EFFECT OF RISK MANAGEMENT PRACTICES ON THE FINANCIAL PERFORMANCE OF AGRICULTURAL COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

LORRAINE ANYANGO

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, FACULTY OF BUSINESS AND MANAGEMENT, UNIVERSITY OF NAIROBI

NOVEMBER 2022

DECLARATION

I declare that this project is my original work and has never been presented for a degree award or any other university program other than the University of Nairobi for examination.

Signed: …………………………………… Date: 11/11/2022

Lorraine Anyango

Reg. No: D61/37007/2020

This Research project has been submitted for examination with my approval as the University Supervisor

Signature …………………………………… Date _____13 November 2022_____

Prof Cyrus Iraya

The University of Nairobi.

ACKNOWLEDGEMENT

I am grateful to my supervisor Prof Cyrus Iraya Mwangi for his direction, support, and constructive criticism during the study which enabled me to complete this research project. I thank God for giving me the opportunity and resources to undertake this research project. To him, I attribute my success. I would also like to give my sincere appreciation to my son, family, and friends for their understanding and continued support while undertaking the project.

DEDICATION

This work is dedicated to my mother and my son Liam for their constant support and motivation during my studies.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

ASC   Agricultural Supply Chain

ASDS   Agricultural Sector Development Strategy

COVID-19   Corona Virus Diseases 2019

FAO   Food Agricultural Organisation

FLQ-OWA   Fuzzy Linguistic Quantifier Order Weighted Aggregation

FP   Financial Performance

GDP   Gross Domestic Product

NSE   Nairobi Securities Exchange

SPSS   Statistical Package of Social Sciences

VIF   Variation Inflation Factor

ABSTRACT

The purpose of the study was to establish the effect of risk management practices on financial performance of listed agricultural companies at the NSE. The study was based on Agency Theory, Risk Management Theory, and Contingency Theory. The study adopted descriptive research design as it entailed observing and describing occurrences without altering the qualities that were already there. Secondary data was collected from all the 7 listed agricultural companies for the period 2012-2021. The data collected was used to determine financial performance that was measured by the use of ROA. Data for operational risks was collected to calculate the operating expense ratio, financial risk was determined by solvency risk, assessment risk was determined by profit budget variance, Reputational risk that was calculated by percentage change in revenue and size that was determined by total assets. The study adopted the use of multiple regression analysis to determine the effect of risk managemengt practices on performnce. However, the study first undertook descriptive statistics that described each variable to determine the distribution as well as the mean standard deviation, kurtosis and skewness of each study variable. It provided an indication of the distribution of the study data. Correlation analysis was also undertaken where Pearson's correlation was undertaken to determine the correlation between the independent and the dependent variables. The study found that there was a positive correlations between the independnet variables and the dependnet variable. All the correlations were weak and insignificnat except the correlation between financial risk and performance that had significant positive correlation. The multiple regression analysis that was undertaken after conducting diagnostic tests and transforming the values by standardizing the values for the study variables indicated that the coefficient of determination (R Squared) was able to predict changes in the dependent variable to a tune of 35.1%. The adjusted R squared was however lower than R squared indicating that some components of the model did not contribute significantly to the model. The F test undertaken had a p-value of less than 0.05 that meant that the null hypothesis was rejected and the study concluded that there was significant effect of risk management practices on firm performance of agricultural companies listed at the NSE. The regression coefficient indicated that all the independent variables had insignificant effect on performace apart from financial risk that indicated that increasing solvency ratio by one unit would lead to increase in financial performance to an extent of 0.57%.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The main goal of a business entity is to make a profit. For profits to be made, however, there needs to be exemplary performance. The agricultural sector unlike any other sector is faced with a lot of risks that undermine its financial performance (FP) (Clapp & Isakson, 2016). The definition of FP undertakes that it is the ability of an organization to acquire and control resources to create a competitive advantage (Omondi, 2013). Performance is often described as a company's capacity to transform raw materials into completed goods, its profitability exceeding its costs, and its market value exceeding its book value. Outstanding performance is demonstrated by a company's ability to spend resources wisely (Almajali et al., 2012). It is the responsibility of each organization to ensure that it survives, so the business must perform effectively to survive.

To elucidate how risk management techniques, influence the performance of companies listed at the NSE, the study is inspired by agency theory, risk management theory, and contingency theory. Vaughan (1997) was the first person to coin the word "risk management". It postulates risk as an element of the person or group prone or susceptible to misfortune, it indicates the income source or the acquisition of an asset is exposed to financial misfortune, and a threat that could result in misfortune. Initiated by Fama and Miller in 1972, agency theory was later developed by Jensen and Meckling in 1976, their focus was on agency cost which emanated from the agency expenses incurred by the principal to coerce the agent to focus on his (principal's) interests rather on pursuit of their own (agents') selfish interests. The agency costs are mostly conspicuous between investors and managers (Jensen & Meckling, 1976). Fiedler proposed the contingency theory of management in 1964. The contingency approach is a

management philosophy that contends that a single, rigid style of management is wasteful in the long run and that the best management method should depend on the circumstances.

The issue of risk management and financial performance has been accessed locally, regionally, and internationally. A Kenyan study by Kinyua et al. (2015) imbibed on the significant relationship found by the study on risk management and FP, However, the criticism on general focus by the industry was to ensure that a radical change enhanced focus on the ability to support organisations with risk identification and proactive control of such risks, rather than mere compliance and exercise of financial controls on dilapidated systems. Consequently, Nigerian research by Adeusi et al. (2014) sought to examine the association between risk management concepts and the performance of banks in their country were arising from the findings that envisioned a significant relationship, a conclusion that banks should be prudent in undertaking risk management was vital and critical in observing their performance.

1.1.1 Risk Management Practices

Risk mitigation refers to the exercise of due diligence that is meant to reduce the exposure of the organization to potential risks as well as curtail any chance that such risks would re-occur (Sreedevi & Saranga, 2017). The process of risk mitigation involves preparing for and lessening the effects of hazards to which a company is exposed. According to Sreedevi and Saranga's (2017) research, risk management, and firm performance have a slight but positive relationship. Ahmad (2018) discovered a favourable and significant correlation between risk reduction and performance, which contrasted with the findings made by others.

The potential risks connected to continuous daily operations must be considered in agricultural businesses (Kraijak & Tuwanut, 2015). The nature of the materials being used, the equipment, and the personnel all carry potential risks. It is crucial to have risk management procedures in place that can recognize the many risks that can exist, comprehend the likelihood of those risks

happening, and assess their potential effects on the company (Giannakis & Papadopoulos, 2016). The fundamental principles encumbered in risk identification, risk assessment, risk reduction, as well as risk management constitute the aspirations for the risk management process (Aven, 2016).

Identification of risks increases an organization's receptivity to risk and weakness (Girangwa, Rono & Mose, 2020). A thorough understanding of the organization, coupled with its market and business sphere in which the organization operates, the factors that affect its existence and the social setup where it operates, and a comprehension of the operational goals and destinations, are necessary for this. Risk identification, by Callahan and Soileau (2017), improves corporate performance by reducing glaring operating and inconsequential expenses as well as the vulnerability of trade returns.

The process of analyzing risks associated with each known danger to understand the concept of risk is known as risk assessment (Stevenson, 2018). This considers both the severity of the injury and the likelihood that it will occur. According to Jeger et al. (2018), risk identification and associated risk assessment work together methodically to create the risk assessment. Risk assessment in the workplace helps organization pioneers understand the state of security now and how they may make improvements (Zou, Isa & Rahman). According to Jeger et al. (2018), there is a strong positive association between financial performance and risk assessment.

Implementing a strategic plan for controlling threats that have been recognized and seizing opportunities is known as risk management (Tupa, Simota & Steiner, 2017). The formal risk management process is when managers add any previously discovered hazards that have an ongoing risk register response or mitigation strategy. Initially, risks were detected, appraised, and addressed informally through acceptance, avoidance, or mitigation (Ethirajan, Arasu, Kandasamy, Nadeem & Kumar, 2021). According to a study by Marchwicka and Kuchta

(2017), implementing risk management is preferable to dealing with hazards in businesses and has a strong association with those businesses.

The management of risks in an organization is dependent on the relevance and the likely impact of loss in case the risk occurs. The management considers the probability of occurrence of each risk and sets up measures that are proportionate of the probability of occurrence and the impact of loss in case the risk would occur. This study therefore undertakes to consider the various risks that an organization is exposed to and measures the outcome which mirrors efforts undertaken in the management of the risk. This applies that if there were profitability risks, then proper risk management, would ensure that the firm increases its profitability while the vice versa is true (Rop & Rotich, 2018). The study therefore groups the risks in form of operational risks, financial risk, strategic risk as well as reputational risks.

1.1.2   Financial Performance

Financial performance is the amount of money that an association makes or earns throughout a given period also be described as a means of assessing an organization's performance across all its operational frameworks while it works to meet its financial responsibilities. It is rooted in the capability of an organisation's management to steer it towards impeccable investment decisions as well as sound operational practices to facilitate financial stability. Therefore, it is also the measure of the achievements attained by the organization as far as its financial goals are concerned, while putting into consideration the organizations' financial objectives, mission and vision. The agricultural sector in Kenya plays an important role, especially in job creation and contributing to GDP, If the performance of any sector of the economy does not thrive, then there is a chance that the economy is adversely affected. In developing countries, agriculture is the main sector in the production of goods and services. And any dismal performance in the sector, is a huge setback in the economic growth of the country. The

financial performance of agricultural companies is clear indicators of the ability of the main economic drivers that steer the country to higher growth and development of infrastructure. This has been benchmarked in multiple studies that have keen interests on the performance of agricultural companies which are varied in each different countries across the world (Doliente, 2003).

Consequently, Trivedi (2010) asserts that FP is critical in the determination of the extent of growth and prosperity exacerbated by an entity. It is also a way in which an organization can exercise dominance over others in the industry as it is capable of attracting more customers than its competitors (Dymski, 2005). The measure of FP has been identified by different researchers depending on the industry and the type of organization. However, it would be agreeable that most of these performance measure target revenues generated from cashflows, incomes, and marginal growth rates of the organization. Similarly, ratios have also been calculated to measure financial performance; liquidity as well as capital ratios, while this study proposes to use return on assets (ROA) as a financial ratio that would determine FP.

1.1.3 Risk Management and Financial Performance

Profitability has been used to assess an organization's overall financial performance over time and can be used to determine whether companies in similar industries are performing the best or to consider individual companies or conglomerate segments. The productivity of the business, administration duties and responsibilities, as well as past, present, and other predicted costs, are all related to financial performance. Therefore, it is also indicative of the way organizations can demonstrate their business acumen and results from presentations and have their reputation hedged on their results as a way of exercising dominance and control. It is therefore a key indicator of the extent to which an organization grows, prospers, and has supremacy in the field in which it operates (Sreedevi & Saranga, 2017).

The ability of a business to jot down policies that guide risk management as well as the ability to transfer such practices into guiding the returns associated with excellence that steers the organization into a competitive arena with peers indicates that there exists a key relationship between risk management and financial performance (Mwangi, 2012). Additionally, findings from different studies stipulate that the contribution of ideal risk management practices on financial performance is greater than other factors in organizations. This indicates that even though the study did not include all performance factors, companies can enhance their control and influence in the market if it offers sustainable risk management practices.

1.1.4 Agricultural Sector in Kenya

Kenya's economy continues to be based on agriculture, which generates 25% of the country's yearly GDP directly and another 27% indirectly (ASDS, 2010 – 2020). In a nation where 80% of people dwell in rural set-ups, and exercise small-scale farming that is their primary source of income, the industry employs 75% of the labor force nationwide. The sector is consequently essential for generating jobs and raising the standard of living for Kenyans. The main source of income for vulnerable populations includes pastoralists, landless individuals, and subsistence farmers in agriculture. Kenya is a significant exporter of vegetables, coffee, tea, and cut flowers, as well as the world's top exporter of black tea. Even though Kenya leads the world in exporting agricultural products, most farmers are small-holder farmers, and maize (corn) is still the country's most important food crop (Wambui & Wamugo, 2018).

Most families in Kenya and elsewhere rely heavily on maize, which is also a crucial ingredient in animal diets. Kenya's agriculture is dependent on the two-yearly rainfall seasons those various regions of the country experience. In Kenya, more than 80% of the area is either desert or semi-arid and receives little rainfall. Only around 10% of Kenya's total land area is suitable

for farming, but this area produces 70% of the country's commercial agricultural output because it receives consistent rainfall (Oruko & Tibbs, 2020).

Fundamentally, agriculture and the advancement of agriculture continue to be a catalyst for sustainable development, primarily for improved food security and secondarily for the eradication of poverty and total economic expansion of a nation. Kenya's agricultural sector is still exposed to factors including climate change, market swings, pest and disease outbreaks, poor infrastructure, outmoded farming practices, and other issues. Certain agricultural companies have failed because of their vulnerability. The proposed study seeks to investigate ways that these risks can be reduced, thus improving the performance of agricultural companies listed at the NSE.

1.2 Research Problem

Most people who reside in rural areas depend on the agricultural sector as their main source of income. It provides for around 80% of Kenya's exports and 40% of all jobs (FAO, 2011). The new agricultural development strategy anticipates that it will increase income and provide significant employment, particularly in rural areas where agriculture is the primary source of income for 70% of the population (FAO, 2011). To guarantee that all the established goals are achieved, high productivity and financial performance ought to be maintained.

Even though the agriculture sector's success is crucial, this is not how things are, locally, many businesses are performing below average. Productivity hasn't changed much in recent years. Obstacles to exports include price fluctuations and intense rivalry for goods like coffee, cocoa, peanuts, and palm oil (Nepad, 2013). In addition, investments in industries other than agriculture are preferred, such as oil, manufacturing, and mining (Nepad, 2013). The financial performance of the agricultural enterprises in Kenya is severely hampered by problems

including bad roads, climate change, a shortage of qualified workers, and a lack of capital (FAO, 2011).

Hubbard (2020) asserts that companies must ensure that they are deliberate and relevant in risk management techniques as it positively influences their performance. It is more advantageous for companies that keep tabs on risk management as they are able to scrutinize the environment and analyze the different opportunities therefore it becomes easier for them to implement only those opportunities that have higher chances of success (Farrell & Gallagher, 2015). Shah (2014) notes that the value of assets and investments made by a firm all boil down to the financial risks associated with any of them. Any business that does not scan its environment in regarding risk exposure is itself at high risk. The cost of production as well as costs of other direct and indirect costs vary from one alternative to another. It is prudent to ensure that all available options are exhaustively considered before a decision is made on which alternative would carry the day. However, a firm that engages in risk management can improve the efficiency of operations and minimize the costs of risks (Pagach & Warr, 2015).

Through the efficient and well-considered allocation of resources, firms that undertake risk management can improve their financial performance. However, in contrast, some researchers have made findings that risk management practices can deter financial improvement. Others find that no relationship exists between the two variables. Most empirical research have concentrated financial risk management around liquidity, credit, and operational risk management. However, the proposed study will look into risk management practices specifically targeting risk identification, assessment, mitigation, as well as risk implementation strategies. This study, therefore, evaluates the effect of risk management practices on the financial performance of agricultural companies listed at the NSE.

1.3 Objectives of the Study

The study seeks to assess the effect of risk management practices on the financial performance of agricultural companies listed at the NSE.

1.4 Value of the Study

The study's theoretical contribution was essential to close a knowledge gap on the issue of risk management and financial success in agricultural companies. The study will give readers more thorough information on the financial sector in addition to the aforementioned. The study will serve as a foundation for other academics who want to go deeper into the topic and contribute to other studies.

Based on the findings and conclusions of this research paper, company managers, investors, and other agricultural companies' employees will be able to use the material in this research as a guide. Managers of agricultural companies could focus on reducing agricultural risks and use the knowledge to enhance financial performance. Now that areas of risk management are highlighted, agricultural enterprises can better spend their resources.

This study contributes to the growing list of rules, laws, and regulations that policyholders must follow. The report is utilized as a resource for agricultural organizations to establish risk management-compliant practices. Due to stringent control procedures, effective risk management is linked to the strong performance of all business entities.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The purpose of the chapter reviews the literature of the proposed study, the determinants of the dependent variable (financial performance), as well as the empirical review based on prior studies conducted on the topic. The chapter will also include the conceptual framework of the proposed study.

2.2 Theoretical Review

This section highlights the theories that were deemed appropriate for the proposed study. According to scholars, fundamental theories aligned with the parameters of the study (Paul & Criado, 2020). The study was anchored on agency theory, risk management theory, and contingency theory.

2.2.1 Agency Theory

Initiated by Fama and Miller (1972) agency theory was later developed by Jensen and Meckling in 1976 that highlighted agency costs as costs of conflict of interest as divided across multiple levels, with the conflict between investors and management being one of the most concerning (Jensen & Meckling, 1976). The two types of agency pricing that result from the conflict of interest between money and representation are explained by Jensen and Meckling in 1976. The first is the agency fee for equity between stockholders and management, and the second is the agency fee for debt between creditors and shareholders.

According to agency theory, there are two approaches that define agency theory. The fact that the agent and the principal do not share similar interests in the running of the organization while agency conflict also arises when the agent considers risk and its management in a

21

different perspective as compared to the principal. The representative and capital funds may both be skewed to adopt various strategies because of the variances. The theory also attempts to address potential challenges that emanate from the fact that fund managers and investors have varying risk appetites and therefore may not agree on the portfolios adopted in undertaking investments (Maestrini, Luzini & Ronchi, 2018). In the circumstances of imperfections, aggressive risk management becomes necessary to enhance the value of the firm which is congruent to the needs and interests of the shareholders (principals). Costs associated with agency disputes such as external loans, financial distress as well as taxation (Aretz, Bartram, & Dufey, 2017). Agency theory is therefore related to the study as it details the conflict that would exist between the shareholders (principal) and the management (agent) as the management prefers to undertake low risk investments while on the other hand, the shareholders prefer to maximize their returns and would want the management to undertake investments that guarantee higher returns, which on the other hand increases risk.

Several scholars have critiqued the agency theory. Bower and Paine contend that the agency theory should be replaced with a better system since it is no longer an accurate representation of the modern corporate environment and is thus ineffective as a tool for managing managers and reducing the threat of them misusing their position (Payne & Petrenko, 2019). The strategy for handling organizational management and the degree of shareholder agency seems legitimate, even though the introduction of corporate governance does allow decreasing financial risks brought on by external threats (Bromiley, Shane, Nair, & Rustambekov, 2015). In contrast to shareholders, who are familiar with the market but may have a hazy understanding of the company's particular, Bower and Paine's approach gives leadership tools to those who are aware of the company-specific challenges.

By analyzing the impact of risk management procedures on the financial performance of agricultural companies in Kenya, the theory was deemed appropriate for this study. The argument holds that risk management initiatives help to foster profitable alliances between the broker and the head. The theory helps to explain why interior risk exists in organizations. For instance, it may be applied to assess whether there is a cross-sectional gap between interior risk rules and to show how different agency partnerships arise as a result of variations in financial performance. The independent variables relating to risk management practices are informed by the theory.

2.2.2 Risk Management Theory

The idea, which was developed by Vaughan (1997), emphasizes that risk involves elements of the person or group that is exposed to tragedy, the asset or source of income whose destruction or dispassion will result in financial misfortune, and a threat that could result in misfortune. This can be avoided by using a risk management strategy that includes risk identification, risk assessment, and risk prioritization, followed by thoughtful and prudent asset utilization to reduce, screen for, and control the likelihood and impact of tragic events or to increase the realization of opportunities (Koulafetis, 2017).

Risks can result from project failures, legal liabilities, credit risks, accidents, common causes, and tragedies, just as planned attacks by an opponent, or situations with a shady or unpredictable underlying driver. Expanding exposure to risk and vulnerability makes agricultural companies more vulnerable (Jarrow, 2017). The strategies to manage risk frequently include shifting the risk to a different party, avoiding the risk, reducing its negative consequences or likelihood, or, in any case, tolerating some or all of the actual or possible effects of a particular risk.

Successful risk management may benefit every company, no matter how big or little, public or private, in a significant way (Fan & Stevenson, 2018). These benefits include unmatched financial performance, a stronger justification for procedural setting, improved service delivery, a notable advantage over rivals, less time spent putting out fires and fewer unpleasant surprises, increased likelihood that a progress drive will succeed, a closer inward focus on doing the right things correctly, more effective resource utilization, decreased waste and extortion, and better communication. In practicing risk management, if risks are left unmanaged, they can hurt stakeholders' value.

The variables for risk identification, risk assessment, risk mitigation, and risk management implementation were informed by the Risk Management Theory. An efficient risk management framework supports better decision-making through a good understanding of the risks and their potential effects. This theory is therefore relevant and critical to this study, as undertaking risk management in any company, would need critical consideration of risk identification, assessment, mitigation as well as implementation.

2.2.3 Contingency Theory

Fiedler proposed the management contingency theory (1964). According to the contingency method, which is a management philosophy, receiving a single, rigid style of management is inefficient in the long run and depends on the circumstances. Administrators of contingencies typically concentrate on both the situation and their personalities, making an effort to ensure that both matches well. It aids in preparing the organization's information frameworks and design plans. A large organization might embrace a decentralized structure, whereas a small organization might choose to have a cohesive structure (Steinbach, Holcomb, Holmes Devers & Cannella 2017).

Instead of overreacting to the issue at hand, management can address the causes of risks by employing a contingency management style. Managers that understand the importance of contingency theory will attempt to see all of the factors that led to the issue rather than focusing only on its effects (Fiedler, 2015). The significance of contingency theory also extends to the way managers think about how a decision will affect the entire organization. The contingency management approach encourages managers to make decisions and handle issues in light of what they will imply for the business as a whole rather than just what they will mean for a division or office.

Contingency theory is related to this study as it details benefits for managers that it gives them far more leeway when it comes to managing risks (Salah & Moselhi, 2015). The contingency hypothesis allows managers a wide range of options for how to respond to problems, which also gives them a great deal of decision-making latitude. When making decisions, managers should be free to interpret rules and regulations while yet adhering to the character traits and aspirations of the company.

However, detractors argue that contingency theory does not adhere to the concept of 'universality of norms,' which is commonly applied to explicit managerial situations. Furthermore, managers may find it impractical to decide on all of the factors relevant to the decision-making circumstance. Managers cannot obtain complete knowledge about the environment or thoroughly analyse the situation due to time constraints, cash constraints, and capacity (McAdam, Mill operator & McSorley, 2019).

2.3 Determinants of Financial Performance in Agricultural Companies

The financial performance of agricultural companies in Kenya is important in the country's economy. Given that 25% of the country's GDP is contributed by agriculture, there is a need for the financial performance of agricultural companies to be monitored. Regardless of its

contribution to the country's GDP, the good performance of the company prompts salary increments for its workers, better quality production, and satisfaction of consumers. In this study, the determinants of financial performance were cost of production, financial position, corporate administration, return on assets, and risk management.

2.3.1 Cost of Production

Production expenses for farmers include everything from input costs such as operating costs and variable costs to fixed costs (Schimmelpfennig & Ebel, 2016). Input expenses are the operating expenditures for a farm that necessitate initial purchases to begin output. Fertilizers, insecticides, seeds, weaned animals, feed, and any other production input are examples. Variable costs are those that vary according to the quantity of consumption on a farm or ranch, and they include goods such as gasoline and oil, electricity, labour (hired and custom), repairs and maintenance, water use, and storage (Barnard et al., 2020). Fixed costs are expenses that must be incurred but are not affected by the level of production. These expenses include operator labour, machinery, taxes, asset depreciation/capital consumption, rent, and interest.

Agricultural companies are often faced with the challenge of meeting these costs. Unlike other business entities, agriculture is based on farm produce which is often faced with a number of challenges not limited to the land terrain (Thomaier et al., 2014). Hence to ensure positive financial performance, the company should be in a position to cater to all these costs.

2.3.2 Financial Position

The country's financial position is an important factor in the agricultural sector. The monetary states of a working nation can affect an organization's budgetary execution in many areas, for example, the following: The cost of obligation and other financings might hurt the organization's ability to produce benefits and put money aside for future investments (Resmi

& Begum, 2018). Others include utility prices in their calculations, area, and high costs associated with the assembling of various assets, such as plant and machinery apparatus as a result of variables such as money collapses and increased expansion rate. Mechanical items may lose favour in favour of low-wage workers produced, which hurts the organization's financial performance (Lingmont & Alexiou, 2020).

2.3.3 Corporate Administration

It relates to the processes, methods and structures that dictate how a company defines its objectives, develops standardized methodologies and consistent planning, monitors and reports its budgetary execution, and manages its assigned risks (Kerzner, 2019). Analysts have also hypothesized that good corporate governance leads to an improvement in the company's financial performance (Rodriguez-Fernandez, 2016)

A good number of studies point towards the fact that there are two models of corporate structure that include shareholder model as well as partner-held model. The shareholder model leans more towards maximizing the wealth of the shareholders while the partner-held model undertakes to consider the needs of all the stakeholders in an organization without more reference to shareholders' needs at the expense of the other stakeholders (Maher and Anderson, 1999). It is also postulated that Brooks and Iqbal (2007) considered the special attributes that brought out the significant contributions that are made possible by enhancing board quality as it impacts the strategic decisions undertaken by the organization. It is therefore inferred that befitting corporate management practices repose directly related to the performance of the organization.

2.3.4 Risk Management

The management of the total exposure that an organization faces may highly translate to financial performance. This is mainly because high risk investments tend to attract high returns while low risk investments attract low returns. However, engaging in total risky assets, may mean that it is possible to incur a great loss while undertaking only low risk ventures may mean that the total returns would be below the required rate of returns. An optimal balance between risk and returns must be carefully considered in the choice of investments as a way of risk management, and boosting corporate returns (Forbes, 2002). Because the agricultural sector faces several risks, risk management is a fundamental predictor of agricultural companies' success in Kenya.

Risk management can also be defined as the methods and tools implemented by agricultural companies to avoid risks. The monetary hypothesis implies that managers should increase their usual benefits regardless of the variation in their esteem. Santomero (1995) considered 4 reasoning that supports risk management practices. Administrative self-premium, the non-linearity of the organization's assessment structure, the cost of organization money associated distress charges, and the presence of a perfect capital market are examples of these.

2.4 Empirical Literature Review

Internationally, several studies have been conducted regarding the financial performance and risk management of agricultural companies. Purdy and Featherstone (2015) conducted a study in Kansas, a state in the United States. The study investigated the influence of risk as well as a specialization on financial performance. The dependent variable was thereby described by risk, operator's age, the total number of acres owned, financial efficiency, specialization as well as the company's size, which were found to have the largest impact on performance. Specialization in agricultural farming of swine farming, crop production and dairy farming

improved financial performance, while specialization in beef production reduced performance. There was less variability in returns when the farms engaged in both crops and livestock farming such as beef production and crop farming. As much as the study investigated diversification needs, it did not focus on risk management practices which this study proposes to investigate.

Additionally, in India Sharmaa et al. (2020) conducted a study during the Covid-19 pandemic on unforeseen risks that were instigated by the pandemic. The ASC (agricultural supply chains) had been critically interrupted following the pandemic and therefore motivated the study on the impact of risks occasioned by Covid-19 on ASC. The ASC risks that arose from disruptions occasioned by Covid -19 were investigated. Fuzzy Linguistic Quantifier Order Weighted Aggregation (FLQ-OWA) was used to assess these risks. The risks that were identified to have a critical impact on ASC include supply risk, demand regulation risks, logistics and infrastructural risks, financial risks as well as policy regulation and environmental risks. The risk variability is dependent on the scope and scale of the organization. To enhance sustainability, the study recommended the adoption of various strategies that include industry technologies, supply chain collaboration, as well as a shared responsibility.

Consequently, Behzadi et al. (2018) assessed supply chain risk in the agricultural field. It was noted that agricultural models were rarely adopted in agricultural products. The risky nature with which agricultural products were processed marvels at the thought that these models are rarely adopted. Risk management is crucial in agricultural companies as much as it is essential in other highly risky ventures. Agriculture is faced with seasonality risks, supply spikes, long supply lead times, and perishability which makes the adoption of risk management practices crucial. The paper carried critical reviews of the limited literature on quantitative models adopted to enhance risk management. The study found that robustness as well as resilience are

important techniques in risk management. Implications were highlighted in practice as well as in future research on ASC management. The study however did not focus on risk management practices which is the focus of the proposed study.

In the African region, a study that sought to investigate the influence of risk management strategies on the financial performance of agricultural companies was undertaken in Nigeria by Banjo, Adeola, and Adewale (2021). The collected data were analyzed by use of cross-sectional and quantitative research design where descriptive as well as inferential tools were used. The hypothesis was tested by use of regression analysis where the null hypothesis was rejected if the p-value was less than 0.05. The study indicated that being aware of the risks surrounding agricultural companies was vital in impacting the performance of the company. The study, therefore, recommended that risk awareness should be emphasized by agricultural companies as the management of these risks was vital in effectiveness and efficiency that enhances effective risk management practices such as prompt risk identification, risk assessment, and efficient risk Control/Reduction enhance the performance of agriculture companies.

Consequently in Tanzania, Kessy (2021) assessed the tools used in risk management in the mitigation of agricultural financial risks. The study, therefore, focused on risks that are faced by lenders, risk management tools and the correlation between lending in the agricultural sector and risk mitigation tools. A selected sample from 3 banks was assessed that involved a total of 55 employees. The analysis was undertaken by use of frequency tables and chi-square analysis. It was found that production risk is one of the prominent risks that face the industry as variability in output as a result of droughts, pests and diseases. The tools that were appropriate in the management of the risk included the use of collateral, proper appraisal mechanisms as well as diversification of agricultural activities, group liability, guarantee/cash deposits, loan structuring, and warehouse receipts. A significant correlation between risk mitigation tools and

agricultural lending was implied. The optimal application of these tools should be undertaken wisely. The study advocated that farmers to free market practices that would make them meet their operational costs including loan repayments. However, the study did not focus on risk identification, assessment, mitigation, management and implementation as suggested by this study.

Locally, Oruko and Tibbs (2020) interviewed the financial risk and financial performance of agricultural companies listed in Kenya. The key objective was to influence the financial risk and financial performance of agricultural companies listed at NSE. The study undertook a longitudinal research design where a census of all the agricultural companies listed at NSE was considered in the study period of 10 years (from 2009-2018). The panel data were analyzed by use of inferential statistics at a significance level of 0.05. Multiple regression analysis was used where the findings revealed that financial leverage risk has a significant negative influence on the financial performance of agricultural listed companies ($p<0.05$). The study concluded that financial risk influenced the financial performance of agricultural companies listed on the NSE.

A study that was conducted by Wambui and Wamugo (2018) assessed credit risk management practices and FP of Agricultural companies listed at the NSE. The study objectives were on credit appraisal, credit policy as well as credit monitoring and their influence on financial performance of agricultural companies listed at the NSE. A census study was undertaken that adopted a descriptive research design, where both primary and secondary data were used in data collection. The study established that credit appraisal had a significant effect on the financial performance of these companies. This led to the conclusion that agricultural companies ought to undertake credit appraisals as they are critical for their performance. The study however indicated a conceptual gap as it did not focus on risk management practices that include risk identification, risk assessment, and risk mitigation as proposed in this study.

2.5 Conceptual Framework

The conceptual framework is phenomenal in indicating the relationship in a pictorial format of the study variables. It is therefore instrumental in showcasing the relationship between the independent variables of the study, which include operational risks, financial risk management, Strategic risk management and reputational risk management, and financial performance as the dependent variable as shown in the figure below.

Figure 2. 1: Conceptual Framework

Independent Variables   **Dependent Variable**

(Risk Management Practices)   (Financial Performance)
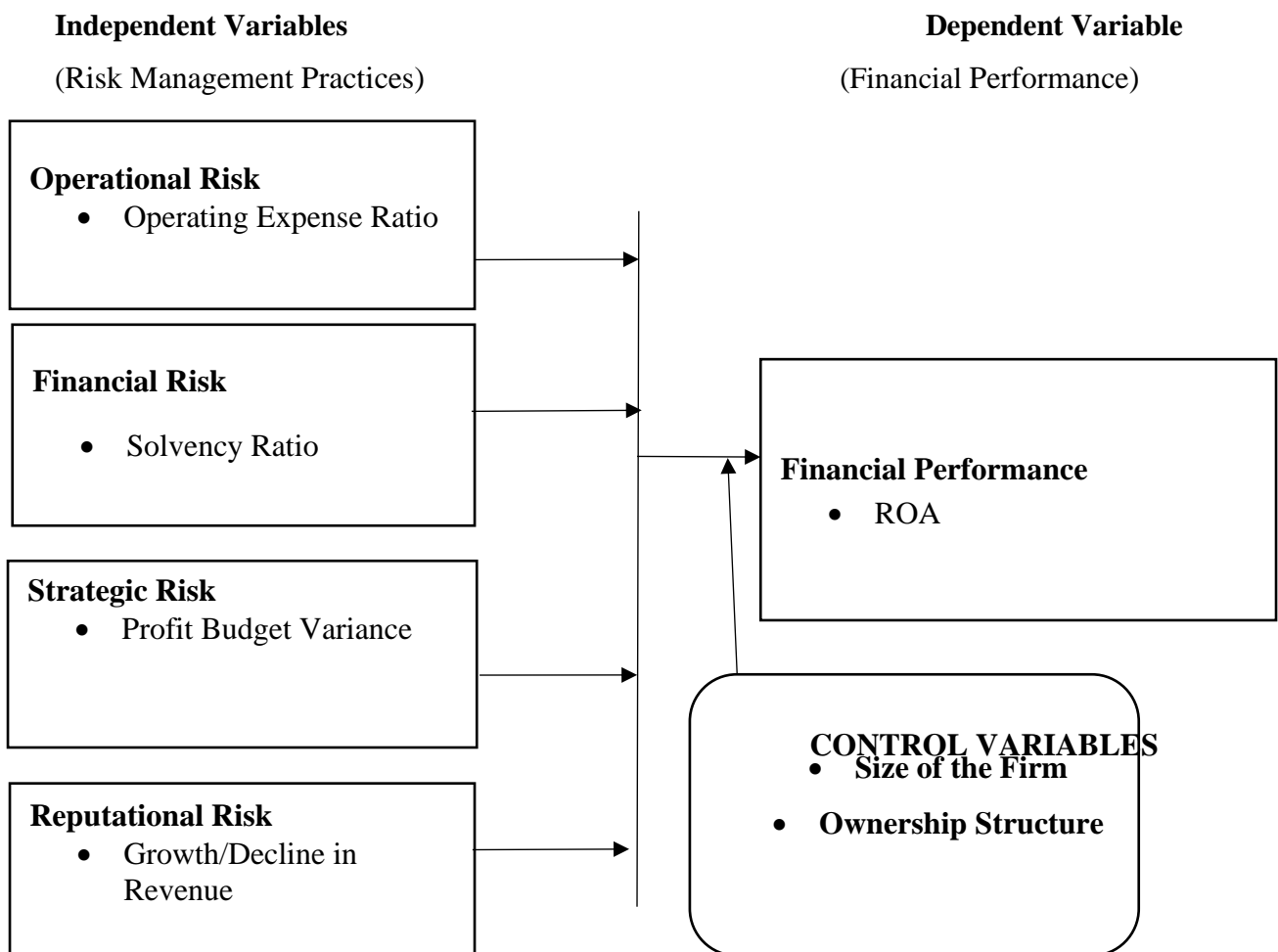
The conceptual framework indicates that the risk identification indicators are identifying the strategic risks, credit risks, and operational risks. Risk Assessment is achieved using risk valuation, risk prioritization, and assessing the risk probability. Risk mitigation indicators are

risk reduction, developing strategic options, and determining response actions. The indicators for risk management implementation include risk execution, risk communication, and risk monitoring tools. Finally, the indicators for FP are financial growth, profitability, growth in market share, and customer perspectives.

2.6 Chapter Summary

Chapter two highlights literature that has been developed by previous studies and researchers, including the theories developed and related to the study, and actual empirical studies carried out in the international context, the regional as well as the local context. The problems that have been encountered in the agricultural sector in Kenya in the past could have been limited if risk management practices would have been implemented. In all prior empirical studies assessed in this study although different gaps were highlighted with this study, there was a general highlight on the importance of proper risk management practices, coupled with good risk management techniques as they were critical in influencing financial performance.

Research gaps that were highlighted in this study revolved around conceptual gaps that indicated that the studies may have been related but the concepts of the study were different. The study also established contextual gaps, where some studies were undertaken in other companies that were not agricultural companies as well as in other countries. A methodological gap was also highlighted that spelled out that different study methodologies would be applied in the study to determine whether the study will arrive at similar findings. The financial performance for the proposed study will be measured around profitability, consumer perspectives, growth in market share, and financial growth. Financial performance is critical for the growth of agricultural companies in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter contains the methodology adopted by the study. Research design, the population and sampling techniques adopted, data collection and data analysis that was also conducted by the study.

3.2 Research Design

The term "research design" describes the plan for gathering data on the identified study variables. This comprises the tools used for data gathering, how the tools are managed, how the data are organized, and how the data are analyzed (Kisilu et al., 2006). The study used a descriptive research design since it describes risk management practices and financial performance of Kenyan Agricultural Firms (Saunders et al., 2009). This drew attention to the numerous traits that the researcher was interested in. A descriptive study strategy is a scientific approach that entails observing and describing occurrences without altering the qualities that were already there (Cooper & Schindler, 2008).

3.3 Target Population

The population was defined by McBurney and Theresa (2010) as all subjects who meet a set of requirements. The 7 Kenyan agricultural companies listed at the NSE that were the subject of the proposed study were its intended audience (Appendix II lists Kenyan agricultural firms). The 7 agricultural companies listed at the NSE were the unit of analysis, where data was collected from all the seven firms for a period of 10 years (2012-2021). The study therefore undertook a census study as there was no sampling.

3.4 Data Collection

Quantitative as well as qualitative data was collected through secondary data collection method. The data was collected using the data collection form (Appendix II) attached. The data was collected for the period of 10 years (2012-2021) where NSE website and the websites of respective agricultural firms was vital in data collection. Data was also collected from published and audited annual reports that will be useful in identifying, performance of the agricultural companies as well as financial risks, operational risks, strategic risks and reputational risks.

3.5 Data Analysis

The data collected from the respondents was assessed for completeness and accuracy. Similarly, the study presented it in tables and graphs for analysis. The first step entailed undertaking diagnostic testing to ensure that the data collected conforms to the assumptions made by the linear regression method.

3.5.1 Diagnostic Tests

The study conducted various diagnostic tests to assess the regression model adopted. These include normality, multicollinearity, linearity and heteroscedasticity tests.

3.5.1.1 Multicollinearity

When at least two independent variables in a multiple regression model have a high degree of correlation, multicollinearity occurs. The proposed study would use the variance inflation factor to test for multicollinearity (VIF). Multicollinearity is present if the obtained value of the VIF is more than 10. On the other hand, multicollinearity is absent if the result obtained is

VIF 10. (Bryman & Bell 2013). The factors were eliminated if it was discovered that they are substantially connected.

3.5.1.2 Heteroscedasticity

When observations are assigned equal weight, which results in standard error discrimination, the scenario is known as heteroscedasticity (Williams, 2016). In hypothesis testing, this could result in inaccurate judgments. The Breusch-Pagan test was used in the study to examine the data for heteroscedasticity. According to the general norm, this was evaluated at a significance level of 0.05. The absence of heteroscedasticity was inferred if the resulting p-value is greater than 0.05. Therefore, heteroscedasticity exists if the calculated p-value is less than 0.05.

3.5.1.3 Linearity Test

The linearity test measures whether the variables form linear tendencies, or the distribution of the data is in a linear format, such that it is practical to use linear tendencies. The linearity test is determined by plotting the study variables and observing whether the distribution can be explained linearly. It identifies whether a line of best fit can be used to fairly describe the data collected. If the data would fail this test, then it is not possible to use linear regression analysis, and other non-parametric methods of analysis would be preferred.

3.5.1.4 Normality Test

The purpose of the normality indication test is to ensure that the data obtained from the sample comes from a population with a normally distributed population. With the test, one can evaluate a given hypothesis and derive exact statistical conclusions (Field, 2009). The Jarque-Bera test measurement (Bera and Jarque, 1982) will be used in the proposed investigation to determine whether the residuals are normally distributed. The information gathered is generally considered to be normal. If the obtained p-value is greater than 0.05, the sample data is

considered to be normal, and the null hypothesis is not ruled out. The null hypothesis would be rejected if the obtained p-value is less than the predetermined threshold of 0.05 because it indicates that the sample data is not regularly distributed.

3.5.2 Analytical Model

To efficiently answer research questions, Kothari devised a method for sorting out the results of data analysis, which consists of several connected procedures (2012). The information gathered from the questionnaires would be coded, cleaned, and verified for accuracy before analysis. For the collected data, descriptive and inferential statistics were examined. Means, standard deviation, and frequency tables were used to present the descriptive statistics, which was performed using the Statistical Package for Social Sciences (SPSS).

On the other hand, a multiple regression model was used to test the effect of risk management practices on the FP of agricultural companies in Kenya (inferential statistics). The regression model adopted the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where.

Y = Financial Performance determined by ROA

X_1 = Operational risk calculated by operating expense ratio (Operating Expenses-Depreciation/Operating Income)

X_2 = Risk Assessment determined by financial risk calculated by solvency ratio (After-tax net income + depreciation/ (short + long term liabilities)).

X_3 = Strategic Risk determined by profit budget variance

X_4 =Reputational Risk Management calculated by percentage change in revenue

X_5 = Size measured by total assets

β_0= Constant Term.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Beta coefficients.

ε = Error Term.

3.5.3 Significance Tests

The study will adopt a confidence interval of 95%. Statistically, the findings were significant at the 0.05 level, which means that for a value to be significant it ought to be below the 0.05 significance level. Drawing conclusions about the model's accuracy in forecasting the export of red meat carcasses, a statistical inference model was applied.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

In this chapter, the study discussed the analysis of the data undertaken by the study. The study carried out descriptive statistics to describe the central tendency of the data according to each variable. The study conducted diagnostic tests to show the robustness of the regression model. The chapter also entailed correlation and regression analysis to achieve the objective of the study. Summary and interpretation of the findings concluded the chapter.

4.2 Descriptive Statistics

The descriptive statistics defines the variables in terms of mean, standard deviation, maximum and minimum value, as well as skewness and kurtosis. The skewness, which evaluates how far to the right or left the data distribution is skewed, and the kurtosis, which gauges how angular, tall, and flat the distribution of the data is, respectively. The secondary data obtained by the study was from 7 agricultural companies obtained for a period of 10 years from 2012 to 2021. The study included only the agricultural companies that are listed at the Nairobi Securities Exchange.

Table 4. 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Y=ROA	70	-9.31	35.21	6.3451	8.59393	1.210	.287	2.235	.566
X1Operational Risk	70	-346.27	392.53	1.4602	63.17293	1.053	.287	34.597	.566
X2Risk Assessment	70	-.65	2.20	.7860	.56763	.281	.287	.016	.566
X3Strategic Risk	70	-608.54	16.67	-16.006	78.90765	-6.725	.287	48.455	.566
X4Reputational Risk Management	70	-12.80	.98	-.2848	1.60941	-7.068	.287	54.743	.566
X5 Size	70	12.25	18.29	14.7364	1.28028	-.347	.287	-.258	.566
Valid N (listwise)	70								

Source: Researcher (2022)

The dependent variable of the study is the financial performance which is determined by finding the percentage of return on assets. Return on asset is obtained by dividing net income by total assets. Financial performance according to the descriptive statistics has a mean value of 6.35% and a standard deviation of 8.59% the minimum value of financial performance is -9.31% and the maximum value is 35.21%. Both skewness and kurtosis are positive and low at 1.21 and 2.24 respectively.

Operational risk is the first independent variable of the study obtained by calculating the ratio of operating expenses less depreciation and operating income of the firms. The mean value of operational risk was 1.46 with a standard deviation of 63.17, the maximum was 392.53 and the minimum was -346.27. Skewness and kurtosis of operational risk were 1.05 and 34.6

respectively.

Risk assessment was the second independent variable of the study obtained from dividing the sum of net income after tax and depreciation by the sum of short and long term liabilities. Descriptive statistics indicated a mean of 0.79 and a standard deviation of 0.57. The maximum and minimum values of risk assessment were 2.2 and -0.65 respectively while skewness and kurtosis were both positive with values of 0.28 and 0.02 respectively.

Strategic risk was the third independent variable of the study obtained from dividing net-income less budgeted income by net income. Strategic risk had a mean of – 16.01, a standard deviation of 78.91, the maximum value was 16.67 and the minimum value was -608.54. Strategic risk as well had skewness of -6.73 and kurtosis of 48.46.

The fourth independent variable was reputational risk management which was obtained from dividing revenue of the previous year less revenue of the current year by revenue of the previous year. The mean of the variable was -0.28 with a standard deviation of 1.61 and the maximum and minimum values were 0.98 and -12.8 respectively. Skewness and kurtosis of the variable were -7.07 and 54.74 respectively.

The last independent variable which was size of the firm was given by the total asset of the firms which was expressed by the natural logarithm of the total asset of the firms. The mean of the size was 14.74 and the standard deviation was 1.28, the maximum value and the minimum value are 18.29 and 12.25 respectively. Size indicated a skewness of -0.35 and kurtosis of -0.26 where both values were negative and very low.

4.3 Diagnostic Tests

The assumptions of a multiple regression analysis are met by conducting diagnostic tests. These include the presumptions of linearity, normalcy and the absence of autocorrelations,

homoscedasticity, and multicollinearity.

4.3.1 Linearity Test

The assumption of linearity assumes that the data being collected is linear because the regression analysis observes linear tendency hence the data used must be able to be transformed into a straight line. When using linear plots or standard P-P plots to test for linearity, it is presumed that the data is linear if the plots follow the diagonal line.

Table 4. 2: Normal P-P Plot
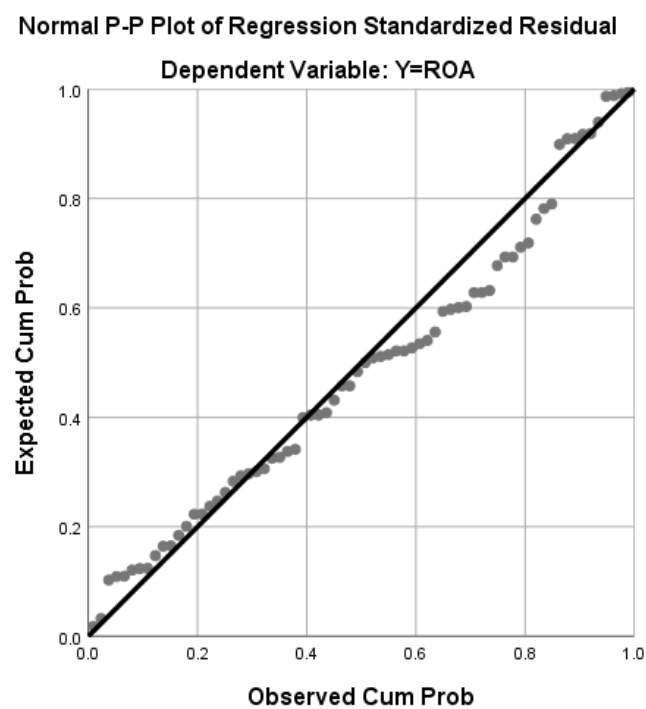
The normal p-p plot indicates that majority of the plots follow the diagonal line. Therefore, the study assumes that the data variables are linear.

4.3.2 Normality Test

The purpose of the normality test is to determine whether the data distribution complies with the normal curve distribution. In other words, data should be presented in the form of a bell-shaped curve to show that the bulk of the data is distributed around the mean and the minority is spread along either end of the distribution. The Shapiro-Wilk test is used to determine whether a variable's data distribution is normal. If the test's p value is higher than 0.05, the variable's data distribution is considered to be normal.

Figure 4. 1: Histogram of Financial Performance
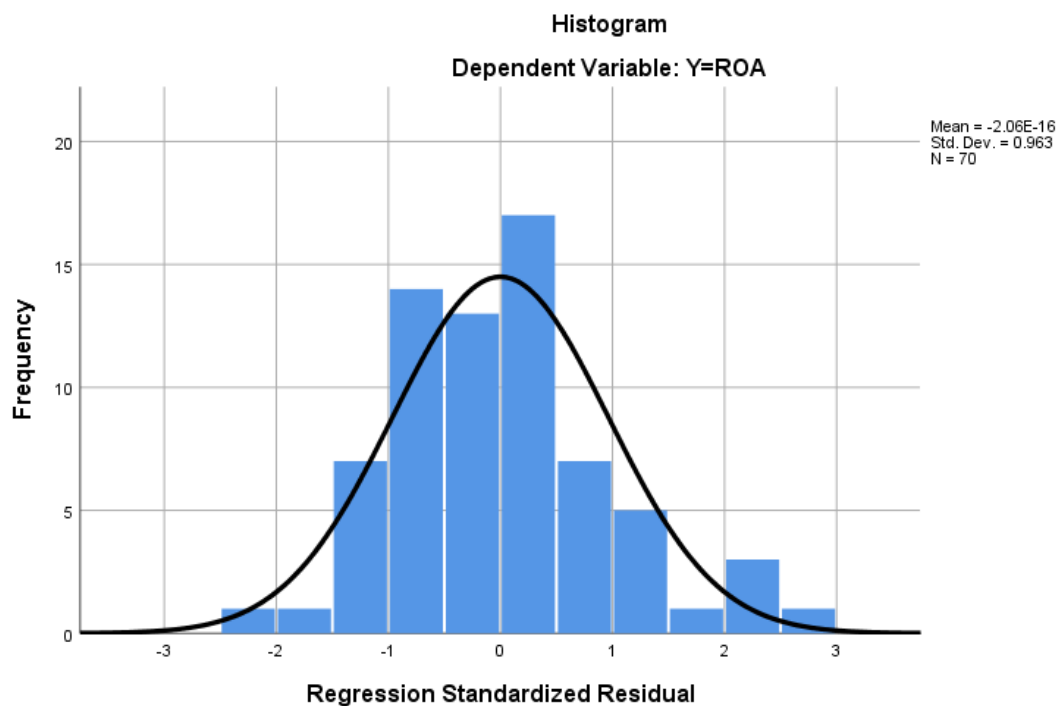
A histogram in Figure 4.2 shows normally distributed data which indicate that the distribution of data is normal. This suggests a typical bell-shaped curve. At a significance level of 0.05, a Shapiro-Wilk test is conducted to ascertain whether the distribution is normal.

Table 4. 3: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y=ROA	.119	70	.015	.915	70	.000
Operating Expense – Depreciation	.175	70	.000	.956	70	.016
X1 Operational Risk	.439	70	.000	.234	70	.000
X2 Risk Assessment	.070	70	.200[*]	.984	70	.530
X3 Strategic Risk	.411	70	.000	.242	70	.000
X4 Reputational Risk Management	.362	70	.000	.309	70	.000
X5 Size	.137	70	.002	.928	70	.001
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

All independent variables in the Shapiro-Wilk test have p values less than 0.05, apart from assessment risk. This suggests that the data is not normally distributed at the 5% level of significance. Since parametric tests demand that data be normally distributed, data is therefore addressed by implementing standardized variables while performing all parametric tests. However, non-parametric tests are recommended because they do not require that the data be normally distributed.

4.3.3 Test for Autocorrelation

Disturbances in time series data can either show serial correlation or autocorrelation over the duration. When present in a linear panel data model, serial correlation leads to a difficulty with biasness of the standard errors as well as inefficiency of consistently computed regression coefficients. The Durbin-Watson test was used in this study to determine whether

autocorrelation is a concern. This statistical test is used to determine whether there is correlation between the mistakes in various observations by assessing first order autocorrelation between the error and its immediately preceding value. The null hypothesis is that there is no serial correlation.

According to the Durbin Watson Score rule of thumb, a number between 1 and 2 denotes the absence of autocorrelations, whereas a score below 1 or above 2 denotes the presence of either positive or negative autocorrelations.

Table 4. 4 Test of Autocorrelations

Model	Durbin-Watson
1	.980

The Durbin-Watson test indicates a result of 0.98 which is less than 1. When the result is less than 1 or above 2 in Durbin-Watson test signifies that the data has autocorrelation. In this case autocorrelation is present and will be corrected by transforming the data through standardization of values.

4.3.4 Heteroscedasticity Test

Regression disturbances with non-constant variances are possible in observations. Heteroskedasticity is the term used to describe this issue. Both time series data and cross-section data may exhibit it. Its presence results in an issue with the estimation results being inefficient. This study's heteroscedasticity test will be conducted using the Breush-Pagan Test. A Chi-Square statistic and related p-value are generated by the test. When the p-value is less than 0.05, there is evidence that the heteroscedasticity issue is present.

Table 4. 5: Breusch- Pagan Test

Breusch-Pagan Test for Heteroskedasticity[a,b,c]

Chi-Square	df	Sig.
16.903	1	<.001

a. Y=ROA

b. H0: The variance of the errors does not depend on the values of the independent variables.

c. Intercept + X1+ X2 + X3 + X4 + X5

Source: Researcher, (2022)

Table 4.5 indicates that the p-value is less than 0.05 and therefore we reject the null hypothesis. This indicates that there is presence of heteroscedasticity, and therefore transformation of data variables through standardization was required.

4.3.5 Multi-Collinearity Test

The purpose of the test is to make sure that the independent variables are not correlated with one another, which could cause problems with collinearity in the data. When two independent variables are correlated with one another and tend to measure or have a similar impact on the dependent variable, regression analysis shows this to be an issue. These are referred to as multi-collinear variables. Variables with VIF or greater than 10 are thought to have multi-collinearity that could affect the regressions. Variation inflation factors (VIF) are used to determine multi-collinearity. A tolerance level of greater than 1 indicates the presence of multicollinearity problems that would need to be resolved, which also determines this.

Table 4. 6: Multi-collinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	X1 Operational Risk	.994	1.006
	X2 Risk Assessment	.839	1.192
	X3 Strategic Risk	.969	1.032
	X4 Reputational Risk Management	.976	1.025
	X5 Size	.857	1.167
a. Dependent Variable: Y=ROA			

Table 4.6 shows that no variables have multi-collinearity issues because their VIF values are all less than 10.

4.4 Correlation Analysis

The correlation between each independent variable and the dependent variable is ascertained using the correlation analysis. Given that Spearman's correlation is a non-parametric test, it was used for this research. Correlation has a scale of 0 to 1, with 1 denoting perfect correlation.

Table 4. 7: Correlations

	Y=ROA	X1 Operational Risk	X2 Risk Assessment	X3 Strategic Risk	X4 Reputational Risk Management	X5 Size
Y=ROA	1					
X1 Operational Risk	.085	1				
	.486					
X2 Risk Assessment	.567**	-.074	1			
	.000	.541				
X3 Strategic Risk	.139	-.016	.155	1		
	.252	.897	.202			
	.035	-.022	-.094	.044	1	

X4 Reputational Risk Management	.773	.854	.438	.717		
X5 Size	.146	-.030	.361**	-.004	-.134	1
	.226	.808	.002	.971	.269	
	70	70	70	70	70	70
**. Correlation is significant at the 0.01 level (2-tailed).						

All the independent variables are positively correlated with the financial performance. There is a correlation of 0.085 between operational risk and financial performance which indicates a strong positive and insignificant correlation. Risk assessment has a strong positive and significant correlation of 0.567 against financial performance. Strategic risk however, indicates a weak but positive correlation of 0.139 against financial performance which is also insignificant. Reputational risk management as well indicates a relative strong, positive and insignificant correlation of 0.035 and finally the size of the firms indicates a weak positive and insignificant correlation of 0.146 against financial performance. Correlation analysis indicates that an increase in one independent variable while others remain constant will lead to an increase in financial performance of the listed agricultural firms in Kenya. Strategic risk was found to low correlation against financial performance indicating that strategic risk is not very sensitive to returns thus listed agricultural firms need to apply more risk averseness. Given the essentially non-existent relationship between size and financial performance listed agricultural enterprises indicate the inability to make the best use of their resources to improve their financial performance.

4.5 Regression Analysis

To ascertain the connection between risk management practices and financial performance, regression analysis is used. It is used to examine whether the study independent variables are significantly correlated with the dependent variable. Therefore, multiple linear regression was used in the investigation, and the significance was assessed using the F test.

4.5.1 Regression Summary of the Model

Regression model summary depicts the findings that demonstrate the robustness of the model as determined by R squared. It offers the coefficient of determination, which shows the degree to which changes in the dependent variable might be explained by the model used in the study. On the other hand, adjusted R squared makes statistical adjustments based on the number of independent variables in the model.

Table 4. 8: Model Summary

Mo del	R	R Square	Adjuste d R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.592ª	.351	.300	.83650934	.351	6.921	5	64	.000
a. Predictors: (Constant), X5 Size, X3 Strategic Risk, X1 Operational Risk, X4Reputational Risk Management, X2Risk Assessment									
b. Dependent Variable: Y=ROA									

The coefficient of determination according to the regression analysis was 0.351 which indicate that the change in the dependent variable, financial performance, can be explained by the changes in the dependent variables of the study to a tune of 35.1%. This signifies that the other 64.9% of the change in Y variable can be explained by other factors that are not included in the model.

4.5.2 Analysis of Variance

A substantial relationship between the independent and dependent variables is established using the analysis of variance. The significance value (p-Value) is compared against an alpha value of 0.05 when doing an F test to determine this. In the event that $p < 0.05$, the study rejects the null hypothesis and comes to the conclusion that there is a significant correlation between the independent and dependent variables and if $p > 0.05$, then the study fails to reject the null hypothesis and therefore, makes a conclusion that there is no significant relationship between the independent and the dependent variables.

Table 4. 9: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.216	5	4.843	6.921	.000[b]
	Residual	44.784	64	.700		
	Total	69.000	69			
a. Dependent Variable: Y=ROA						
b. Predictors: (Constant), X5 Size, X3 Strategic Risk, X1 Operational Risk, X4 Reputational Risk Management, X2 Risk Assessment						

The ANOVA table indicates that the p value of the relationship between the independent and dependent variables is less than 0.05. Therefore, the study rejects the null hypothesis and concludes that there is significant impact of risk management practices on financial performance.

4.5.3 Regression Coefficient

The extent to which the changes in one of the independent variables bring a change in the dependent variable while all other variables are kept constant is established by regression coefficient.

Table 4. 10: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7.225 E-17	.100		.000	1.000	-.200	.200
	X1 Operational Risk	.130	.101	.130	1.288	.202	-.072	.332
	X2 Risk Assessment	.597	.110	.597	5.430	.000	.377	.817
	X3 Strategic Risk	.045	.102	.045	.436	.665	-.160	.249
	X4 Reputational Risk Management	.085	.102	.085	.836	.406	-.118	.289
	X5 Size	-.053	.109	-.053	-.490	.626	-.271	.164
a. Dependent Variable: Y=ROA								

The regression coefficient in the coefficient table implies that the regression model is transformed in to: Y = 0.13X1 + 0.597X2 + 0.045X3+ 0.085 X4 - 0.053X5 + 0.1

In the interpretation of the model, when operational risk, risk assessment, strategic risk and reputational risk management increase the revenue of listed agricultural firms increases indicating that the firms are able to mitigate these risks by having effective risk management practices. Risk assessment indicate the highest coefficient of 0.597 insinuating that a unit change in risk assessment when other factors are constant will result to a 0.597 direct change in the financial performance. Therefore, listed agricultural companies in Kenya should focus more on risk assessment due to its high impact on financial performance. Size on the other hand indicate a negative change on financial performance implying that an increase in one unit of size when other factors are constant will lead to a decrease of 0.053 in the financial performance. This signifies that listed agricultural companies are currently experiencing diseconomies of scale as a result of inability to manage increased stock.

4.6 Findings and Interpretation

The study carried out different analyses obtaining different results which will be summarised, interpreted and explained in this section. To begin with, the study carried out descriptive statistics which described data collected of each study variable from all the seven listed agricultural companies in Kenya for a period of ten years. Descriptive statistics indicated a mean of 6.35% and a standard deviation of 8.59% of the financial performance which indicates that most of the firms' financial performance does not deviate far from the mean. This indicates that the listed agricultural firms have positive returns on their invested assets indicating that the agricultural sector is a lucrative sector attracting more investment. Operational risk had a mean of 1.46 which indicates that it is significantly present hence the firms should be aware of it in order to be mitigated. Assessment risk ratio had a mean of 0.79 which is relatively lower compared to operational risk which as well requires mitigation. Strategic risk and reputational risk management had means of -16.01 and -0.28 respectively insinuating that they are not threat to the firms since they are absent.

Correlation analysis undertaken by the study indicate that the correlation between the independent variables and the dependent variables were positive. This indicated that increasing the different kind of risks also led to an increase in performance. This is in line with risk return relationship that indicates that the higher the risks the higher the returns. However, the study indicated that only assessment risks determined by financial risk had significant effect on firm performance. This indicates that financial risks had significant positive effect on firm performance. This therefore indicates that agricultural firms had significant chance of increasing their performance if they were to increase financial risk by increasing the solvency ratio. However, increasing the other forms of risk would not necessarily lead to significant increase in financial performance.

The regression analysis that was undertaken by the study had a coefficient of determination represented by R squared of 35.1%. This indicates that the regression model of the study can explain up to 35.1% of the changes in the independent variable. The adjusted R square is however at 30 % that indicate that the adjusted R square is less than R squared. This shows that in the model there are factors that do not have significant impact on the model and therefore these factors do not improve the model. The table 4.10 indicate that the only independent factor that has a significant t value is Risk assessment that is measured by the financial risk that was determined by solvency ratio. The other independent factors have p values above 0.05 and they therefore do not have significant effect on the dependent variable.

The regression analysis indicates that there is significant effect of risk management practices on firm performance. The p-value of the F-test was less than 0.05 indicating significant effect of risk management practices on firm performance of agricultural firms in Kenya. If all factors were held constant and solvency ratio was increased by 1 unit, then firm performance would increase by 0.597%. Increasing operational risk, strategic risk and reputational risk management, however, did not have significant effect on firm performance of agricultural firms.

The findings of the study were in line with Sharmaa et al. (2020) that was conducted in India and which found that financial risk among other supply risks had significant impact on ASC of firms. Similar findings were indicated by Behzadi et al. (2018) who also undertook a study of agricultural firms on issues of supply chains. Banjo, Adeola, and Adewale (2021) found that risk management practices enhanced performance. Wambui and Wamugo (2018) found that credit risk management practices had significant effect on financial performance of agricultural firms.

The findings of the study were however opposed to findings by Purdy and Featherstone (2015) that indicated that decrease in risk variability enhanced performance. Banjo, Adeola, and Adewale (2021) found that risk assessment and reduction of risk exposure enhanced performance of agricultural firms in Nigeria. Oruko and Tibbs (2020) found that financial risk had significant but negative effect on performance.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter summarizes the study, undertakes conclusion of the study and the recommendations from the conclusion of the study. The study also notes the limitations that would limit the study findings and makes suggestions for further research by future researchers.

5.2 Summary

Agricultural firms in Kenya are faced by myriad of risks that emanate from the environment through the issues of climate change. Managerial issues also play a critical role in increasing risks for these firms as young educated managers shy away from these companies and prefer roles in tech industries, communication among other industries. Agricultural firms are therefore affected by real issues and proper management of risks is expected to enhance performance of the firms. The study therefore set out to understand the effect of risk management practices on financial performance of listed agricultural companies at the NSE.

The study adopted descriptive research design as it entailed observing and describing occurrences without altering the qualities that were already there. Secondary data was collected from all the 7 listed agricultural companies for the period 2012-2021. The data collected was used to determine financial performance that was measured by the use of ROA. Data for operational risks was collected to calculate the operating expense ratio, financial risk was determined by solvency risk, assessment risk was determined by profit budget variance, Reputational risk that was calculated by percentage change in revenue and size that was determined by total assets.

The study adopted the use of multiple regression analysis to determine the effect of risk managemengt practices on performnce. However, the study first undertook descriptive statistics that described each variable to determine the distribution as well as the mean standard deviation, kurtosis and skewness of each study variable. It provided an indication of the distributkion of the study data. Correlation analysis was also undertaken where Pearson's correlation was undertaken to determine the correlation between the independent and the dependnet variables. The study found that there was a positive correlations between the independnet variables and the dependnet variable. All the correlations were weak and insignificnat except the correlation between financial risk and performance that had significant positive correlation.

The multiple regression analysis that was undertaken after conducting diagnostic tests and transforming the values by standardizing the values for the study variables indicated that the coefficient of determination (R Squared) was able to predict changes in the dependent variable to a tune of 35.1%. The adjusted R squared was however lower than R squared indicating that some components of the model did not contribute significantly to the model. The F test undertaken had a p-value of less than 0.05 that meant that the null hypothesis was rejected and the study concluded that there was significant effect of risk management practices on firm performance of agricultural companies listed at the NSE. The regression coeeficient indicated that all the independnet variables had insignificant effect on performace apart from financial risk that indicated that increasing solvency ratio by one unit would lead to increase in financial performance to an extent of 0.57%.

5.3 Conclusion

The main conclusion of the study is that risk management practices should be undertaken as they influence performance of Agricultural companies positively. Other specific conclusions

of the study include the fact that assessment risk practices had significant influence on performance of agricultural firms than all the other risks. The study therefore concluded that these risks that pertains solvency ratio or financial risks should be undertaken with extra vigour and vigilance as they had significant effect and contributions to performance.

The study found that size of the firm did not have significant effect on performance of the agricultural companies. This could be explained by the fact that the agricultural companies were characterised by large assets consisting of large pieces of land, machinery among others. However, these assets are not adequately utilised to enhance profitability and increase returns for these firms. The study therefore concluded that agricultural firms should ensure that they utilize their assets effectively and efficiently to ensure that all their assets have been fully used to generate returns for the company.

The study also concluded that operational risks, strategic risks and assessment risks do not have significant impact on performance of firms. It would therefore be counterproductive to increase these risks, since increasing this risk exposure may not have desired or reciprocative capability of increasing firm performance. The total exposure of these risks should be reduced significantly as the firm would not derive value of a chance of improved performance if they were increased significnatly.

5.4 Study Recommendations

The study findings and the conclusion of the study would lead to a number of recommendations by the study. The recommendation would be categorized either as recommendation on practice, or recommendation on policies. The practice recommendatkion would include ensuring that risk management practices have been increased as they enhance performance of agricultural firms. The study however, was very specific on which kind of risk management practice should be increased. The risk assessment that is comprised of financial risk should be managed

effectively as increaisng the risk would likely improve the return and hence improve performance.

The study also recommend that the management of operatoional risk practices, reputational risk management and strategic risk management should be undertaken to the extent that the risk is maintained at minimum levels. This is because increasing the risk does not have a significant impact on improved financial perforamcne and therefore the exposure to extra risk would not be coupled with a chance of improving performance.

The study recommends agricultural firms to ensure that they increase the utilisation of their assets more to generate returns. This was because of the fact that assets did not have significant effect on performance. It is an indicator of the fact that many agricultural companies do not utilize assets at their disposal optimumly to enhance financial performance.

The policy changes that would be recommended by the study is to ensure that minimum leverage ratio for agricultural firms is established as a matter of policy. This would mean that management of agricultural firms would be required to finance their firms by use of debt to a certain level, where these firms would be forced to manage their solvency risks and would ultimately lead to improved financial performance. Policy changes should be considered on utilization of assets where maintaining idle land would be penalized heavily by the government of the day.

5.5 Study Limitations

There are several limitations that may be considered by the study, and despite the fact that due diligence has been exercised in undertaking the study, these limitations may have an effect on the study findings. The study adopted the use of secondary data. Despite the fact that the data relied on published financial statements, secondary data is prone to errors condusted by third

parties in form of errors on orignal entry or on presentation of data. This study limitation would onluy be addressed if primary data was used in place of secondary data.

The population of the study was limiting. The study used 7 listed agricultural firms in Kenya, while it is evident that there are many more agricultural firms in Kenya. The population adopted in the study is therefore not a representative of all the agricultural firms in Kenya. The results may therefore not be a representative of the entire population.

Risk management practices were considered through operational ratios. These operational ratios were good and close representatives and measures of these respective risks but they may be far from being accurate measures of these risks. These risks were obtained from ratios in audited financial statements, but measures of measuring the specific risks would include measuring the variance and the covariance of these risks.

5.6 Areas for Future Research

The study therefore recommends different future studies to be undertaken to address these limitations. In the first place, a similar study may be undertaken where primary data would be collected instead of secondary data. In such a study the findings would be compared to the findings of this study to ensure that the findings are similar, and where difference in findings is observed, a possible reason to be explained.

The study also recommends undertaking a similar study, where adjustments for inflation and time value of money is considered. This means that real value of objectives should be taken into consideration, rather than considering absolute values, that may have undergone significant changes. The findings of such a study should also be compared to the findings of this study.

A future study should also be undertaken where the methodology of the study should indicate the exact risk exposure undertaken by the firm and performance. The study assumptions should be decreased to ensure that actual risks are used in place of using close risk management practices representatives.

A study should also be undertaken that not just targets listed agricultural companies, but rather considers all the agricultural firms in Kenya. An appropriate sampling technique should be adopted and the result findings of such a study be compared to the study findings of this study.

REFERENCES

Adeusi, S. O., Akeke, N. I., Adebisi, O. S., & Oladunjoye, O. (2014). Risk Management and Financial Performance of Banks in Nigeria. *European Journal of Business and Management*.

Allen, E., & Maghimbi, S. (2009). African cooperatives and the financial crisis. *Geneva ILO*.

Aven, T. (2016). Risk assessment and risk management: Review of recent advances on their foundation. *European Journal of Operational Research*, 1-13.

Banjo, D., Adeola, K., & Adewale, O. F. (2021). Risk Management Practices and the Financial Performance of Agricultural Firms in Nigeria. *International Journal of Management Studies and Social Science Research*, 350-358.

Barnard, F. L., Foltz, J., Yeager, E. A., & Brewer, B. (2020). *Agribusiness Management.* London: Routledge.

Behzadi, G., O'Sullivan, M. J., Olsen, T. L., & Zhang, A. (2018). Agribusiness supply chain risk management: A review of quantitative decision models. *Omega*, 21-42.

Blumberg, B., Cooper, D., & Schindler, P. (2014). *Business Research Methods.* McGraw Hill.

Bromiley, P., Shane, M. M., Nair, A., & Rustambekov, E. (2015). Enterprise Risk Management: Review, Critique, and Research Directions. *Long Range Planning*, 265-276.

Clapp, J., & Isakson, R. (2016). The agricultural sector unlike any other sector is faced with a lot of risks that undermine its financial performance. *DeDevelopment and change Forum*.

Dymski, G. (2005). Banking Strategy and Financial Exclusion: Tracing the Pathways of Globalization. *Revista de Economia*.

Farrell, M., & Gallagher, R. (2015). The Valuation Implications of Enterprise Risk Management Maturity. *Journal of Risk and Insurance*.

Giannakis, M., & Papadopoulos, T. (2016). Supply chain sustainability: A risk management approach. *International Journal of Production Economics*, 455-470.

Hubbard, D. W. (2020). *The Failure of Risk Management: Why It's Broken and How to Fix It.* John Wiley & Sons.

Kerzner, H. (2019). *Project Management Best Practices: Achieving Global Excellence.* John Wiley & Sons.

Kessy, S. S. (2021). Risk Management Practices in Agricultural Financing in Developing Countries: Experience from Selected Commercial Banks in Tanzania. *Tanzanian Economic Review*, 122-142.

Kinyua, J. K., Gakure, R., Gekara, M., & Orwa, G. (2015). Effect Of Risk Management On The Financial Performance Of Companies Quoted In The Nairobi Securities Exchange. *International Journal of Business & Law Research*, 26-42.

Kraijak, S., & Tuwanut, P. (2015). A survey on internet of things architecture, protocols, possible applications, security, privacy, real-world implementation, and future trends. *2015 IEEE 16th International Conference on Communication Technology (ICCT).* Hangzhou, China: IEEE.

Lingmont, D. N., & Alexiou, A. (2020). The contingent effect of job automating technology awareness on perceived job insecurity: Exploring the moderating role of organizational culture. *Technological Forecasting and Social Change*.

McBurney, D. H., & White, T. (2010). *Research Methods.*

Oruko, F., & Tibbs, C. Y. (2020). Influence of Financial Risk on Financial Performance of Agricultural Firms Listed on Nairobi Securities Exchange in Kenya. *Journal of Economics and Finance*, 5-12.

Pagach, D., & Warr, R. (2015). The effects of enterprise risk management on firm performance. In *The Routledge Companion to Strategic Risk Management.* Routledge.

Paul, J., & Criado, A. R. (2020). The art of writing a literature review: What do we know and what do we need to know? *International Business Review*

Payne, G. T., & Petrenko, O. V. (2019). Agency Theory in Business and Management Research. *Business and Management*.

Purdy, B. M., & Featherstone, A. M. (2015). Financial Performance, Risk, and Specialization. *Journal of Agricultural and Applied Economics*.

Resmi, S. I., & Begum, N. N. (2018). Impact of CSR on Firm's Financial Performance: A Study on Some Selected Agribusiness Industries of Bangladesh. *American Journal of Economics, Finance, and Management*, 74-85.

Rodriguez-Fernandez, M. (2016). Social responsibility and financial performance: The role of good corporate governance. *BRQ Business Research Quarterly*, 137-151.

Rop, E. C., & Rotich, G. (2018). Effect of risk management practices on financial performance of commercial state corporations in Kenya: a case of Jomo Kenyatta Foundation. *International Journal of Finance and Accounting*, *3*(2), 19-39.

Saunders, M. N., Lewis, P., & Thornhill, A. (2012). *Research Methods for Business*. Pearson Education Limited.

Schimmelpfennig, D., & Ebel, R. (2016). Sequential Adoption and Cost Savings from Precision Agriculture. *Journal of Agricultural and Resource Economics*, 97-115.

Sharmaa, R., Shishodia, A., Kamble, S., Gunasekaran, A., & Belhadi, A. (2020). Agriculture supply chain risks and COVID-19: mitigation strategies and implications for the practitioners. *International Journal of Logistics Research and Management*.

Thomaier, S., Specht, K., Henckel, D., Sawicka, M., Freisinger, U. B., & Siebert, R. (2014). Farming in and on urban buildings: Present practice and specific novelties of Zero-Acreage Farming (ZFarming). *Renewable Agriculture and Food Systems*.

Wambui, M. R., & Wamugo, L. (2018). Credit Risk Management practices and financial performance of listed agricultural firms listed at the Nairobi Securities Exchange, Kenya. *International Journal of Business Management & Finance*, 1055-1069.

APPENDICES

APPENDIX I: Data Collection Form

Name of Company	Year	Operating Expenses	Operating Income	Depreciation	Net Income (After Tax)	Liabilities (Short Term +Long Term)	Revenue	Total Assets	Budgeted Profit
	2011								
	2012								
	2013								
	2014								
	2015								
	2016								
	2017								
	2018								
	2019								
	2020								
	2021								

APPENDIX II: List of Agricultural Companies Listed at the Nairobi Securities Exchange

1	Kakuzi Limited

2	Eaagads Limited
3	Kapchorua Tea
4	Sasini Ltd
5	Limuru Tea Company Ltd
6	Williamson Tea Kenya Ltd
7	Rea Vipingo Plantations Ltd

APPENDIX III: DATA USED

Company Name	Year	Y=ROA	X1Operational Risk	X2Risk Assessment	X3Strategic Risk	X4Reputational Risk Management	X5 Size
Kakuzi ltd	2012	11.44	-0.56	0.28	-0.22	0.00	15.09
	2013	4.44	-1.95	1.03	-2.38	0.12	15.13
	2014	4.15	-1.28	0.97	-1.05	-0.22	15.17
	2015	11.58	-0.11	1.13	0.34	-0.47	15.33
	2016	11.11	-0.51	1.26	-0.44	-0.07	15.44
	2017	10.30	-0.71	1.21	-0.55	-0.07	15.56
	2018	8.10	-0.55	1.36	-0.97	-0.12	15.60
	2019	11.04	-0.93	1.68	-0.45	0.08	15.68
	2020	9.01	-1.39	1.66	-1.00	-0.25	15.75
	2021	4.73	-2.12	1.61	-1.11	0.09	15.75
Limuru Tea	2012	31.82	-0.31	1.40	0.56	-0.13	12.68
	2013	8.31	-0.21	0.44	-0.80	0.10	12.75
	2014	1.95	0.01	0.17	-7.71	0.54	12.87
	2015	1.06	0.18	0.10	-14.05	0.12	12.74
	2016	7.28	0.11	0.29	-1.20	-1.45	12.48
	2017	-1.40	0.07	-0.01	12.46	0.23	12.48
	2018	1.38	2.57	0.09	-10.61	-0.10	12.50
	2019	2.01	0.10	0.15	-6.95	-0.10	12.37
	2020	-6.30	0.23	-0.30	3.86	0.01	12.34
	2021	-9.31	0.29	-0.65	2.07	0.13	12.25
Kapchorwa	2012	3.97	-0.71	1.28	-2.52	-0.13	14.49
	2013	8.65	-0.26	0.61	-0.73	0.04	14.55
	2014	6.53	-0.23	0.96	-1.60	0.12	14.47
	2015	-1.15	-0.39	0.83	14.93	0.10	14.50
	2016	10.06	-0.64	1.79	-0.59	-0.13	14.66
	2017	3.97	-0.71	1.28	-3.03	-0.16	14.49
	2018	8.65	-0.26	0.61	-0.85	0.04	14.55
	2019	6.53	-0.23	0.96	-1.45	0.12	14.47
	2020	-1.15	-0.39	0.83	16.67	0.10	14.50
	2021	10.06	-0.64	1.79	0.01	-0.13	14.66
Williamson Tea	2012	11.82	0.66	0.40	-0.18	-0.10	15.79

	2013	20.50	0.36	1.12	0.27	0.03	15.24
	2014	8.67	-1.07	0.87	-0.96	-0.01	15.96
	2015	-4.80	-2.30	0.21	4.33	0.26	15.37
	2016	5.83	-2.12	0.89	-1.74	-0.31	15.32
	2017	-3.13	-1.96	0.60	6.12	-0.01	15.94
	2018	5.29	-0.02	0.59	-2.02	0.57	16.07
	2019	-2.08	-7.18	0.29	8.68	0.17	15.93
	2020	1.74	-0.35	0.87	-9.37	0.13	15.88
	2021	-1.82	-0.20	0.25	6.51	-0.18	15.90
Eaagads Ltd	2012	5.29	8.25	0.29	-1.65	0.15	12.93
	2013	13.51	11.13	0.80	-0.11	0.57	12.99
	2014	9.35	31.49	0.55	-0.82	-0.41	13.01
	2015	1.33	8.16	0.18	-11.06	-0.06	13.33
	2016	0.06	11.48	0.11	-254.31	-0.24	13.54
	2017	1.96	392.53	0.46	-7.15	-0.11	13.74
	2018	-6.90	-346.27	0.85	3.32	0.40	13.72
	2019	0.28	-3.70	1.63	-55.96	-1.36	13.76
	2020	-7.03	-2.22	0.88	3.56	0.75	13.76
	2021	0.16	-1.92	1.19	-62.80	-1.87	13.93
Sasini	2012	0.02	0.41	0.22	-608.54	-0.14	15.13
	2013	1.88	2.34	0.08	-6.98	0.45	15.19
	2014	0.35	0.27	0.38	-47.75	-0.52	18.29
	2015	12.68	-0.01	2.16	-0.26	-2.85	15.98
	2016	8.10	0.06	1.35	-0.97	-0.28	16.06
	2017	2.78	0.31	0.41	-4.75	0.02	16.32
	2018	2.26	0.12	0.59	-6.09	-0.20	16.38
	2019	0.58	-0.02	0.86	-26.61	0.98	16.02
	2020	0.63	-0.08	0.73	-27.79	-12.80	16.04
	2021	2.26	0.42	0.49	-3.43	-0.70	16.06
Rea Vipingo	2012	16.01	1.77	0.74	0.13	-0.22	14.68
	2013	15.82	1.34	0.75	0.05	0.00	14.84
	2014	10.96	4.30	0.66	-0.55	-0.05	14.98
	2015	28.85	0.68	1.39	0.45	-0.32	15.44
	2016	35.21	1.31	2.20	0.55	-0.15	15.38
	2017	20.30	0.47	1.22	0.21	0.14	15.34
	2018	26.69	0.86	1.28	0.40	0.03	15.44
	2019	7.16	1.57	0.52	-1.24	0.01	15.50
	2020	6.11	1.33	0.51	-1.94	-0.03	15.58
	2021	6.65	1.50	0.63	-0.50	-0.08	15.53