faces the risk of default from credit customers.

According to the COSO risk management framework (COSO, 2017), organizations, including tea factories, have five main strategies to manage risks. First is to accept risks that have low probability and low impact. Next is to share the risks, such as taking insurance for or entering into forward contracts if a tea factory expects customers to settle on foreign currency. Third, the risk can be reduced, by for example limiting the amount of credit sales to one customer. Fourth, the risk can be transferred to another party, for example, taking insurance for crop/tea plantation incase of

adverse weather patterns. Finally, the risk can be avoided completely by not supplying tea to high risk customers or countries.

There have been various studies carried out on risk and risk management in the tea sector at local and global level. While Joseph and Minj (2010) evaluated how employees in the tea sector rate risks, Bower et al. (2021) explored the effective approaches to manage long term risks in the tea sectors of Kenya and Malawi. Somarathna, and Edirisinghe (2020) examined the effect climate risk on the performance of selected tea firms in Sri Lanka. While some studies have evaluated the risk management in the agribusiness value chain (Magaji et al., 2021), there is no empirical study that evaluates more specifically the risk management practices of tea factories.

1.1.3 Kenya Tea Development Agency (KTDA) factories

The Kenya Tea Development Agency (KTDA) is a private company owned by about 600,000 tea farmers spread across 16 tea growing counties in Kenya. The farmers are shareholders to 54 tea companies that own KTDA (H) and its 8 subsidiary companies and in total they operate 71 tea processing factories.

KTDA's history dates back to the 1950s. In 1957, the first smallholder tea factory was set up in Ragati, Nyeri, in central Kenya, run through a management agreement with multinational tea companies. In 1960, the Special Crops Development Authority was established under the Ministry of Agriculture to oversee this crucial sector. In 1964, the Kenya Tea Development Authority was established under the Agriculture Act (Cap 318) Section 91, Legal notice No. 42, replacing the Special Crops Development Authority. The Authority took over management of small holder tea from multinational tea companies.. One of its primary objectives is to stabilize the tea production value chain, while ensuring the quality of tea output is high for both local and international markets. The structure of KTDA and its function is provided in Figure 1. In addition to this, KTDA added a 9th subsidiary, the Chai Logistics Center, for logistics, rail transport and warehousing of Tea.

The choice of KTDA tea processing factories is important given that KTDA controls and manages nearly 60% of the Tea produced in Kenya.

1.2 Statement of the Problem

According to the Agriculture and Food Authority (AFA), Tea is most important Industrial Crop in Kenya. KTDA estimates that over 650,000 tea farmers supply tea to its 72 factories across the country. These factories produced a total of 326 million kilograms of tea in 2020 (KTDA Annual Report, 2020). According to KTDA, this is underperformance. The factories can produce over 500 million kilograms of tea annually.

In as much as the processing of tea depends on productivity at farmer level, the quality of Greenleaf delivered, the management of the processing facilities also play a major part in determining the overall efficiency of the factories. There are several risk points and risks that affect the performance of the factories. The risks include strategic risks, financial risks, and operational risks. The key strategic risks include economic, political, legal, technological, social, and environmental risks. The financial risks include price risk, exchange rate risk, interest rate risk and liquidity risk (Bowling and Rieger, 2005).

While the operational risks include process and technology, people, natural/climate risks, data etc Research has shown that there is a positive and significant relationship between the size and age of a factory in terms of risk prioritization. Tea factories have put in place an elaborate risk management framework, but this is not well practiced due to lack of capacity and knowledge. However, Tea remains one of the most important crops to the Kenya agricultural sector and the country at large. This study, therefore, sought to establish key risk priorities and management for KTDA managed 71 tea processing companies.

1.3 Research objectives and Questions

The main objective of this research was to establish organizational factors that influence the risk management practices of KTDA tea processing factories.

More specifically,

1. To examine risk management practices of KTDA factories

2. To determine the effect of organizational factors on risk management practices in KTDA factories

3. To evaluate management perspectives on risk management practices in KTDA factories

Given that organizational factors were grouped into corporate governance, financial characteristics and others, the following research questions applied:

1. What are the risk management practices of KTDA factories?

2.1 What are the corporate governance features that influence risk management practices?

2.2 What are the financial features that influence risk management practices?

2.3 What are the other organizational factors that influence management practices?

3. What are the management perspectives on risk management practices in KTDA factories

1.4 Significance of the study

1.4.1 The Tea Processing factories

Proper profiling, prioritization, and management of risks within the KTDA managed factories is key to increasing their performance, contributing to growth of the economy. The findings of this study aids KTDA to put in place strategies to remain competitive, amid competition from multinational Tea companies in Kenya, and tea from neighboring countries in the region. In addition, the study identifies potential strategies that can be used to manage the risks that tea factories are facing. The findings of the study gives insights to the factory management and the KTDA Management Services on areas to prioritize to improve performance of the factories.

1.4.2 Regulators and policy makers in the tea sector

Tea is one of the leading hard currency earners in the country. Tea farming contributes significantly to the GDP of the country. Given that Tea Production and selling is a major contribution to the Kenyan economy and is highly demanded, it is important to know the risks they are facing and how the tea factories are managing risks.

1.4.3 Academicians

The findings from this study provide more insights into the risk management for the tea processing value chain and contribute to relevant literature in agribusiness and the findings will provide recommendations for further studies.

1.5 Scope of the Study

The study focused in the 71 factories which process Tea and managed by the KTDA in 2023. The factories are in Kenya, East of the rift valley and the west of the rift valley. The data collection was conducted in the month of April 2024.



CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Chapter Two provides the theoretical and empirical review of the study. The empirical literature evaluates two theories; agency theory and resource-based theories. The empirical literature is guided by the objectives of the study. The section concludes with the conceptual framework and operationalization of variables.

2.2 Theoretical Review

This section discusses the theoretical foundations that influence risk management in tea processing businesses that are operated under KTDA. It contains frameworks that provide a theoretical foundation for identifying risks and formulating countermeasures. Every theoretical framework offers a distinct viewpoint designed to address the complexities and difficulties faced by the companies KTDA overseas.

2.2.1 Agency Theory Application

The concept of agency theory originates from an economic perspective on the distribution of risk, which involves two entities known as principals and agents. However, these two entities may have divergent methods of resolving the issue (Bendickson et al., 2016). Clearly defined governance structures and efficient communication channels are crucial for KTDA's operations as they facilitate the alignment of varied interests and reduce the likelihood of conflicts that could increase risk exposure. Gaining a comprehensive understanding of the intricate dynamics in agency relationships at KTDA might be helpful in customizing governance structures to optimize risk mitigation tactics. Understanding the various interrelationships among agencies, KTDA may create governance frameworks that promote accountability, transparency, and interest alignment. According to Jankensgård (2019), by incorporating risk management into the governance structure, this customized method lowers the probability of conflicts and increases the overall resilience of tea-processing businesses.

Even though agency theory is used to analyse management and shareholder relationships, it has been criticized on the ground that it assumes that management will always act contrary to shareholders expectations (Namazi, 1985; Baiman,1990). This may not necessarily be the case, and some managers and directors act on goodwill to meet the interest of various stakeholders. Despite this risk management is still an important role for managers, as part of their fiduciary duties.

2.2.2 Resource-Based View (RBV) Theory

A strategy framework that is very relevant to the risk environment of KTDA is provided by RBV theory. This theory emphasizes the tactical distribution of internal resources to attain a competitive edge (Oria et al., 2021). According to this theory, encourages examining how organizations may use their special organizational strengths, which KTDA can apply. Numerous elements, including information systems, human resources, and other internal resources, can improve the implementation of risk management strategies (Oria et al., 2021). Within the tea processing industry, where information security and efficient resource use are critical, RBV offers a theoretical framework that enables KTDA to identify and strengthen its unique risk management capabilities. By effectively utilizing its internal resources, KTDA can proactively enhance its ability to handle risks. This means strategically allocating resources to talent, technology, and organizational processes to improve the total risk management posture.

While Agency Theory serves as a theoretical guide for aligning stakeholder interests, RBV provides a methodical and flexible approach to risk management. RBV provides KTDA with an organized way to carefully assess its unique organizational capabilities, such as information systems and human resources, by utilizing the findings of Oria et al. (2021). This evaluation technique enhances organizational performance and risk management procedures in the dynamic tea sector.

Ultimately, the theoretical evaluation offers the KTDA-supervised tea processing enterprises a straightforward course of action and a strong foundation for comprehending the complex problems and risks they encounter daily. When combined with RMF and Agency Theory, RBV creates a holistic approach to risk management. This synthesis provides a thorough risk assessment, identification, and action planning methodology. It also offers a strategic viewpoint for balancing

stakeholders' interests and optimizing internal resources. KTDA is equipped with a comprehensive toolkit to efficiently manage uncertainties in the dynamic tea processing industry thanks to the iterative structure of the Risk Management Framework, insights into governance dynamics from Agency Theory, and RBV's emphasis on strategic resource deployment. KTDA is better equipped to withstand adversity, promote flexibility, and maintain long-term profitability by incorporating these theoretical frameworks into its risk management strategies in the dynamic tea processing sector.

2.3 Empirical Review

The main aim of this empirical study is to provide practical insights into the diverse challenges faced by KTDA. The challenges involve a range of issues, including cyber-attacks, fraudulent payments, system breakdowns, and delayed approval processes. The study will provide a contextual framework for interpreting the empirical findings within the operational setting of KTDA.

2.3.1 Risk Prioritization and Management

When it comes to financial risks, the investigation of cybersecurity hazards and the susceptibility of financial systems provides essential insights into potential dangers that may be present in the contemporary digital landscape (Tariq et al., 2023). Considering the increased significance of cyber risk mitigation in today's technology-driven economy, the study strongly emphasizes protecting digital infrastructures. This becomes especially pertinent to KTDA plants, which operate in an increasingly digitized setting where the protection of sensitive financial information and the security of financial transactions are of the utmost importance. Within tea processing enterprises managed by the KTDA, operational issues constitute a significant risk. Maalem Lahcen et al. (2020) and Moustafa et al. (2021) are two studies that delve into specific operational intricacies, offering light on practical aspects linked to reducing cyber dangers and simplifying approval processes. In addition to offering a detailed understanding of the issues that KTDA factories encounter daily, these empirical studies contribute practical insights into the operational landscape of KTDA factories.

The consequences of fraudulent payments, system breakdowns, and delays in approval processes are discussed in the context of tea processing organizations. Parallels have been drawn between these issues and the operational challenges that KTDA may face. A comprehensive overview of Enterprise Risk Management (ERM) is given in Anton and Nucu's (2020) study analysis, which also proposes a future research agenda and outlines the fundamental ideas of the field. The knowledge gained from this examination is fundamental and may be used in various businesses, including the tea industry. KTDA may improve its risk management procedures by comprehending the fundamentals of ERM and coordinating its plans with international best practices to strengthen resilience and adaptability in the ever-changing tea processing industry.

This comparative analysis is a benchmark, bringing insights into best practices and potential hazards (Anton & Nucu, 2020). It emphasizes the necessity of analyzing how other tea-processing businesses handle financial and operation risks and provides a benchmark. KTDA can strengthen its strategic risk management processes by extrapolating strategies from industries analogous to its own.

Moreover, strategic risks are inextricably intertwined with financial and operational issues. Weeserik and Spruit (2018) investigate how Business Performance Management (BPM) systems are integrated, offering insights into operational risk management. The study recommends using BPM technology to improve risk identification, assessment, and mitigation processes. Adopting such technologies can provide KTDA-managed tea processing firms with a more robust operational risk management framework, enhancing sustainability and efficiency. By using BPM technologies, KTDA can ensure a proactive and adaptable response to operational difficulties in the tea processing business by streamlining its risk management operations. In order to maintain the resilience of KTDA-managed tea processing enterprises and to keep up with the changing dynamics of the tea industry, the significance of utilizing technology breakthroughs to strengthen operational risk management methods. The global view offered by industry reports goes beyond the financial and operational realms, and it incorporates strategic concerns into the framework used for risk management. When contextualized within the backdrop of the global tea industry, the issues that tea processing enterprises worldwide are confronted with contribute to a more nuanced understanding of the strategic risks that transcend geographical boundaries.

2.3.2 Organizational Factors Influencing Risk Prioritization

The process is influenced by several factors, including the company's risk tolerance, its strategic objectives, and its resource availability. The company's risk management culture is another element that influenced the development of the procedure. The firm's leadership establishes this culture, the guidelines for risk management, and the protocols for sharing and managing risks inside the organization. An investigation into the factors that influence risk management in industrial enterprises was carried out by Kwaik et al. (2023) in their research. The findings provide significant insights that can be used to improve risk management. The research highlighted many factors that may be relevant for KTDA-managed tea-processing enterprises. These factors include organizational Governance, culture, leadership commitment, and regulatory compliance (Kwaik et al., 2023). KTDA could garner insights into optimizing risk management techniques within the specific operational dynamics of the Kenyan tea sector by adapting and drawing analogies from the characteristics that have been discovered. KTDA can strengthen its risk management framework, ensuring that it is in line with the best practices in the sector and addressing the specific problems that tea processing firms confront. This would eventually contribute to maintaining resilience and growth. The organization's risk tolerance is one of the most essential considerations for risk prioritization. High-risk tolerance organizations are recognized for their willingness to take on higher degrees of risk in order to meet their strategic goals.

On the other hand, businesses with a poor tolerance for risk would try to minimize or eliminate dangers. Anton et al. (2021) state that an organization's risk tolerance may be influenced by many variables, such as its financial standing, the industry it operates in, and the nature of its operations. Another essential piece of information is the organization's strategic goals. Businesses prioritizing expansion and growth may be more willing to take on significant risks to meet their objectives. Nonetheless, businesses whose main objective is to keep up their current operations can be less inclined to take chances and give less weight to ideas that might jeopardize such operations (El-Harakeh et al., 2019). One of the most important factors influencing the prioritization of risks is the degree of resource availability. It is probable that companies with limited resources are less inclined to take chances and are more concerned with reducing the risks they already face.

However, companies with ample resources might be more inclined to take risks to achieve their strategic objectives (Seixas et al., 2021). Prioritizing risks is also influenced by the firm's risk

management culture, which is an essential element. Risk prioritization can be enhanced by implementing a risk management culture that encourages risk detection and management. However, a risk management culture that prevents risks from being identified and managed could lead to a lackluster risk prioritization process. A company's leadership can also influence the ranking of risks. Leaders who proactively identify and manage risks can help create a culture that prioritizes risks more effectively and has a positive attitude toward risk management, according to Anton et al. (2021). A company's risk management rules may also impact how hazards are prioritized. Implementing policies that promote risk detection and management can enhance the prioritization of risks.

Conversely, policies inhibiting risk identification and management may lead to poor prioritization (El-Harakeh et al., 2019). The organization's internal communication and handling practices regarding hazards impact their prioritization. This can help stakeholders prioritize risks based on their perceptions and understanding of the hazards and the firm's risk landscape (Seixas et al., 2021). Clear and effective risk communication can aid in stakeholders' understanding of the risk environment. In conclusion, various factors affect how risks are prioritized in KTDA factories. These variables include the organization's risk tolerance, strategic goals, resource availability, leadership, risk management policies, and how risks are shared and handled inside the company. Gaining a more profound comprehension of these components helps KTDA factories effectively manage and prioritize risks consistent with risk tolerance and strategic goals.

2.3.3 Management Perspectives on Risk Management

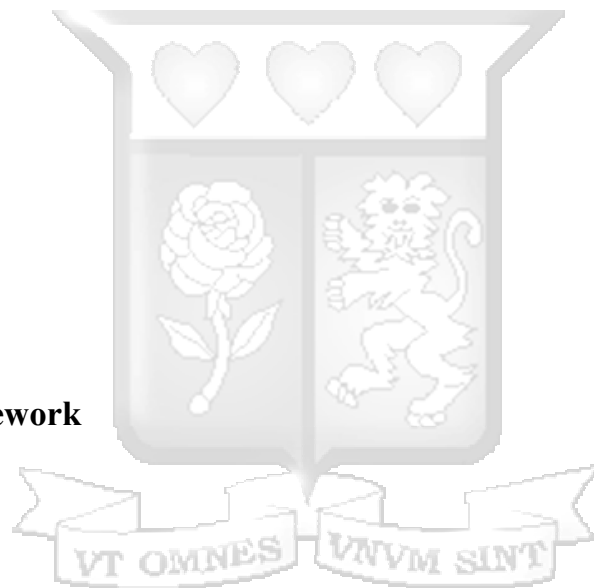
A theoretical basis for comprehending how management could approach risk methodically and strategically, for instance, is provided by the assessment of risk management frameworks, such as the Resource-Based View (RBV), Agency Theory, and the Risk Management Framework (RMF) (NIST, 2016b). The Risk Management Framework (RMF) provides an organized, methodical, and adaptable approach to managing security and privacy concerns. This method includes categorizing information security, selecting, implementing, and evaluating controls, authorizations for system and standard controls, and continuous monitoring (NIST, 2016b). It is possible for KTDA to successfully detect, evaluate, and mitigate risks through the implementation of the RMF, which guarantees a proactive posture in the management of difficulties linked to privacy and security.

KTDA-managed tea processing enterprises have a complex operating landscape aligned with the ordered character of the RMF. The RMF emphasizes the cyclical risk identification, assessment, reaction planning, and monitoring processes. Since this strategy assures adaptation to the ever-changing nature of security and privacy concerns, the Kenya Tea Development Authority (KTDA) can strengthen its risk management techniques in a manner adapted to the particular requirements and difficulties of the Kenyan tea business. According to NIST (2016a), RMF is an approach that is risk-based, comprehensive, and flexible. It combines security, privacy, and cyber supply chain risk management activities into the system development life cycle context. The RMF provides a strategy that is both organized and flexible to control the fraction of risk caused by the incorporation of systems into the mission and business operations of the organization. Any organization can utilize this approach, regardless of its size or industry. All actions included in the RMF are designed to prepare businesses to implement the framework at the appropriate risk management levels. In addition, the RMF encourages the deployment of continuous monitoring procedures, promoting near real-time risk management, continuing information systems, and shared control authorization (National Institute of Standards and Technology, 2018). The RMF provides senior leaders and executives with the knowledge they require to make decisions regarding the systems that support their missions and business functions that are efficient, cost-effective, and efficient related to risk management. According to the National Institute of Standards and Technology (2018), it creates responsibility and accountability for the controls installed within an organization's information systems and inherited by those systems. Additionally, it incorporates security and privacy into the system development life cycle.

In conclusion, the empirical review, which was conducted following the objectives set, offers a nuanced understanding of the risks that KTDA factories are exposed to, the factors that influence risk prioritizing, and the perspectives of management on risk management techniques. One of the various risk management frameworks that can be utilized to manage risks properly is RMF. Several other risk management frameworks, such as the RBV and the Agency Theory, offer valuable insights into how management should handle risk methodically and strategically. Providing a complete approach to risk management can be accomplished by utilizing these frameworks in conjunction with the RMF. In conclusion, the empirical review, which was conducted following the objectives set, offers a nuanced understanding of the risks that KTDA factories are exposed to,

the factors that influence risk prioritizing, and the perspectives of management on risk management techniques.

2.4 Conceptual Framework



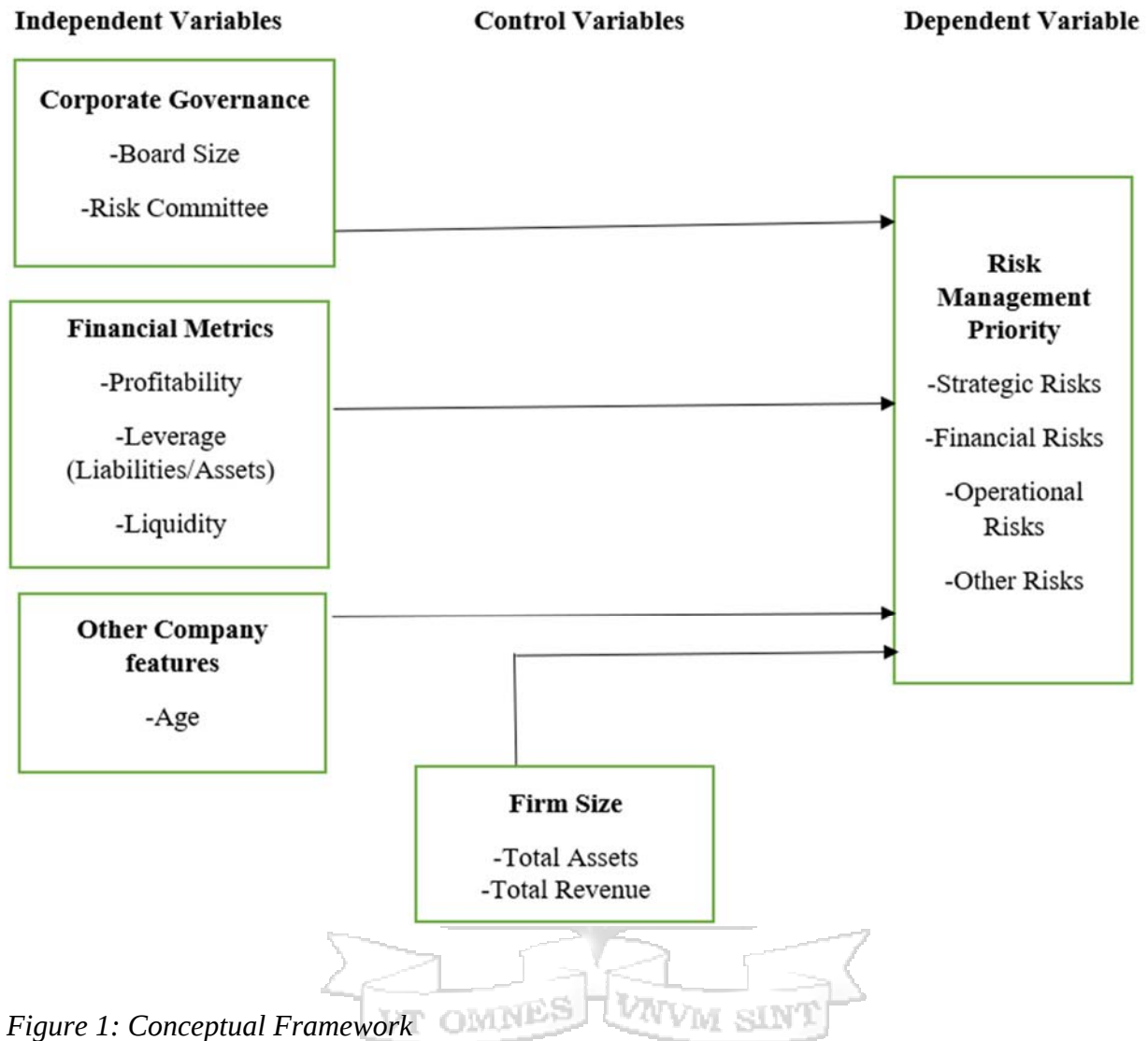


Figure 1: Conceptual Framework

Source: Author, 2024

2.5 Operationalisation of the Variables

Table 2.1 indicates the criteria for the operationalization of the independent, control and dependent variables of the study. The measurements, supporting studies, study-based theories and the test of variables are highlighted.

Table 2.1: Operatonalization of variables

Variable	Measurement of Variable	Supporting Empirical and Theoretical Framework	Data Source	Analysis
Dependent Variables				
Risk priority and Management	Risk Rank (1,2 and 3)	Agency Theory	Questionnaire	Descriptive
Independent Variable				
Corporate Governance – Board Size	Number of Board Members	Kwaik et al., (2023)	Annual Financial reports and Questionnaire	Multivariate (Regression)
Corporate Governance – Risk committee	Presence of risk committee (1 – Yes) (0 – No)	Kwaik et al. (2023)	Annual Financial reports and Questionnaire	Multivariate (Regression)
-Profitability	Return on Assets (Profit After Tax/ Total Assets)	Anton et al. (2021)	Annual Financial reports and Questionnaire	Multivariate (Regression)
-Leverage	Debt Ratio (Liabilities/Assets)	Anton et al. (2021)	Annual Financial reports and Questionnaire	Multivariate (Regression)
-Liquidity	Current ratio (Current assets/Current Liabilities)	Anton et al. (2021)	Annual Financial reports and Questionnaire	Multivariate (Regression)

Age	• Number of years of operation	Seixas et al., (2021)	Annual Financial reports and Questionnaire	Multivariate (Regression)
Control variable - Size				
Total Assets	• Log of Total Assets	Seixas et al., (2021)	Annual Financial reports and Questionnaire	Multivariate (Regression)
Revenue	• Log of Revenue	Seixas et al. (2021)	Annual Financial reports and Questionnaire	Multivariate (Regression)



CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives the methodology that was used for this study. This includes the research design, target population and sampling. It also gives the methods of data collection as well as techniques that were used in data analysis.

3.2 Research Philosophy

For the purpose of scientific research, the two main philosophies are positivism and post positivism (Neuman, 2010). Positivism is a paradigm that relies on measurement and reason, that knowledge is revealed from a neutral and measurable (quantifiable) observation of activity, action or reaction. Positivism states that if something is not measurable in this way it cannot be known for certain. Scientific knowledge is derived from the accumulation of data obtained theory-free and value-free from observation (Hammersley, 2013). This suggests that anything that cannot be observed and thus in some way measured (that is quantified), is of little or no importance. Positivism is closely associated with quantitative methods of data collection.

Post-Positivism retains the idea that truth should be considered objective, but asserts that our experiences of such truths are necessarily imperfect because they are ameliorated by our values and experiences (Kivunja & Kuyini, 2017). Post-Positivists are more likely to use mixed methods and triangulation of quantitative and qualitative data, accepting the problematic nature of “objective” truths. In this study, the use of both positive and post positivist approach is used as there was use of quantitative methods in ranking and measuring association of variables, while using qualitative to consider the management perspectives.

3.3 Research Design

The study employed both quantitative and qualitative approaches to data analysis. Based on Creswell (2010), quantitative analysis follows the process of objectively collecting data and analyzing it numerically, to determine and control variables of interest. This type of research aims to test causal relationships between variables and provide generalized results. The study aimed to determine organizational factors that will likely influence the risk management practices.

Qualitative approach to research observes and describes a phenomenon to gain a deeper understanding of a subject (Neuman, 2010). In general, qualitative research is explanatory and helps understand how an individual perceives some aspects of a subject, like in this case, the management's perspectives of risk management perspectives for tea processing.

3.4 Population and Sampling

A target is the groups or individuals the study intends to conduct research in and subsequently draw conclusions from (Gregory et al, 2017). According to KTDA Management Services, KTDA has 72 tea processing factories. The 72 tea processing companies were the target population for this study. See Appendix I. There was no sampling, with a census being used for all the factories. According to Neuman (2010), a census is suitable when the population is small, like in this case.

3.5 Data Collection Tools and Methods

The study collected secondary data from the annual reports of the factories. The annual reports provided information about the factories, especially financial information. Meanwhile, primary data was collected using an online questionnaire. According to Hooley, Wellens, and Marriott, (2012), online questionnaire is recommended, where the population is widely dispersed, and the collection and analysis of data can be carried out efficiently. The questionnaire was also used to obtain additional financial information in case the annual report of a factory was not available. See Appendix III for the sample questionnaire. The questionnaire was filled by the factory managers or equivalent with risk management responsibility.

3.6 Data Analysis

Based on the objectives of this study, a descriptive analysis and a regression analysis was used to analyze the data. Descriptive statistics was used to analyze objective one and three. This is because the risk factors were be identified and analyzed in terms of frequencies using descriptive statistics.

The study employed an ordinal logistic regression model (Creswell, 2011). This model is applicable where the dependent variable is ranked in form of a Likert scale. The analysis was used since there is more than one independent variable for objective two.

$$\text{J}=1 \quad \text{logit}(P(Y \leq j)) = \beta_{j0} + \beta_1 x_1 + \dots + \beta_p x_p.$$

Where;

Y = Ranking of Various aspects of Risk Practices

β_0 = Constant Term (For multiple regression, this may be left out due to differences in the interpretation)

$\beta_1, \beta_2, \beta_3, \beta_4$, = Beta coefficients

X_1 for all the Independent and Control Variables (Corporate Governance – Board Size, Corporate Governance – Risk committee, Profitability, Leverage, Liquidity, Age, Total Assets and Total revenue). The regression model was generated using STATA.

The model diagnostics required the data to be checked for normality. Given that the number of factories was 71, the normality assumption was not violated. Other diagnostic checks for the ordinal logistic model was the The likelihood ratio chi-square and the p values (Creawell, 2011).

3.7 Research Quality

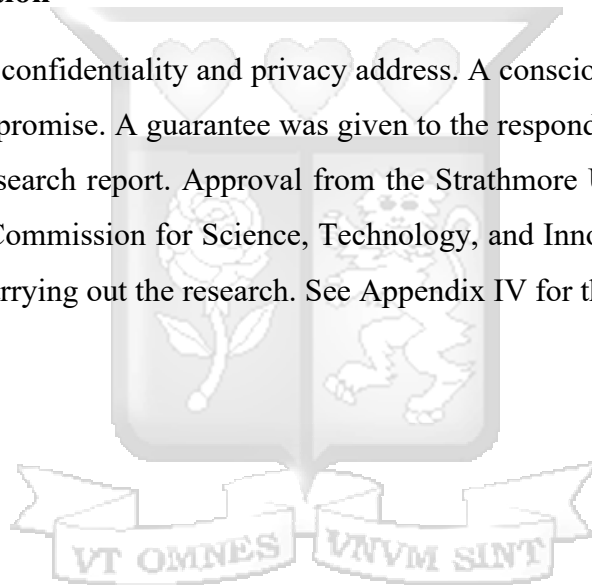
Research quality is evaluated by reliability and validity. Reliability is the degree to which measures are free from error and therefore yield consistent results (Henson, 2001). If a measurement device or procedure consistently assigns the same score to individuals or objects with equal values, the instrument is considered reliable. According to Henson (2001), reliability involves the consistency, or reproducibility, of test scores i.e., the degree to which one can expect relatively

constant deviation scores of individuals across testing situations on the same, or parallel, testing instruments. The reliability of the questionnaire was evaluated by testing on a four managers before administering to the rest. Their input was useful in revising the questionnaire.

Validity refers to how accurately a method measures what it is intended to measure (Zikmund, 2003). If research has high validity, that means it produces results that correspond to real properties, characteristics, and variations in the physical or social world. Validity in the current research was achieved by assessing how the research analysis and models are suitable.

3.6 Ethical Consideration

Ethical considerations of confidentiality and privacy address. A conscious effort has been always exercised to support this promise. A guarantee was given to the respondents that their names will not be revealed in the research report. Approval from the Strathmore University Ethics Review Board and the National Commission for Science, Technology, and Innovation (NACOSTI) were obtained before carrying out the research. See Appendix IV for the attachments.



CHAPTER 4: RESULTS AND FINDINGS

4.1 Introduction

This chapter delves into analyzing data, discussing findings, and offering interpretations. The results are presented using tables and diagrams, organized according to themes that align with the research goals. It also includes descriptive statistics from the findings and correlation and regression analysis.

4.2 Respondents Information

4.2.1 Position and Duration of working in the factory

Table 4.1 and Figure 4 show the proportion of the respondents to the questionnaire, mainly the factory and production managers.

Respondents Position

Table 4.1: Respondents Position

Respondent	Number	Percentage
Factory Unit Manager	62	89.86%
Production Manager	7	10.14%
	69	100.00%

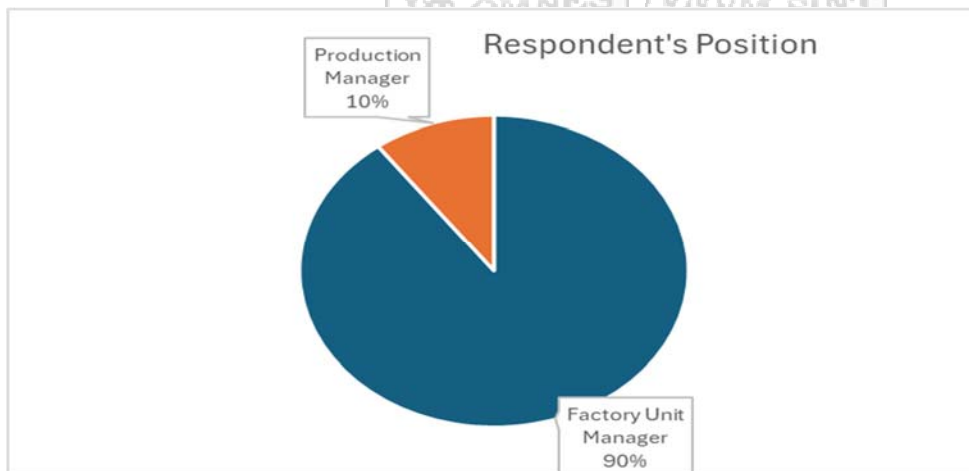


Figure 2: Respondents Position

The total response rate was 97% i.e. 69 out of 71 because the researcher was allowed to coordinate the communication from one authoritative source in the factories. The three respondents did not provide feedback as at the time of authoring. Feedback was obtained mainly from the factory managers.

Table 4.2: Average duration in years in which a respondent has been in the factory

Mean	16
Median	16
Mode	26
Minimum	1
Maximum	30

Generally, the factories are managed by individuals who have been in the organization for more than 16 years, with one having served 30 years.

4.3 Factory Information

4.3.1 County of Operations

Table 4.3 and Figures 5 provide the summary of the counties in which the factories are based.

Table 4.3: County in which the Factory operates

County	Frequency
Bomet County	9
Embu County	3
Kericho County	7
Kiambu County	5
Kirinyaga County	5
Kisii County	6
Meru County	7
Muranga County	11
Nandi County	2
Nyamira County	6
Nyeri County	5
Tharaka Nithi County	1
Trans Nzoia County	1
Vihiga County	1

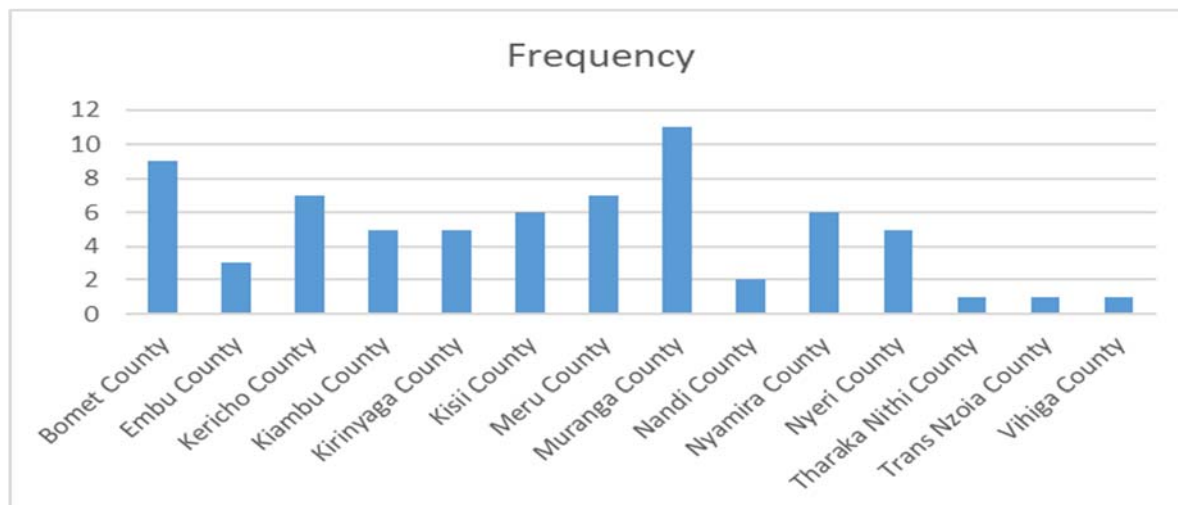


Figure 3: Location of KTDA Tea factories, by County

The summary shows that most of the factories operate in Muranga then Bomet. Only three counties had one KTDA tea processing factory.

4.3.2 Years of Operation

Table 4.4 provides a summary of the number of years a factory has operated.

Table 4.4: Summary of the number of years a factory has operated

Mean	27.01449275
Median	26
Mode	29
Minimum	5
Maximum	55

Table 4.4 shows that the average number of years of operation of a factory is 27, with the lowest having in operation for 5 year and the tea factory with the longest operating period is 55 years.

4.3.3 Number of Board Members

The factories have a minimum board size of 5 and maximum of 11. However, some factories share board members. Figure 6 shows a break down of the number of factories with the difference board size. The board size will largely depend on the size of the factory.

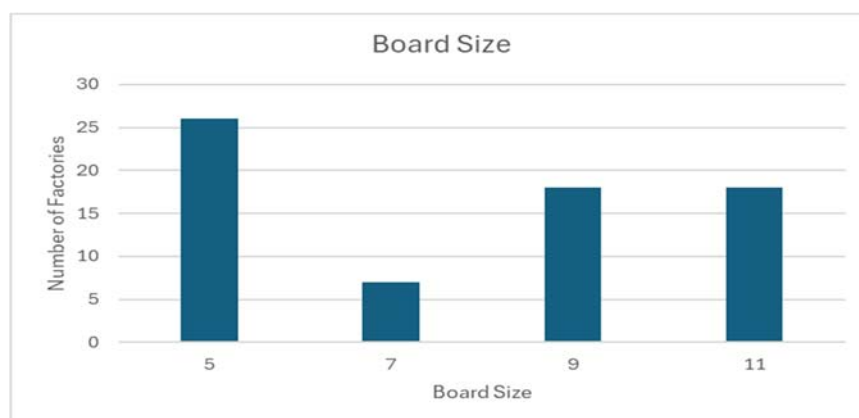


Figure 4: Board Sizes of KTDA Tea Factories

Majority of the factories have 5 board members.

4.3.4 Number of Factories with a risk committee

Table 4.5 provides a summary of the number of factories with a risk committee.

Table 4.5: Number of Factories With a Risk Committee.

Factories with a risk committee		
Yes	40	57.97%
No	29	42.03%
	69	100.00%

Table 4.5 shows that majority of the factories have a risk committee, which is usually a recommendation of the Kenya Tea Development Authority.

4.3.5 Financial Metrics for the Factories

Table 4.6: Summary of the various financial metrics for the factories

	Revenue (Sh.m)	PAT (Sh.m)	CA(Sh.m)	CL (Sh.m)	TL (Sh.m)	TA (Sh.m)
Mean	1,313.33	60.34	469.03	297.39	432.03	785.80
Median	1,280.00	56.00	460.00	290.00	400.00	760.00
Mode	1,600.00	80.00	250.00	290.00	430.00	960.00
Standard Deviation	562.11	65.89	202.66	128.71	187.81	337.98
Sample Variance	315,972.55	4,341.74	41,070.65	16,566.62	35,272.29	114,227.66
Range	2,460.00	310.00	882.00	520.00	850.00	1,480.00
Minimum	440.00	- 70.00	158.00	100.00	140.00	260.00
Maximum	2,900.00	240.00	1,040.00	620.00	990.00	1,740.00

(PAT-Profit after tax, CA-Current assets, CL-Current Liabilities, TL-Total Liabilities and TA-Total Assets)

The average revenue generated by a factory on selling Tea by the factories is slightly more than 1.3 billion shillings, with an average profit after tax of sh.60.34 million. The factory with the highest revenue earning is sh.2.9 billion.

4.4 Risk Management Practices

4.4.1 Risk Prioritisation

Part C Question 1 requested the respondents to indicate, the risks that factories face from 1 being prioritized to 4 being the least. Table 4. 7 and figure 7 provides a summary of the average ranking.

Table 4.7: Risk Prioritisation

Risk	Score	Rank
Strategic	1.19	2
Financial	1.14	1
Operational	1.19	2
Others*	1.84	4

*Very few risks were specified as discussed later.

Overall factories rank financial risk as most important the strategic and operational risks are tied.



Figure 5: Risk Ranking by the Tea Factories

4.4.2 Strategic Risks Ranking

Question 2 of Part C required participants to rank strategic risks according to whether they are minor, moderate major or extreme.

Table 4.8 and Figure 8 provides a summary of the results:

Table 4.8: Summary of Strategic Risk Ranking

Strategic Risks Ranking	Mean Score	Meaning	Mode	Meaning
Political	1.29	Minor	1	Minor
Economic	3.12	Major	3	Major
Sociocultural	1.23	Minor	1	Minor
Technology	1.19	Minor	1	Minor
Environmental	1.55	Moderate	2	Moderate
Legal	1.32	Minor	1	Minor



Figure 6: Summary of Strategic Risk Ranking

KTDA tea processing factories rank economic risks as the major followed by environmental.

4.4.3 Financial Risk Ranking

Question 3 asked the participants to rank financial risks from minor to extreme. Table 4.9 and Figure 9 provides a summary of the results.

Table 4.9: Financial Risks ranking

Financial Risk	Mean Score	Meaning	Mode	Meaning
Interest Rate	1.96	Moderate	2	Moderate
Tea Price	3.80	Extreme	4	Extreme
Exchange Rate	3.81	Extreme	4	Extreme
Credit	2.86	Major	3	Major
Liquidity	1.19	Minor	1	Minor



Figure 7: Financial Risks Ranking

Majority of the tea factories rank Tea price and Exchange rates as the extreme risk, with credit risk als being higher due local supermarkets and hotels.

4.4.4 Operational Risks Ranking

Question 4 asked the participants to rank operational risks. Table 4.10 and figure 10 provides a summary of the results.

Table 4.10 Operational Risks Ranking

Operational Risks	Mean Score	Meaning	Mode	Meaning
Human Resource	1.97	Moderate	2	Moderate
Production	3.71	Extreme	4	Extreme
Marketing and Sales	2.57	Major	3	Major
ICT	1.97	Moderate	2	Moderate
Reputational Risks	1.26	Minor	1	Minor



Figure 8: Operational Risk Ranking

As expected production risks are high, linked to breakdown in machines and poor weather that may affect availability of green leaf for processing. Even though KTDA aids in identifying markets for the tea factories still feel that marketing and sales is a challenge, linked to both local and global competition.

4.4.5 Other Risks Category Ranking

Question 5 asked participants to highlight various risks besides the ones provided in the study that apply to the tea sector. The responses were very low less than 10 participants, who indicated the ranking of the risks as follows as per Table 4.11:

Table 4.11 Other Risks Ranking Categories

Risk	No. of responses	Average Rank	Meaning
Tax	3	3	Major
Climate/Weather	2	2	Moderate
Natural events (Floods)	2	3	Major
Sustainability	1	1	Minor

Not surprisingly, tea factories have ranked Tax to be a current risks, due to changes in various tax rates and other levies by the central and local government.

4.4.6 General Risk Management Strategies for Strategic Risks

Question 6 asked participants to indicate the general strategies used to manage strategic risks.

Table 4.12 and Figure 11 provides a summary of the results:

Table 4.12 General Risk Management Strategies for strategic Risks

Strategic Risks	Mean Score	Meaning	Mode	Meaning
Political	1.23	Reduce	1	Reduce
Economic	1.96	Share	2	Share
Sociocultural	1.16	Reduce	1	Reduce
Technology	3.77	Avoid	4	Avoid
Environmental	1.17	Reduce	1	Reduce
Legal	1.91	Share	2	Share



Figure 9: Risk Management Strategies

Overall KTDA tea factories prefer to reduce political risks, socio cultural risks and environmental risks. Meanwhile they prefer to avoid technological risks.

When asked to explain the choice of their answers, very few responses were made. For political risks, the respondents explain that they prefer not to express any association with a particular political party. Meanwhile, they engage local communities and keep aware about any socio cultural issues. For environmental issues the focus is in complying with environmental regulation by regulators such as National Environmental Management Organization (NEMA). The factory managers keep abreast with any new technological improvements for tea production and other processes avoid technological risks. However, the rate of adoption is low again to minimize challenges arising from new technological adoption.

4.4.7 General Risk Management Strategies for Financial Risk

Question 7 asked participants to indicate the general strategies used to manage financial risks.

Table 4.13 and Figure 12 provide a summary of the results:

Table 4.13 General Risk Management Strategies for Financial Risks

Financial Risks	Mean Score	Meaning	Mode	Meaning
Interest Rate	1.22	Reduce	1	Reduce
Tea Price	1.83	Share	2	Share
Exchange Rate	2.81	Transfer	3	Transfer
Credit	3.83	Avoid	4	Avoid
Liquidity	1.20	Reduce	1	Reduce



Figure 10: Financial Risk Management Strategies

The tea factories generally reduce interest rate risk and liquidity risks. They try to avoid credit risks and share tea price risks and transfer exchange rate risks. Interest rate risks are reduced by negotiating affordable loans from the banks, some of which are fixed. Tea price risk is reduced and shared through using agents and market auctions. Due to the losses arising from selling tea on credit to supermarkets, the majority of tea processing factories have enhanced their credit policies to minimize credit loss. Some factories have minimized amounts lent to major supermarkets.

4.4.8 General Risk Management Strategies for Operational Risks

Question 8 asked participants to indicate the general strategies used to manage operational risks.

Table 4.14 and Figure 13 provide a summary of the results:

Table 4.14 General Risk Management Strategies for Operational Risks

Operational Risk Risks	Mean Score	Meaning	Mode	Meaning
Human Resource	1.19	Reduce	1	Reduce
Production	3.77	Avoid	4	Avoid
Marketing and Sales	1.00	Reduce	1	Reduce
ICT	3.80	Avoid	4	Avoid
Reputational	3.80	Avoid	4	Avoid



Figure 11: Operational Risk Management Strategies

Tea factories prefer to reduce Human Resource and Marketing and Sales Risks and avoid production ICT and Reputational risks. For Human resource, extensive planning of staff especially those in the factory is conducted to minimize absence. There is a lot of repairs and maintenance to avoid production risks, as well as ensuring the relevant technology is in place to reduce ICT risks.

4.4.9 General Risk Management Strategies for Other Risks

Table 4.15 General Risk Management Strategies for Other Risks

Risk	No. of responses	Mean Score	Meaning
Tax	3	1.33	Reduce
Climate/Weather	2	1.2	Reduce
Natural events (Floods)	2	1.25	Reduce
Sustainability	1	4	Avoid

For tax risks, the factory managers explained the past two years have been challenging for the tea factories because of new tax rates and levies implemented by the government. So awareness and compliance is important to reducing the tax risk. For climate-related, natural events and other sustainability matters, it was not clear how these are specifically reduces or avoided.

4.5 Correlation Analysis

Table 4.16 Correlation analysis for Independent Variables

	Age	Board	Revenue	PAT	TA	ROA	Leverage	Liquidity
Age	1							
Board Size	0.1286	1						
Revenue	0.0893	-0.006	1					
Profit After Tax	0.0718	0.1319	0.4345*	1				
Total Assets	0.0884	-0.0058	0.8900*	0.4347*	1			
Return on Assets	0.0282	0.0565	-0.0678	0.8049*	-0.0679	1		
Leverage	0.1368	-0.1373	0.0756	0.1519	0.0758	0.154	1	
Liquidity	0.0263	-0.128	0.049	0.0002	0.0472	-0.0184	0.0839	1

*Significance at 5%

Table 4.16 shows that only there is a positive and significant relationship between revenue and Profitability and Size as measured by assets.

4.6 Multivariate Analysis

The multivariate analysis section aims to determine organizational factors influencing the ranking of broad risk, the ranking of subcategory of strategic, financial and operational risks and how the organizational factors influence the risk management strategy. This is guided by the use of the ordinal logistic regression model. The basic interpretation of the model is that a positive coefficient usually gives priority to the first ordinal numbers while negative coefficients give priority to the last ordinal numbers. Some aspects require analysing the coefficients into percentages, but this has not been used for this study, due to technical interpretations.

4.6.1 Organizational Factors Influencing Strategic Risk Prioritization

The output from the model is summarized in Table 4.17.

Table 4.17 Organizational Factors Influencing Strategic Risk Ranking

	Strategic Risk			
	Coef.	Std. Err.	z	P Value
BoardSize	-0.42893	0.2715322	-1.58	0.114
RiskCommittee	2.532576	1.379226	1.84	0.066***
ROA	-14.996	6.01744	-2.49	0.013*
Leverage	-6.34043	15.675	-0.4	0.686
Liquidity	11.55989	26.71926	0.43	0.665
Age	0.098217	0.0360306	2.73	0.006*
LnRev	-97.678	89.16852	-1.1	0.273
LnTA	90.22439	80.63514	1.09	0.278
	Obs = 69	LR(8) > chi2 = 21.4	Prob > chi2 = 0.0061	Pseudo R2 = 0.3205

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Table 4.17 indicates that factories with a risk committee, and older factories rank strategic as more important while those that are profitable will rank strategic risks less important. The rest of factory variables are not significant.

The likelihood ratio (LR) chi-square of 21.4 with a p-value of 0.0061 indicates that our model as a whole is statistically significant (p-value <0.05).

4.6.2 Organizational Factors Influencing Financial Risk Prioritization

The output from the model is summarized in Table 4.18.

Table 4.18 Organizational Factors Influencing Financial Risk Prioritization

	Financial Risks			
	Coef.	Std. Err.	z	P Value
BoardSize	0.129172	0.324135	0.4	0.69
RiskCommittee	0.142096	1.687718	0.08	0.933
ROA	-5.26238	6.506455	-0.81	0.419
Leverage	30.33037	22.25073	1.36	0.173
Liquidity	-21.5106	15.20237	-1.41	0.157
Age	-0.09269	0.045568	-2.03	0.042**
LnRev	224.849	87.31589	2.58	0.01**
LnTA	-212.256	86.4815	-2.19	0.02**
	Obs	LR(8) > chi2	Prob > chi2	Pseudo R2
	69	16.63	0.0342	0.2784

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Table 4.18 indicates that factories that have been in operation for a long period of time and are large in size rank financial risks as less important, while those with a higher revenue rank financial risks as more important. The rest of factory variables are not significant the direction in which financial risks are ranked.

The likelihood ratio (LR) chi-square of 16.63 with a p-value of 0.0342 indicates that our model as a whole is statistically significant (p-value <0.05).

4.6.3 Organizational Factors Influencing Operational Risk Prioritization

The output from the model is summarized in Table 4.19.

Table 4.19 Organizational Factors Influencing Operational Risk Prioritization

	Operational Risks			
	Coef.	Std. Err.	z	P
BoardSize	-0.392628	0.245413	-1.6	0.11
RiskCommittee	-0.244249	1.034786	-0.24	0.813
ROA	3.776967	5.094368	0.74	0.458
Leverage	-23.89566	14.92994	-1.6	0.109
Liquidity	-1.59688	19.18482	-0.08	0.934
Age	0.0206964	0.0259767	0.8	0.426
LnRev	-31.80103	79.64291	-0.4	0.69
LnTA	21.52134	69.24307	0.6	0.591
	Obs=	Prob > chi2=	Prob > chi2=	Pseudo R2=
	69	9.25	0.3213	0.131

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

According to Table 4.19, none of the organizational factors influence operational risk ranking. The likelihood ratio (LR) chi-square of 9.25 with a p-value of 0.3213 indicates that the model as a whole is not statistically significant (p-value <0.05).

4.6.4 Organizational Factors Influencing Strategic Risk Ranking

The output is summarized in Table 4.20.

Table 4.20 Organizational Factors Influencing Strategic Risk Ranking

Ind Variables	Political			Economic			Socio-Cultural		
	Coeff.	Z	P-	Coeff.	Z	P-	Coeff.	Z	P-
BoardSize	-0.14878	-0.8	0.423	0.13419	0.81	0.419	0.18765	0.83	0.407
RiskCommittee	0.75489	0.77	0.443	-0.58441	-0.72	0.474	-0.14759	-0.13	0.898
ROA	1.14396 2	0.26	0.797	-4.687603	-1.36	0.174	2.94685 6	0.59	0.557
Leverage	-2.4725	-0.18	0.861	-0.13116	-0.01	0.99	-27.607	-1.76	0.079* *

Liquidity	20.4955	0.96	0.337	-7.36959	-0.67	0.504	-2.3206	-0.21	0.835
Age	0.00627	0.28	0.778	0.006338 9	0.36	0.722	-0.02993	-1.16	0.245
LnRev	-317.495	-2.14	0.033* *	-46.356	-0.99	0.321	-97.8651	-1.23	0.219
LnTA	298.234	2.04	0.032* *	36.05722	0.91	0.28	67.4382 4	1.13	0.209
	LR chi2(8) = 14.58	Prob > chi2 = 0.0679	Pseudo R2 = 0.156	LR chi2(8) = 5.18	Prob > chi2 = 0.7377	Pseudo o R2 = 0.037	LR chi2(8) = 8.67	Prob > chi2 = 0.3708	Pseudo R2 = 0.107

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Even though Leverage is the only factor that will rank socio-cultural risk as major, the model is not statistically significant. Likewise, for Political risks, large factories as measured by revenue will likely rank political risks as major, but the model is not statistically significant.

4.20 Organizational Factors Influencing Strategic Risk Ranking Continued...

Ind Variables	Technology			Environment			Legal		
	Coeff.	Z	P-	Coeff.	Z	P-	Coeff.	Z	P-
BoardSize	- 0.24610	-1.12	0.262	0.12217 4	0.63	0.531	- 0.34267	-1.57	0.117
RiskCommittee	1.22441 3	1.07	0.284	-1.0305	-1.02	0.308	0.98978 5	0.97	0.332
ROA	- 9.55726	-2.01	0.044* *	7.27218	1.69	0.091** *	- 1.39959	-0.31	0.759
Leverage	21.1764	1.21	0.225	- 35.4367	-2.28	0.023**	-19.989	-1.35	0.177
Liquidity	14.2884 3	0.55	0.582	- 28.2453	-1.37	0.171	- 26.1981	-1.59	0.111
Age	- 0.01790	-0.71	0.479	0.05540 7	2.31	0.021**	- 0.01710	-0.7	0.481
LnRev	40.6139	0.58	0.559	51.5125 1	0.87	0.386	176.729	2.5	0.013* *
LnTA	- 30.8373	-0.48	0.53	-46.405	-0.69	0.364	- 157.889	-2.52	0.010* *
	LR chi2(8) = 7.66	Prob > chi2 = 0.4677	Pseudo R2 = 0.114	LR chi2(8) = 20.59	Prob > chi2 = 0.0083	Pseudo R2 = 0.216	LR chi2(8) = 23.74	Prob > chi2 = 0.0025	Pseudo R2 = 0.274

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Profitable factories rank technology as a major to extreme risk, with the model being statistically significant. Meanwhile profitable factories and those that have operated for long rank environmental risks as minor but those with high leverage rank environmental risks as major. In

terms of assets, those factories that are large in terms of revenue rank legal risks as minor but major when size is measured in terms of Total assets. The models are statistically significant.

4.6.5 Organizational Factors Influencing Financial Risk Ranking

The output from the model is summarized in Table 4.21.

Table 4.21 Organizational Factors Influencing Financial Risk Ranking

Ind Variables	Interest Rate			Tea Price			Exchange Rate		
	Coeff.	Z	P-Values	Coeff.	Z	P-Values	Coeff.	Z	P-Values
BoardSize	-0.1676	0.1926	0.384	0.01384	0.07	0.945	-0.126365	-0.49	0.624
RiskCommitt ee	0.5483	0.94635	0.562	-1.089357	-1.01	0.314	1.690736	1.31	0.191
ROA	2.62973	3.909501	0.501	8.522269	1.81	0.07***	-2.30437	-0.45	0.654
Leverage	2.95954	11.9887	0.805	-0.9604	-0.06	0.95	37.4982	2.24	0.025**
Liquidity	0.40194	11.8714	0.973	-33.734	-1.02	0.308	-14.509	-0.6	0.547
Age	0.01211	0.02071	0.559	0.02327	0.94	0.347	-0.0162	-0.64	0.524
LnRev	-51.310	53.1291	0.334	-3.9462	-0.06	0.949	275.395	1.95	0.061** *
LnTA	48.9714	51.6769	0.303	4.9185	0.08	0.935	-265.44	-1.85	0.051** *
	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =
	2.79	0.947	0.026	8.48	0.3882	0.1218	12.86	0.1167	0.1926

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Profitable factories rank tea prices minor but the model is not statistically significant. Similarly for leverage and exchange rate. However, the model is not statistically significant.

Table 4.21 Organizational Factors Influencing Financial Risk Ranking Continued...

Ind Variables	Credit Risk			Liquidity Risk		
	Coeff.	Z	P- Values	Coeff.	Z	P- Values
BoardSize	-0.4248607	-0.49	0.624	-0.226386	-1.01	0.31
RiskCommittee	1.848557	1.31	0.191	0.7432978	0.67	0.504
ROA	3.917122	-0.45	0.654	-3.787043	-0.8	0.423
Leverage	12.6287	2.24	0.025**	46.28643	1.86	0.062***
Liquidity	-5.74276	-0.6	0.547	19.71689	0.69	0.493
Age	-0.0010463	-0.64	0.524	0.0034476	0.13	0.894
LnRev	-26.78147	1.95	0.051***	-16.64682	-0.23	0.819
LnTA	24.52384	-1.85	0.041**	16.48715	0.22	0.804
	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =
	7.47	0.4868	0.0803	9.35	0.3135	0.1324

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Factories with high leverage rank Credit risk and liquidity risk as minor, while those that are large in size as measured by revenue rank credit risk as major. However, the models are not statistically significant.

4.6.6 Organizational Factors Influencing Operational Risk Ranking

The output from the model is summarized in Table 4.22

Table 4.22 Organizational Factors Influencing Operational Risk Ranking

Ind Variables	Human Resource			Production			Marketing and Sales		
	Coeff.	Z	P	Coeff.	Z	P-Values	Coeff.	Z	P-
BoardSize	0.05120	0.24	0.814	-0.0401	-0.18	0.854	-0.1017	-0.58	0.559
RiskCommitt ee	-0.4089	-0.37	0.708	0.04409	0.04	0.969	0.08568	0.1	0.923
ROA	4.66198	1.05	0.294	3.15998 5	0.74	0.458	-2.8737	-0.76	0.445
Leverage	-16.845	-1.21	0.225	-1.4318	-0.1	0.92	2.13662	0.19	0.851
Liquidity	2.99285	0.22	0.829	-13.804	-0.67	0.5	-3.3987	-0.25	0.803
Age	0.02470	1.07	0.285	-0.0344	-1.49	0.135	0.02743	1.41	0.158
LnRev	-30.531	-0.52	0.606	47.2795	0.7	0.484	-83.723	-1.58	0.113
LnTA	28.5761	0.49	0.593	-37.253	-0.6	0.401	76.8724	1.58	0.104
	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =
	2.79	0.947	0.026	8.48	0.3882	0.1218	12.86	0.1167	0.1926

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Table 4.22 Organizational Factors Influencing Operational Risk Ranking continued...

Ind Variables	ICT			Reputation		
	Coeff.	Z	P- Values	Coeff.	Z	P- Values
BoardSize	0.0173751	0.1	0.923	0.1241098	0.21	0.584
RiskCommittee	0.4284631	0.47	0.637	0.1654797	0.28	0.779
ROA	-1.558474	-0.41	0.68	-3.206656	-0.79	0.431
Leverage	18.11692	1.42	0.157	-16.37742	-1.33	0.184
Liquidity	0.9970108	0.08	0.935	23.44411	0.92	0.358
Age	-0.0332243	-1.66	0.097***	0.0098527	0.47	0.64
LnRev	-29.1763	-0.5	0.617	19.54965	0.36	0.721
LnTA	26.91248	0.49	0.601	-18.84531	-0.41	0.705
	LR chi2(8) =	Prob > chi2 =	Pseudo R2 =	LR chi2(7)	Prob > chi2	Pseudo R2
	4.92	0.766	0.0445	4.82	0.6825	0.0608

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Apart from age with a major ranking of ICT risks, none of the other factors are significant in explaining the ranking of operational risks. The models are also not statistically significant.

4.6.7 Organizational Factors Influencing Strategic Risk Management

The output from the model is summarized in Table 4.23.

Table 4.23 Organizational Factors Influencing Strategic Risk Management

	Political			Economic			Sociocultural		
	Coeff.	Z	P- Values	Coeff.	Z	P- Values	Coeff.	Z	P- Values
BoardSize	-0.17784	-0.83	0.407	0.0591	0.26	0.794	-0.2535	-1.13	0.26
RiskCommittee	1.219041	1.1	0.272	0.0982	0.09	0.93	0.0859	0.08	0.934
ROA	-5.51226	-1.25	0.212	0.8353	0.17	0.863	5.5158	1.01	0.311
Leverage	21.6013	1.3	0.195	7.3721	0.49	0.624	-18.097	-1.21	0.228
U	-9.66294	-0.76	0.448	-3.3335	-0.22	0.828	22.552	0.72	0.471
Age	-0.04569	-1.79	0.074** *	-0.0101	-0.41	0.685	0.0099	0.39	0.699
LnRev	59.65838	1.01	0.315	67.905	1.03	0.305	-43.727	-0.53	0.596
LnTA	-59.4650	-1.01	0.312	-67.458	-1.03	0.304	43.755	0.53	0.594
	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2
	6.6	0.58	0.083	1.87	0.9848	0.0249	5.5	0.7028	0.0909

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Factories that have been in operation for many years will likely reduce political risk, though the model is not statistically significant. Non of the other factors are significant.

Table 4.23 Organizational Factors Influencing Strategic Risk Management continued...

	Technology			Environmental			Legal		
	Coeff.	Z	P-Values	Coeff.	Z	P-Values	Coeff.	Z	P-Values
BoardSize	-0.06138	-0.25	0.799	0.2563	1.05	0.293	0.2938	0.97	0.331
RiskCommittee	0.702986	0.6	0.55	-1.1592	-0.94	0.348	-0.0868	-0.07	0.947
ROA	-1.03320	-0.21	0.836	6.5656	1.05	0.294	-3.9101	-0.61	0.544
Leverage	16.1864	1.21	0.228	29.43	1.32	0.187	-55.140	-1.99	0.047*
Liquidity	-8.35957	-0.39	0.698	-1.5936	-0.1	0.917	47.016	1.88	0.06**
Age	0.008680	0.36	0.717	-0.098	-2.64	0.008*	0.0469	1.33	0.183
LnRev	-33.7394	-0.55	0.579	11.874	0.17	0.864	29.958	0.3	0.765
LnTA	28.964	0.46	0.513	-12.798	-0.19	0.812	-26.990	-0.29	0.691
	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2
	3.34	0.9109	0.0423	14.25	0.0755	0.2235	16.74	0.0329	0.3015

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

According to Table 4.20, factories that have been in operation for a long period tend towards risk transferring and avoidance of environmental risks. However, the model is not statistically significant given LR and probabilities. Factories that have a high debt level avoid legal risks but those with high liquidity prefer to reduce the legal risks. The model is significant given the LR and Probability.

4.6.8 Organizational Factors Influencing Financial Risk Management

The output from the model is summarized in Table 4.24.

Table 4.24 Organizational Factors Influencing Financial Risk Management

	Interest Rate			TeaPrice			ExchangeRate		
	Coeff.	Z	P-	Coeff.	Z	P-	Coeff.	Z	P-
BoardSize	-0.55635	-2.33	0.02**	0.4538	1.91	0.056*	0.093412	0.42	0.672
RiskCommittee	1.194458	1.14	0.253	-1.2069	-1.13	0.259	-0.689	-0.63	0.531
ROA	-0.16982	-0.04	0.971	0.562	0.12	0.907	-1.2274	-0.23	0.821
Leverage	-16.0149	-1.13	0.259	8.0014	0.55	0.583	-29.757	-1.3	0.194
Liquidity	-25.4623	-1.94	0.052**	-3.9535	-0.17	0.863	29.333	2.21	0.027*
Age	0.001634	0.06	0.948	-0.0304	-1.13	0.256	0.0283	0.96	0.338

LnRev	109.7347	1.5	0.133	-60.224	-0.87	0.385	-44.215	-0.65	0.515
LnTA	-107.879	-1.49	0.137	59.512	0.86	0.387	44.563	0.66	0.508
	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2
	12.33	0.1369	0.1707	6.37	0.6055	0.1	8.3	0.4045	0.117

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Whereas factories with a large board size and liquidity tend towards avoiding interest rate risk, they prefer to reduce risk arising from changes in Tea price. Those with high liquidity risk prefer risk reduction for exchange rates. None of the models are statistically significant.

Table 4.24 Organizational Factors Influencing Strategic Risk Management continued...

	Credit			Liquidity		
	Coeff.	Z	P- Values	Coeff.	Z	P- Values
BoardSize	-0.1923467	-0.64	0.524	0.3909	1.38	0.169
RiskCommittee	1.507448	1	0.319	-1.629	-1.13	0.258
ROA	-0.0458342	-0.01	0.993	2.4846	0.5	0.616
Leverage	-20.84716	-1	0.319	-1.8343	-0.12	0.905
Liquidity	24.74379	1.95	0.052***	-13.903	-1.17	0.242
Age	0.0379475	1.26	0.207	0.0023	0.1	0.924
LnRev	-50.34009	-0.76	0.448	-80.801	-1.04	0.297
LnTA	50.92486	0.78	0.438	80.382	1.04	0.297
	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2
	9.73	0.2845	0.1447	7.16	0.5196	0.097

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

Apart from liquidity which reports a preference for risk reduction for credit risks, there is no significant relationship between financial risk management and other organizational variables.

4.6.9 Organizational Factors Influencing Operational Risk Management

The output from the model is summarized in Table 4.25

Table 4.25 Organizational Factors Influencing Operational Risk Management

	HumanResource			Production			ICT		
	Coeff.	Z	P-Values	Coeff.	Z	P-Values	Coeff.	Z	P-Values
BoardSize	-0.10895	-0.45	0.654	0.0222	0.1	0.922	-0.185	-0.78	0.433
RiskCommittee	-0.68190	-0.58	0.562	-0.6151	-0.54	0.59	0.391	0.33	0.743
ROA	6.94082	1.29	0.196	12.756	2.67	0.008*	4.7912	1.04	0.298
Leverage	-5.96567	-0.41	0.682	-7.2495	-0.47	0.642	5.4106	0.38	0.706
Liquidity	17.9350	0.72	0.473	-2.4714	-0.16	0.874	-53.448	-1.43	0.152
Age	0.04827	1.83	0.068**	-0.0104	-0.43	0.666	-0.0058	-0.25	0.802
LnRev	-80.5561	-0.88	0.378	-24.467	-0.42	0.671	2.5490	0.04	0.967
LnTA	81.4379	0.89	0.371	25.901	0.45	0.65	-1.6381	-0.03	0.979
	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2	LR chi2(8)	Prob > chi2	Pseudo R2
	9.89	0.273	0.1481	11.88	0.1568	0.1589	7.1	0.5259	0.102

*Significant at 1%, **Significant at 5% and ***Significant at 10% levels

According to Table 4.25, older factories prefer risk reduction for Human resource risk while those that are profitable prefer risk reduction for operational risks. Not that marketing and sales risk has been omitted from the analysis as all the factories selected risk reduction.

Table 4.25 Organizational Factors Influencing Operational Risk Management cont...

	Reputational		
	Coeff.	Z	P-Values
BoardSize	0.6572669	2.26	0.024**
RiskCommittee	-0.0997057	-0.09	0.928
ROA	-9.097771	-1.56	0.119
Leverage	32.54415	1.86	0.062***
Liquidity	42.51841	2.43	0.015**
Age	0.0280478	0.97	0.33
LnRev	-62.45443	-0.69	0.492
LnTA	61.41634	0.68	0.497
	LR chi2(8)	Prob > chi2	Pseudo R2
	21.57	0.0058	0.3098

Factories with a large board size, high leverage and high liquidity use risk reduction and minimal risk sharing (Board size) for reputational risks. The Model is statistically significant as per the Probability of the Chi².

4.7 Managements' perspectives on risk management practices by KTDA Factories

Question 10 of the questionnaire asked the respondents to select the challenges the factories are experiencing in risk management. Table 4.26 and Figure 14 provide a summary of the responses.

Table 4.26 Summary Ranking of Challenges in Risk Management

	Mean	Meaning	Mode	Meaning
Leadership	3.01	Sometimes	4	Rarely
Communication	2.70	Sometimes	3	Sometimes
Resources	2.68	Sometimes	3	Sometimes
Awareness	2.33	Often	2	Often
Complexity	2.70	Sometimes	3	Sometimes

The respondents ranked leadership as an issues, citing the fact that those in governance and leadership are not conversant with risk management. Some board members represent tea farmers and that poses a challenge in understanding the aspect of risk management.

Linked with leadership challenges, some managers felt that communication from 'above' with respect to risk management has not been properly done. It is still not clear the role of different managers on risk management for the different tea factories.



Figure 12: Challenges of Risk Management

As per Figure 14, leadership is classified as always a challenge, but the rest fall under often and sometimes.

Question 11, being the last question, asked participants to indicate any other issues that the Tea Factory is facing not discussed above and other proposals for stakeholders to consider.

This question was poorly responded to and got less than 12 responses, with most respondents leaving the question not answered while others just stated none. A summary of the key highlights from those who responded:

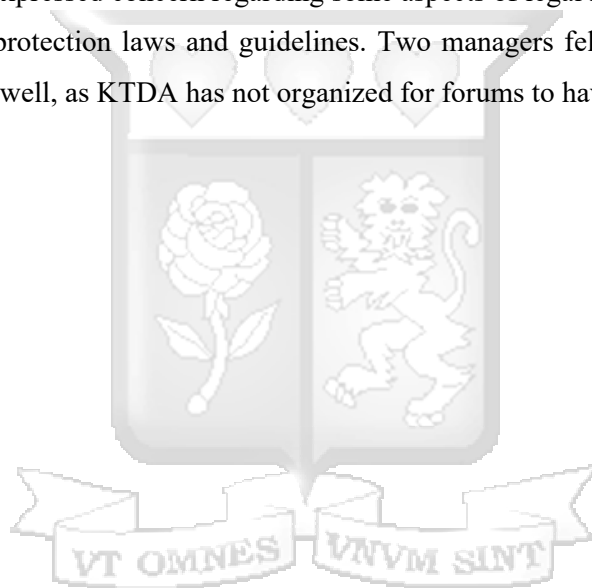
1. Tea factories have experienced a lot of challenges with risk management especially in the period after Covid. Even though there was an improvement in 2022, with tea prices reaching a price of sh.270 per kg, there is still a lot of uncertainty due to exchange rates and tax rates and other factors arising due to global wars. The production managers requested various government agencies to stabilize the local currency and also have a favorable tax regime for tea producers, especially if exporting. There was a concern about a recent tax proposal for farmers to be charged sh.5 for every 100. This will likely affect the cost of inputs for tea processing.
2. The Kenya Tea Development Agency has played an important role in sensitizing the boards and factory managers on essential aspects of risk management. However, some factory managers feel that many of the concepts highlighted in trainings and other forums are very theoretical and may not address some of the challenges the factories face. For example, factories feel they are exposed to high credit risk occasioned by the collapse of some major supermarkets. Even though efforts have been made by the factories to collect

the defaulted amounts, KTDA is not exercising its influential role to secure the amounts defaulted and also aid in preventing defaults from happening.

3. As explained in the section for challenges, several board members represent tea farmers on the boards of the tea processing companies. Some of them are conversant with risk management issues, but the majority are not. That is why some tea processing companies do not have a risk committee. These tend to obtain the services of professional risk consultants and some use the proposal from audit reports.

4. The tea processing factories have put measures in place to evaluate risks management aspects and some managers really appreciated the knowledge gained over the years. However, one expressed concern that there is a lot of work to fill and do reports on risk management issues facing the factories. Some of the reports are not acted on and are usually done as part of 'ticking the box'.

5. Some factory managers expressed concern regarding some aspects of legal risks arising from new laws, with one mentioning data protection laws and guidelines. Two managers felt that there is a risk on not understanding the law very well, as KTDA has not organized for forums to have these aspects discussed.



CHAPTER 5: DISCUSSIONS AND CONCLUSIONS

5.1 Introduction

This is the concluding chapter of this dissertation. It provides the discussions, conclusions, the limitations of the study and recommendations for further studies.

This study had three main objectives. First, it evaluated the key risks that KTDA factories prioritize and manage. Secondly, it established organizational factors influencing risk prioritization and management, and finally, the management perspectives on risk management practices. Guided by the agency and resource-based theories, the targeted the senior management of all 72 KTDA factories in the year 2023 (Responses were received from 69 factories, mostly factory managers). Secondary data was collected from a few available annual reports of the factories, while primary data was collected using an online questionnaire. Descriptive statistics were used on various aspects of risk prioritization and management, while multivariate analysis was applied using the ordinal logistic regression model to evaluate company factors influencing the risk management practices. Feedback from management was evaluated on the perspective of various risks facing tea factories, challenges in risk management and other trends to look out for in risks and risk management for tea factories.

5.2 Discussions

5.2.1 Objective 1 Risk Management Practices

Overall factories rank financial risk as most important the strategic and operational risks are tied and other risks as least important. In the case of strategic risks, KTDA tea processing factories rank economic risks as the major risks followed by environmental risks. Majority of the tea factories rank Tea price and Exchange rates as the extreme risk, with credit risk als being higher due local supermarkets and hotels.

Under operational risks, production risks are ranked as major due to potential breakdown in machines and poor weather that may affect the availability of green leaf for processing. Marketing and sales risk is also ranked as major, due to both local and global competition.

Other risks were Tax, climate/weather, natural events such as floods and sustainability we ranked as major, moderate, major and minor respectively.

In terms of strategic risk management, Overall KTDA tea factories prefer to reduce political risks (not associating with any political party), socio cultural risks (being aware of development in socio cultural issues) and environmental risks (Complying with regulatory requirements). Meanwhile, they prefer to avoid technological risks (being aware of new technologies).

For financial risks, the tea factories generally reduce interest rate risk and liquidity risks. They try to avoid credit risks and share tea price risks and transfer exchange rate risks. Finally for operational risks, tea factories prefer to reduce Human Resource and Marketing and Sales Risks and avoid production ICT and Reputational risks.

For other risks, tea factories prefer to reduce tax, climate and natural events risks and avoid sustainability risks.

Overall, this section highlights that financial risks are ranked as the most important risk for tea processing factories, likely due to implication of profitability. They are concerned with economic risks and environmental risks, tea price risk, exchange rate risks and credit risks. Global competition is a major concern leading to marketing and sales risk and worries about disruption in production.

Risk reduction is the overall strategy for the majority of the risks from political, socio cultural, Human resource and marketing and sales. The factories next apply risk avoidance for credit, sustainability production and reputational risks.

These findings are important for all stakeholders in the tea sector to develop appropriate strategies to enable the tea factories address all the potential risks in an efficient way.

5.2.2 Objective 2 Organizational Factors influencing risk management practices

Factories with a risk committee, and older factories rank strategic as more important while those that are profitable will rank strategic risks as less important. The rest of organizational variables are not significant, but the model was significant. Factories that have been in operation for a long period of time and are large in size rank financial risks as less important, while those with a higher revenue rank financial risks as more important. The rest of factory variables are not significant the direction in which financial risks are ranked. The model was not statistically significant for this analysis. None of the organizational factors influence operational risk ranking, with the model being less statistically significant.

For strategic risk ranking, leverage is the only factor that will rank socio-cultural risk as major, though the model is not statistically significant. Likewise, for Political risks, large factories as measured by revenue will likely rank political risks as major, but the model is not statistically significant. Profitable factories rank technology as a major to extreme risk, with the model being statistically significant. Meanwhile profitable factories and those that have operated for long rank environmental risks as minor but those with high leverage rank environmental risks as major. In terms of assets, those factories that are large in terms of revenue rank legal risks as minor but major when size is measured in terms of Total assets. The models are statistically significant.

For financial risks, profitable factories rank tea prices minor but the model is not statistically significant. Similarly for leverage rank exchange rate risk as minor. However, the model is not statistically significant. In addition, factories with high leverage rank Credit risk and liquidity risk as minor, while those that are large in size as measured by revenue rank credit risk as major. However, the models are not statistically significant.

Apart from age with a major ranking of ICT risks, none of the other factors are significant in explaining the ranking of operational risks. The models are also not statistically significant.

In terms of strategic risk management, factories that have been in operation for many years will likely reduce political risk, though the model is not statistically significant. None of the other factors are significant. Meanwhile, factories that have been in operation for a long period tend towards risk transferring and avoidance of environmental risks. However, the model is not statistically significant given LR and probabilities. Factories that have a high debt level avoid legal risks but those with high liquidity prefer to reduce the legal risks. The model is significant given the LR and Probability.

For financial risk management, whereas factories with a large board size and liquidity tend towards avoiding interest rate risk, they prefer to reduce risk arising from changes in Tea prices. Those with high liquidity risk prefer risk reduction for exchange rates. None of the models are statistically significant though. Apart from liquidity which reports a preference for risk reduction for credit risks, there is no significant relationship between financial risk management and other organizational variables.

For operational risk management, factories that have been in operation for long time prefer risk reduction for Human resource risk while those that are profitable prefer risk reduction for operational risks. Factories with a large board size, high leverage and high liquidity use risk

reduction and minimal risk sharing (Board size) for reputational risks. The Model is statistically significant. Note that marketing and sales risk has been omitted from the analysis as all the factories selected risk reduction.

Overall, if we only consider statistically significant variables and models, then tea factories with a risk committee, and older factories rank strategic as more important while those that are profitable will rank strategic risks as less important. Meanwhile profitable factories and those that have operated for long rank environmental risks as minor but those with high leverage rank environmental risks as major. In terms of assets, those factories that are large in terms of revenue rank legal risks as minor but major when size is measured in terms of Total assets.

These findings are important for academic and practical reasons, where all stakeholders work to identify why the differences in risk management practice for factories working in the same sector.

5.2.3 Objective 3 Management perspectives on risk management practices

In terms of challenges with risk management for tea processing factories, Leadership was ranked as the top challenge, followed by communication and complexity of risk issues lack of resources and finally awareness.

In terms of overall aspects of risk management practices by tea factories for stakeholder awareness several issues were recommended. First, tea processing factories have experienced a lot of challenges with risk management especially in the period after Covid. The production managers requested various government agencies to stabilize the local currency and also have a favorable tax regime for tea producers, especially if exporting.

Secondly, the Kenya Tea Development Agency is working hard to enhance risk management practices, through various trainings and forums, but less in terms of application. For example, factories feel they are exposed to high credit risk occasioned by the collapse of some major supermarkets and KTDA is playing a little role.

Thirdly, some tea factories rely on services of professional risk consultants because majority of board members who represent tea farmers on the boards of the tea processing companies are not conversant with risk management concepts, with some factories lacking risk committees.

Fourth, the tea processing factories despite efforts to manage risks for tea processing factories there is a lot of work required, along side their routine management duties handle risks management issues and prepare risk management reports and fill in the risk registers. Finally, the factory managers raised a concern regarding the new law on data protection.

5.3 Conclusions

5.3.1 Contribution to Theory

As per chapter Two, these study was based on Agency and Resource Based View Theories. While Agency Theory serves as a theoretical guide for aligning stakeholder interests, RBV provides a methodical and flexible approach to risk management.

The overall findings and results of the study confirm that the tea factories are working hard to manage risks and reduce the agency problem, that is enhancing the returns for owners while reducing risks. The identification of risks, their management and perspectives show that the tea factories aim to meet the expectations of the tea process factory owners.

Tea factories with a risk committee, and older factories rank strategic as more important while those that are profitable will rank strategic risks as less important. This validates the agency theory. Meanwhile profitable factories and those that have operated for long rank environmental risks as minor but those with high leverage rank environmental risks as major. This support both the agency and resource based view theories. In terms of assets, those factories that are large in terms of revenue rank legal risks as minor but major when size is measured in terms of Total assets. This is support of resource based view theories.

The approach to manage risks using different approaches and strategies in accordance with risks provide support for the Resource Based View theories.

5.3.2 Contribution to Empirical literature

Given that there is little empirical literature specifically examining tea processing factories in Africa, this study has contributed to literature in several ways. While Joseph and Minj (2010) evaluated how employees in the tea sector rate risks, this study has demonstrated how tea factories rate and manage the risks. Bower et al. (2021) explored the effective approaches to manage long

term risks in the tea sectors of Kenya and Malawi, with the current study looking at risk management strategies for all risks. Somarathna, and Edirisinghe (2020) examined the effect climate risk on the performance of selected tea firms in Sri Lanka. The current study has established the relationship between organizational factors and risk management, including climate risk. While some empirical studies have evaluated the risk management in the agribusiness value chain (Magaji et al., 2021), this study has expanded the scope to include the perspectives of management regarding risk management specifically for the tea sector.

5.4 Limitations of the study

The study has the following limitations:

1. Even though a request was made to access annual reports for the tea processing for the year ended 31 December 2023, not all the factories were willing to share. So, a request was made through the KTDA for the managers to provide estimate of the numbers required through the online questionnaire.
2. Despite a review of the question with four managers, there was low response rate for the unstructured part of the questions in the questionnaire.
3. The ordinal logistic regression model may require a different approach in analysis based on the software. The current study used STATA 18. Some statistical authors recommend care interpreting the outcome especially for the ranked dependent variables if other softwares like SPSS and R are used.

5.5 Recommendations for Further Studies

Other studies can be conducted as follows:

1. Expand the population to include all the companies in the tea sector to determine national differences and similarities in risk management practices.
2. Evaluate the perspectives of various stakeholders in the tea sector to know their role and recommendations on effective risk management practices for the tea sector.
3. Compare risk management practices for similar agribusinesses such as those processing coffee and other agribusiness products.
4. Use other approaches such as interviews to improve response rates for qualitative aspects of the study and use of other types of softwares.

REFERENCES

- ACBF. (2017). News | The African Capacity Building Foundation. [Www.acbf-Pact.org](http://www.acbf-pact.org); The African Capacity Building Foundation. <https://www.acbf-pact.org/media/news/kenya%E2%80%99s-tea-sector-needs-new-policies-boost-revenues-%E2%80%93-kippraacbf-study#:~:text=It%20is%20the%20leading%20industrial>
- Anton, N., Hornbeck, T., Modlin, S., Haque, M. M., Crites, M., & Yu, D. (2021). Identifying Factors That Nurses Consider in the decision-making Process Related to Patient Care during the COVID-19 Pandemic. *PLOS ONE*, 16(7), e0254077. <https://doi.org/10.1371/journal.pone.0254077>
- Anton, S. G., & Nucu, A. E. A. (2020). Enterprise Risk Management: A Literature Review and Agenda for Future Research. *Journal of Risk and Financial Management*, 13(11), 281. [mdpi. https://doi.org/10.3390/jrfm13110281](https://doi.org/10.3390/jrfm13110281)
- Bendickson, J., Muldoon, J., Liguori, E. W., & Davis, P. E. (2016). Agency theory: background and epistemology. *Journal of Management History*, 22(4), 437–449. <https://doi.org/10.1108/jmh-06-2016-0028>
- Bouwer, R., Arajao, J., Mittal, N., & Watkiss, P. (2021). Managing long-term risks in the tea sector in Malawi, Kenya and Rwanda.
- Bowling, D. M., & Rieger, L. (2005). Success factors for implementing enterprise risk management: building on the COSO framework for enterprise risk management to reduce overall risk. *Bank Accounting & Finance*, 18(3), 21-27.
- Cambridge Dictionary. (2019). RISK | meaning in the Cambridge English Dictionary. [Cambridge.org. https://dictionary.cambridge.org/dictionary/english/risk](https://dictionary.cambridge.org/dictionary/english/risk)
- Cervantes-Cabrera, O. A., & Briano-Turrent, G. D. C. (2018). The importance of Risk Management Assessment: A proposal of an Index for Listed Companies. *Journal of Accounting Research, Organization and Economics*, 1(2), 122–137. <https://doi.org/10.24815/jaroe.v1i2.11747>

- Corelli, A. (2014). Understanding financial risk management. Routledge.
- Creswell, J. W. (2011). Controversies in mixed methods research. *The Sage handbook of qualitative research*, 4(1), 269-284.
- El-Harakeh, A., Morsi, R. Z., Fadlallah, R., Bou-Karroum, L., Lotfi, T., & Akl, E. A. (2019). Prioritization approaches in the development of health practice guidelines: a systematic review. *BMC Health Services Research*, 19(1). <https://doi.org/10.1186/s12913-019-4567-2>
- FAO. (2017). The future of food and agriculture. <https://www.fao.org/3/i6583e/I6583E.pdf>
- Hammersley, M. (2013). *The Myth of Research-based Policy and Practice*. London: Sage
- Henson, R.K. (2001) Understanding Internal Consistency Reliability Estimates: A Conceptual Primer on Coefficient Alpha, Measurement and Evaluation in Counseling and Development, 34:177-188.
- Hilal, W., Andrew Gadsden, S., & Yawney, J. (2021). A Review of Anomaly Detection Techniques and Applications in Financial Fraud. *Expert Systems with Applications*, 193, 116429. <https://doi.org/10.1016/j.eswa.2021.116429>
- Hooley, T., Wellens, J., & Marriott, J. (2012). What is online research?: Using the internet for social science research (p. 176). Bloomsbury Academic.
- IBM. (2023). What is preventive maintenance? | IBM. [Www.ibm.com. https://www.ibm.com/topics/what-is-preventive-maintenance](https://www.ibm.com/topics/what-is-preventive-maintenance)
- Jankensgård, H. (2019). A theory of enterprise risk management. *Corporate Governance: The International Journal of Business in Society*, 19(3). <https://doi.org/10.1108/cg-02-2018-0092>
- Joseph, B., & Minj, C. (2010). Risk rating in the tea planting industry: The employees' opinion. *Indian journal of occupational and environmental medicine*, 14(3), 97.

- Khan, Md. R., Alam, M. J., Tabassum, N., Burton, M., & Khan, N. A. (2022). Investigating supply chain challenges of public sector agriculture development projects in Bangladesh: An application of modified Delphi-BWM-ISM approach. PLOS ONE, 17(6), e0270254. <https://doi.org/10.1371/journal.pone.0270254>
- KIPPRA. (2020). Fluctuations in Market Earnings for Tea in Kenya: What Could Be the Cause and Remedy? – KIPPRA. The Kenya Institute for Public Policy Research and Analysis. <https://kippra.or.ke/fluctuations-in-market-earnings-for-tea-in-kenya-what-could-be-the-cause-and-remedy/>
- Kivunja, C. & A. Bawa Kuyini (2017). Understanding and Applying Research Paradigms in Educational Contexts. International Journal of Higher Education. 6(5), 26-41.
- Kizza, J. M. (2020). Introduction to Computer Network Vulnerabilities. Texts in Computer Science, 87–103. https://doi.org/10.1007/978-3-030-38141-7_4
- Knowles, M. (2023). Cybersecurity Risk Management: Frameworks, Plans, & Best Practices. Hyperproof. <https://hyperproof.io/resource/cybersecurity-risk-management-process/>
- KTDA Holdings LTD. (2018). Annual Report and Financial Statements 2017/2018. <https://ktdateas.com/wp-content/uploads/2020/07/KTDA-Annual-Report-2018-layout-Final-email-version.pdf>
- Kwaik, N. A., Sweis, R. J., Allan, B., & Sweis, G. (2023). Factors Affecting Risk Management in Industrial Companies in Jordan. 13(5), 132–132. <https://doi.org/10.3390/admsci13050132>
- Langat, G. K., & Chesoli, D. W. (2019). An Assessment of the Effects of Financial Management Practices on the Profitability of Tea Firms in Kenya: A Case of KTDA Factories in Kericho County -Kenya. INTERNATIONAL JOURNALS of ACADEMICS & RESEARCH, 2(1). <https://doi.org/10.32898/ibmj.01/2.1article11>

- Maalem Lahcen, R. A., Caulkins, B., Mohapatra, R., & Kumar, M. (2020). Review and insight on the behavioral aspects of cybersecurity. *Cybersecurity*, 3(1).
<https://doi.org/10.1186/s42400-020-00050-w>
- Magaji, B. D., Oladimeji, Y. U., Hassan, A. A., Siewe, F., & Njiforti, P. P. (2021). RISK MANAGEMENT STRATEGIES OF MICRO, SMALL AND MEDIUM AGRIBUSINESS ENTERPRISES IN NORTH-WEST, NIGERIA. *Journal of Agripreneurship and Sustainable Development*, 4(2), 214-227.
- Moustafa, A. A., Bello, A., & Maurushat, A. (2021). The Role of User Behaviour in Improving Cyber Security Management. *Frontiers in Psychology*, 12(12).
<https://doi.org/10.3389/fpsyg.2021.561011>
- National Institute of Standards and Technology. (2018). Risk management framework for information systems and organizations: Risk Management Framework for Information Systems and Organizations, 2. <https://doi.org/10.6028/nist.sp.800-37r2>
- National Institute of Standards and Technology. (2018). Risk management framework for information systems and organizations: Risk Management Framework for Information Systems and Organizations, 2. <https://doi.org/10.6028/nist.sp.800-37r2>
- Naude, Micheline J., and Nigel Chiweshe. "A proposed operational risk management framework for small and medium enterprises." *South African Journal of Economic and Management Sciences* 20.1 (2017): 1-10.
- NIST. (2016). About the RMF - NIST Risk Management Framework | CSRC | CSRC. CSRC | NIST. <https://csrc.nist.gov/projects/risk-management/about-rmf>
- NIST. (2016a). About the RMF - NIST Risk Management Framework | CSRC | CSRC. CSRC | NIST. <https://csrc.nist.gov/projects/risk-management/about-rmf>
- NIST. (2016b). RMF Introductory Course - NIST Risk Management Framework | CSRC | CSRC. CSRC | NIST. <https://csrc.nist.gov/Projects/risk-management/rmf-course>

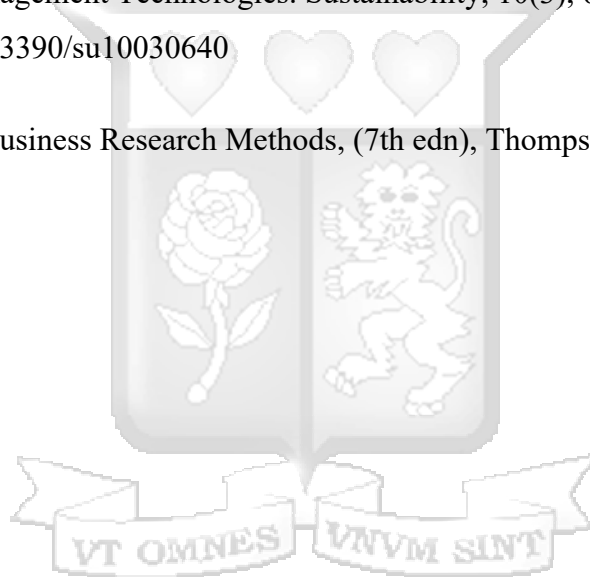
- Nyaoga, R. B., Wang, M., & Magutu, P. O. (2015). Does Capacity Utilization Mediate the Relationship between Operations Constraint Management and Value Chain Performance of Tea Processing Firms? Evidence from Kenya. *International Strategic Management Review*, 3(1-2), 81–95. <https://doi.org/10.1016/j.ism.2015.06.001>
- Oria, L. D., Crook, T. R., Ketchen, D. J., Sirmon, D. G., & Wright, M. (2021). The Evolution of Resource-Based Inquiry: A Review and Meta-Analytic Integration of the Strategic Resources–Actions–Performance Pathway. *Journal of Management*, 47(6), 1383–1429. Sagepub. <https://doi.org/10.1177/0149206321994182>
- Sang, H. (2020). Effects of supplier relationship management practices on financial performance in selected KTDA affiliate tea processing firms in Kericho county, Kenya. <https://doi.org/10.36713/epra1013|SJIF>
- Seixas, B. V., Dionne, F., & Mitton, C. (2021). Practices of decision making in priority setting and resource allocation: a scoping review and narrative synthesis of existing frameworks. *Health Economics Review*, 11(1). <https://doi.org/10.1186/s13561-020-00300-0>
- Singh, N. P., & Hong, P. C. (2020). Impact of strategic and operational risk management practices on firm performance: An empirical investigation. *European Management Journal*, 38(5), 723-735.
- Somarathna, K., & Edirisinghe, J. (2020). Effect of Climate on Profit Risk in Tea Production: A Study of Nuwara Eliya Tea Estates.
- Tariq, U., Ahmed, I., Bashir, A. K., & Shaukat, K. (2023). A critical cybersecurity analysis and future research directions for the internet of things: A comprehensive review. *Sensors*, 23(8). <https://doi.org/10.3390/s23084117>
- Tea Directorate. (2023). Overview. [Tea.agricultureauthority.go.ke](https://tea.agricultureauthority.go.ke).
<https://tea.agricultureauthority.go.ke/index.php/sectors/overview>

Uddin, Md. H., Ali, Md. H., & Hassan, M. K. (2020). Cybersecurity hazards and financial system vulnerability: a synthesis of literature. *Risk Management*, 22.
<https://doi.org/10.1057/s41283-020-00063-2>

Uña, G., & Pimenta, C. (2016). Chapter 7. Integrated Financial Management Information Systems in Latin America: Strategic Aspects and Challenges. In M. Pessoa & Mr. C. Pimenta (Eds.), www.elibrary.imf.org. Inter-American Development Bank.
<https://www.elibrary.imf.org/display/book/9781597822268/ch07.xml>

Weeserik, B. P., & Spruit, M. (2018). Improving Operational Risk Management Using Business Performance Management Technologies. *Sustainability*, 10(3), 640.
<https://doi.org/10.3390/su10030640>

Zikmund, W.G. (2003) *Business Research Methods*, (7th edn), Thompson South-Western: Ohio



APPENDICES

APPENDIX 1: INTRODUCTORY LETTER

Abdishakur Abdulle Abdi

P.O. Box 59857 – 00200, Nairobi, Kenya.

Email: abdishakur.abdi@strathmore.edu

Dear Sir/Madam,

RE: ACADEMIC STUDY

I am a graduate student at Strathmore University Business School pursuing a Master of Management in Agribusiness degree.

In partial fulfillment of my degree requirements, I am required to conduct a research study and thus I am undertaking a research study to establish key risk priorities and management for KTDA managed 54 tea processing companies.

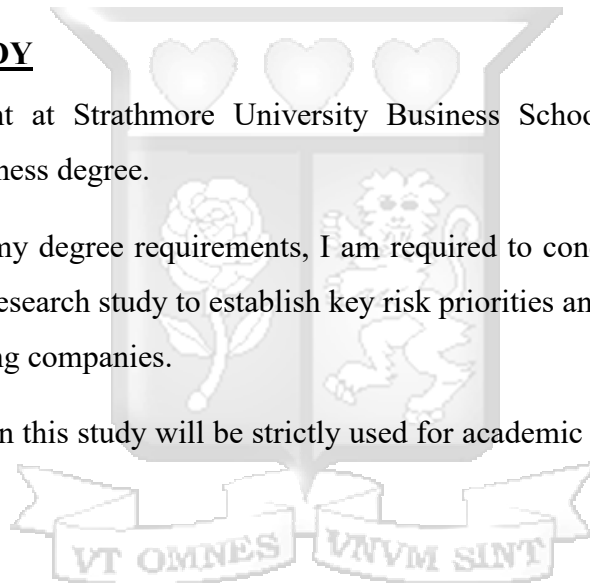
The responses collected in this study will be strictly used for academic purposes only and will be entirely confidential.

Sincerely,

Abdishakur Abdulle Abdi

Student Number: 148522

Strathmore University Business School.



APPENDIX II: RESEARCH QUESTIONNAIRE

This questionnaire is aimed at seeking information to establish key risk priorities and management for KTDA managed 72 tea processing companies.

Kindly answer the questions by **ticking and or filling** in the spaces provided.

A RESPONDENT'S INFORMATION

1. Position in the Factory.....
2. Duration of working in the Factory.....

B COMPANY INFORMATION

1. In which County is the Factory operating?.....
2. Which year was the Factory registered (began operations)?.....
3. Indicate the Number of Board members
4. Is the Board having a risk committee?
Yes ☐
No ☐
5. Indicate the following about the Factory:
 - 5.1 Revenue.....
 - 5.2 Profit After Tax.....
 - 5.3 Current Assets.....
 - 5.4 Current Liabilities.....
 - 5.5 Total Assets.....

C RISK PRIORITIZATION AND MANAGEMENT

1. Risks that face many organizations, including Tea Factories are classified into strategic, financial, operational and others. As a tea factory, rank the risk in terms of priority (With 1 being top priority and 4 being the least priority)

	1	2	3	4
Strategic				
Financial				

Operational				
Others				

For Others, provide examples that apply to the tea factory.

.....

.....

.....

.....

2. The following are the Strategic Risk Categories. Rank the risks in order of Minor to major:

Risk	Minor	Moderate	Major	Extreme
Political				
Economic				
Sociocultural				
Technology				
Environmental				
Legal				

3. The following are the Financial Risk Categories. Rank the risks in order of Minor to Major

Risk	Minor	Moderate	Major	Extreme
Interest Rate				
Tea Price				
Exchange Rate				
Credit				
Liquidity				

4. The following are Operational Risk Categories. Rank the risks in order of Minor to Major:

Risk	Minor	Moderate	Major	Extreme
Human Resource				
Production				
Marketing and Sales				
ICT				
Reputational Risks				

5. Provide additional Risks and rank them in order of Minor to Major:

Risk	Minor	Moderate	Major	Extreme

6. Which of the following general strategies are used in Strategic Risk Management?

Risk	Reduce	Share	Transfer	Avoid
Political				
Economic				
Sociocultural				
Technology				
Environmental				
Legal				

Explain your selection of the strategy:

.....

.....

.....

.....

.....

.....

.....

7. Which of the following general strategies are used in Financial Risk Management?

Risk	Reduce	Share	Transfer	Avoid
Interest Rate				
Tea Price				
Exchange Rate				
Credit				
Liquidity				

Explain your selection of the strategy:

.....

.....

.....

.....

.....

.....

.....

8. Which of the following general strategies are used in Operational Risk Management?

Risk	Reduce	Share	Transfer	Avoid
Human Resource				
Production				
Marketing and Sales				
ICT				
Reputational Risks				

Explain your selection of the strategy:

.....

.....

.....

.....

.....

.....

.....

9. Which of the following general strategies are used in Other Risks Management?

Risk	Reduce	Share	Transfer	Avoid

Explain your selection of the strategy:

.....

.....

.....

.....

.....

.....

.....

10. Which of the following challenges is the factory facing in Risk prioritising and Management?

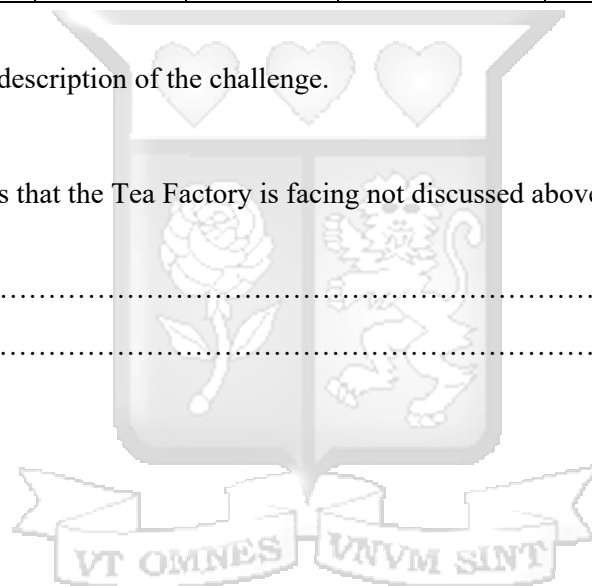
Challenge	Always	Often	Sometimes	Rare	Never
Lack of Risk Leadership					
Poor Communication					
Lack of resources					
Lack of Awareness					
Complexity of Risk					
Others					

For Others, provide a brief description of the challenge.

11. Indicate any other issues that the Tea Factory is facing not discussed above and other proposals for stakeholders to consider.

.....

.....



APPENDIX III: LIST OF KTDA FACTORIES

No.	Tea Manufacturer (Factory)	County
1	Chinga Tea Factory Co. Ltd	Kagicha Othaya South
2	Boito tea factory Co Ltd	Boito - Konoin
3	Chebut Tea Factory Co. Ltd	Kapsabet
4	Chelal Tea Factory Co. Ltd	Roret - Litein
5	Eberege Tea Factory Co. Ltd	South Mugirango
6	Gacharage tea Factory Co. Ltd	Mununga - Thika
7	Gachege Tea Factory Co. Ltd	Gatundu North Thika
8	Gathuthi Tea Factory Co. Ltd	Nyeri
9	Gatunguru Tea Factory Co. Ltd	Kagema - Kiriti
10	Gianchore Tea Factory Co. Ltd	Keera - Nyamira
11	Githambo Tea Factory Co. Ltd	Kahuro
12	Githongo Tea Factory Co. Ltd	Meru Central
13	Gitugi Tea Factory Co. Ltd	Othaya - Mahiga
14	Igembe Tea Factory Co. Ltd	Maua Meru North
15	Ikumbi Tea Factory Co. Ltd	Ikumbi Thika
16	Imenti Tea Factory Co. Ltd	Nkubu - Marimba - Meru
17	Iriaini Tea Factory Co. Ltd	Othaya - Iriaini North
18	Itumbe tea Factory Co. Ltd	Gionsaria Nyamache
19	Kagwe Tea Factory Co. Ltd	Githunguri
20	Kambaa Tea Factory Co. Ltd	Githunguri Thika
21	Kangaita Tea Factory Co. Ltd	Kigumo - Kerugoya
22	Kanyenyaini Tea Factory Co. Ltd	Kangema
23	Kapkatet Tea Factory Co. Ltd	Litein
24	Kapkoros Tea Factory Co. Ltd	Sibaiyan - Litein
25	Kapsara Tea Factory Co. Ltd	Kitale
26	Kapset Tea Factory Co. Ltd	Kericho
27	Kaptumo Tea Factory Co. Ltd	Kapsabet
28	Kathangariri Tea Factory Co. Ltd	Embu
29	Kebirigo Tea Factory Co. Ltd	Kebirigo
30	Kenyakea Tea Factory Co. Ltd	Kebirigo
31	Kiamokama Tea Factory Co. Ltd	Gesusu - Keroka
32	Kiegoi Tea Factory Co. Ltd	Maua Meru North
33	Kimunye Tea Factory Co. Ltd	Kerugoya
34	Kinoro Tea Factory Co. Ltd	Imenti South
35	Kionyo Tea Factory Co. Ltd	Nkubu
36	Kiru Tea Factory Co. Ltd	Kiria-ini

37	Kobel Tea Factory Co. Ltd	Kericho
38	Kuri/ Ndarugu Tea Factory Co. Ltd	Gatundu Thika
39	Litein Tea Factory Co. Ltd	Kisiara - Roret - Litein
40	Makomboki Tea Factory Co. Ltd	Thika
41	Mataara Tea Factory Co. Ltd	Chania - Thika
42	Matunwa Tea Factory Co. Ltd	Nyansiogo
43	Michimikuru Tea Factory Co. Ltd	Nyambane Hills - Tigania
44	Mogogosiek Tea Factory Co. Ltd	Boito - Konoin
45	Momul Tea Factory Co. Ltd	Chemamul - Kericho
46	Motigo Tea Factory Co. Ltd	Litein
47	Mudete Tea Factory Co. Ltd	Mbale - Maragoli
48	Mungania Tea Factory Co. Ltd	Kagaari North - Embu
49	Mununga tea Factory Co. Ltd	Kagumo - Kerugoya
50	Ndimba Tea Factory Co. Ltd	Karatina
51	Nduti tea Factory Co. Ltd	kangari
52	Ngere Tea Factory Co. Ltd	Kariara - Thika
53	Njunu Tea Factory Co. Ltd	Thika
54	Nyamache Tea Factory Co. Ltd	Gionsaria Nyamache
55	Nyankoba Tea Factory Co. Ltd	Keroka
56	Nyansiongo Tea Factory Co. Ltd	Kisii
57	Ogembo Tea Factory Co. Ltd	Tendere - Gucha
58	Olunguruone Tea Factory Co. Ltd	Molo
59	Ragati Tea Factory Co. Ltd	Kagochi - Karatina
60	Rianyamwamu Tea Factory Co. Ltd	Keroka
61	Rorok Tea Factory Co. Ltd	Konoin - Kericho
62	Rukuriri Tea Factory Co. Ltd	Runyenjes
63	Sanganyi Tea Factory Co. Ltd	Kebirigo
64	Sombogo Tea Factory Co. Ltd	Kisii
65	Tebesonik Tea Factory Co. Ltd	Litein
66	Tegat Tea Factory Co. Ltd	Waldai - Kericho
67	Theta Tea Factory Co. Ltd	Gatundu Thika
68	Thumaita Tea Factory Co. Ltd	Kianyaga
69	Tirgaga Tea Factory Co. Ltd	Litein
70	Tombe Tea Factory Co. Ltd	Central Kitutu - Kisii
71	Toror Tea Factory Co. Ltd	Kericho
72	Weru Tea Factory Co. Ltd	Muthambi - Chuka

APPENDIX IV: ETHICAL APPROVALS



8th April 2024

Mr Abdi Abdishakur,
abdishakur.abdi@strathmore.edu

Dear Mr Abdi,

RE: Organizational Factors Influencing Risk Management Practices by the Kenya Tea Development (KTDA) Factories in Kenya

This is to inform you that SU-ISERC has reviewed and approved your above SU-masters research proposal. Your application reference number is SU-ISERC2132/24. The approval period is from 8th April 2024 to 7th April 2025.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
- iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
- v. Clearance for the export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke/> and obtain other clearances needed.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Ambrose Rachier".

Mr Ambrose Rachier,
Chairperson; SU-ISERC





REPUBLIC OF KENYA

Ref No: 937915



NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION

Date of Issue: 17/April/2024

RESEARCH LICENSE



This is to Certify that Mr. Abdishakur Abdulle Abdi of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Bomet, Embu, Kericho, Kiambu, Kirinyaga, Kisii, Muranga, Nakuru, Nandi, Nyamira, Nyeri, Uasin-Gishu, Vihiga on the topic: Organizational Factors Influencing Risk Management Practices by The Kenya Tea Development (KTDA) Factories in Kenya for the period ending : 17/April/2025.

License No: NACOSTI/P/24/34540

