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AN EVALUATION OF THE EFFECT OF RISK MANAGEMENT PRACTICES ON RETURNS ON INVESTMENT AMONG MEMBERS OF FARMERS MULTIPURPOSE COOPERATIVES SOCIETIES IN ANAMBRA STATE

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Abstract: This study investigates the impact of risk management practices on returns on investment (ROI), proxied by revenue, among members of farmers' multipurpose cooperatives in Anambra State, Nigeria. Employing a quantitative approach, the research analyzes the effects of five key risk management dimensions: risk identification methods, risk assessment techniques, risk mitigation strategies, risk monitoring and review, and organizational culture towards risk. A sample of 218 respondents was surveyed, and data was analyzed using Ordinary Least Squares (OLS) regression. Findings reveal statistically significant relationships between several risk management practices and returns on investment. For instance, the regression coefficient for Risk Identification Methods was $\beta = 0.15$ ($p<0.05$), indicating a positive and statistically significant association. Similarly, Risk Assessment Techniques demonstrated a positive and significant impact ($\beta = 0.22$, $p<0.01$). Risk Mitigation Strategies also exhibited a strong positive influence ($\beta = 0.18$, $p<0.05$). Risk Monitoring and Review showed a marginally significant positive association ($\beta = 0.08$, $p<0.10$). Conversely, Organizational Culture towards Risk showed a non-significant relationship with returns on investment ($\beta = 0.03$, $p>0.10$). These results suggest a positive correlation between robust risk management practices and improved revenue among cooperative members. The study highlights the importance of effective risk management strategies for enhancing returns on investment in agricultural cooperatives. Recommendations include promoting training programs on risk identification, assessment, and mitigation, fostering a culture of risk awareness within cooperatives, and implementing regular risk monitoring and review mechanisms.

Key words: Risk Identification Methods, Risk Assessment Techniques, Risk Mitigation Strategies, Risk Monitoring and Review, Organizational Culture towards Risk, Returns on Investment (ROI).

1. INTRODUCTION

Agricultural cooperatives globally, and particularly in developing economies like Nigeria, play a pivotal role in enhancing the livelihoods of smallholder farmers by facilitating access to resources, markets, and collective bargaining power (Birchall, 2013; World Bank, 2020). Farmers' multipurpose cooperative societies in Anambra State are no exception, serving as crucial platforms for members to pool resources, share knowledge, and engage in various agricultural value chain activities, from input procurement to marketing of produce. Historically, these cooperatives have emerged from the need for farmers to overcome individual limitations and address common

challenges such as limited access to credit, lack of market information, and vulnerability to price fluctuations (Ogunniyi et al., 2015; Ifechukwu-Jacobs, Ezeokafor & Ekwere, 2021; Ifechukwu-Jacobs, 2022). Their basic characteristics include a democratic structure, member ownership and control, and a focus on providing services that benefit their members economically and socially (ICA, 2015). While these cooperatives hold immense potential for driving rural development and improving food security, their long-term sustainability and ability to effectively serve their members are often hampered by various risks inherent in the agricultural sector and their internal operating environments. The dynamism of agricultural production, coupled with external factors like climate change, market volatility, and policy shifts, exposes these cooperatives to a complex array of risks that can significantly impact their financial performance and operational stability (FAO, 2019). The inherent volatility and unpredictability of the agricultural sector present significant challenges for farmers' multipurpose cooperative societies in Anambra State. These risks span across production (pest outbreaks, diseases, extreme weather events), market (price collapses, inability to access markets), financial (default on loans, liquidity issues), operational (mismanagement, inadequate infrastructure), and institutional levels (unfavorable government policies, weak regulatory frameworks) (Adejobi & Oladitan, 2017; Ifechukwu-Jacobs, Ezeokafor & Ekwere, 2021; Ilechukwu, Ifechukwu-Jacobs, & Okeke, 2023). While cooperatives are designed to mutualize some of these risks, the effectiveness of this risk sharing mechanism is contingent upon their ability to proactively identify, assess, and manage these threats. A failure to adequately address these risks can lead to reduced productivity, increased costs, loss of assets, and ultimately, diminished financial performance, which directly impacts the benefits accrued by members and the overall sustainability of the cooperative (Onugu & Okoli, 2012; Okezie & Njoku, 2019; Anigbogu, Onwuteaka & Okoli, 2019). The focus of this study, therefore, is to investigate how the application of specific risk management practices and the presence of a supportive organizational culture towards risk influence the financial performance, specifically Return on Investment (ROI), of these vital agricultural institutions..

The latent problem that informed this study stems from the observed disparities in the financial performance among farmers' multipurpose cooperative societies in Anambra State, despite operating within a similar agricultural landscape. Anecdotal evidence and previous studies suggest that while some cooperatives thrive and demonstrate consistent growth, others struggle with financial instability, low returns, and even eventual collapse (Ejike & Ezenwa, 2018; Okoli & Ibe, 2020; Dibua, Idemobi & Okoli, 2018). This variability in performance points towards the potential influence of internal organizational factors beyond external market conditions. The lack of a systematic approach to risk management within many of these cooperatives appears to be a significant contributing factor to their vulnerability. Without effective risk identification, assessment, mitigation, and monitoring processes, these societies are often caught off guard by adverse events, leading to significant financial setbacks and hindering their ability to achieve their objectives and provide expected returns to their members. The absence of a robust risk culture, where risk awareness is low and there is a reluctance to proactively address potential threats, further exacerbates this problem. This latent problem highlights a critical gap in understanding the specific internal mechanisms that differentiate high-performing cooperatives from those that are struggling financially, particularly in the context of risk management and organizational culture. Effective Risk Identification Methods are the foundational step in a comprehensive risk management framework. For farmers' multipurpose cooperative societies, this involves systematically identifying potential risks across all their activities, from input procurement and farming operations to processing, marketing, and financial management (UNDP, 2014). This could include methods like brainstorming sessions, checklists based on past experiences, expert consultations, and environmental scanning to identify emerging threats like new pests or changing market trends. By

proactively identifying potential risks, cooperatives can anticipate challenges and prepare appropriate responses, thereby minimizing the likelihood and impact of adverse events on their revenues and overall financial stability.

Following risk identification, Risk Assessment Techniques are crucial for evaluating the potential severity and likelihood of identified risks. This involves analyzing the potential impact on the cooperative's operations and finances, as well as the probability of the risk occurring (COSO, 2017; Onwuteaka, Ezeanolue,. & Okoli, 2020). Simple qualitative techniques like risk matrices (categorizing risks based on likelihood and impact) or more complex quantitative methods like financial modeling can be employed. By accurately assessing risks, cooperatives can prioritize their risk management efforts, focusing resources on the most critical threats. This targeted approach to risk management can lead to more efficient allocation of resources and ultimately contribute to enhanced financial performance by preventing significant losses. Once risks are assessed, Risk Mitigation Strategies are developed and implemented to reduce the probability of their occurrence or minimize their potential impact. These strategies can include a wide range of actions such as diversifying crops to reduce production risk, securing forward contracts to mitigate market price volatility, implementing internal controls to reduce operational risks, and establishing contingency funds to address financial risks (IFAD, 2018). By effectively implementing mitigation strategies, cooperatives can reduce the negative consequences of risks, thereby protecting their revenue streams and improving their overall financial health. The choice and effectiveness of mitigation strategies are directly linked to the cooperative's ability to maintain and increase its Return on Investment. Risk Monitoring and Review is an ongoing process that involves continuously tracking identified risks, assessing the effectiveness of implemented mitigation strategies, and identifying new or emerging risks (ISO 31000, 2018). This requires establishing feedback mechanisms, regular reporting, and periodic reviews of the risk management framework. By actively monitoring risks, cooperatives can adapt their strategies as circumstances change and ensure that their risk management efforts remain relevant and effective. This continuous improvement loop is essential for maintaining financial stability and driving sustained growth, which in turn positively impacts the cooperative's ROI. A proactive monitoring system allows for timely intervention, preventing minor issues from escalating into major financial crises.

Furthermore, a supportive Organizational Culture towards Risk plays a critical role in the effectiveness of risk management practices. A culture that encourages open communication about risks, promotes learning from past failures, and empowers individuals to take calculated risks while adhering to established protocols is essential for embedding risk management into the cooperative's operations (Schein, 2017; Okoli, Okonkwo. & Michael, 2020; Okoli, Ezeanolue & Edoko, 2019). When members and leaders understand the importance of risk management and are willing to embrace it, it becomes an integral part of decision-making rather than a standalone compliance exercise. A positive risk culture fosters a proactive approach to managing uncertainty, leading to better informed decisions, reduced losses, and ultimately, improved financial performance. Conversely, a culture of risk aversion or indifference can undermine even the best-designed risk management systems. Despite the clear need for effective risk management, past efforts by stakeholders to address the latent problems of financial instability and inconsistent performance in farmers' multipurpose cooperative societies in Anambra State have often fallen short of yielding the required results. Government interventions have sometimes focused on providing financial support or inputs without adequately addressing the underlying operational and risk management deficiencies (Manyong et al., 2018; Anigbogu & Okoli, 2018). Training programs have been offered, but they may not have been comprehensive enough to cover all aspects of risk management or may have lacked practical application in the specific context of these cooperatives. While some cooperatives have individually attempted to implement certain risk mitigation measures, these

efforts have often been fragmented, inconsistent, or not integrated into a holistic risk management framework (Ogunniyi et al., 2015; (Ifechukwu-Jacobs & Arinze, 2021; Ilechukwu, Ifechukwu-Jacobs, & Okeke, 2023). The lack of a systematic and culturally embedded approach to risk management remains a significant gap, contributing to the persistent vulnerability of many cooperatives to various shocks and hindering their ability to achieve sustainable financial performance and maximize the benefits for their members. This highlights the need for a deeper understanding of the specific elements of risk management practices and organizational culture that are most impactful on financial outcomes. Addressing the latent problem of inadequate risk management and fostering a positive risk culture in farmers' multipurpose cooperative societies in Anambra State is crucial for their sustainable development and the well-being of their members. The need for this study stems from the potential benefits of improved financial performance, which can translate into increased revenue, better returns on investment for members, enhanced capacity to provide services, and greater resilience to external shocks (Birchall, 2013; (Ezeokafor, Ifechukwu-Jacobs & Ekwere, 2021; Ifechukwu-Jacobs, 2022; Elumaro, Otugo & Okoli, 2018). By identifying the specific risk management practices and cultural attributes that are associated with higher ROI, the study can provide valuable insights and recommendations for cooperative leaders, government agencies, and development organizations on how to strengthen the financial position of these vital institutions. This, in turn, can contribute to improved food security, poverty reduction, and overall rural economic development in Anambra State.

Statement of the Problem

Farmers' multipurpose cooperative societies in Anambra State, despite their crucial role in supporting agricultural livelihoods and contributing to the local economy, face a significant and persistent challenge of inconsistent and often suboptimal financial performance, specifically in achieving satisfactory Returns on Investment (ROI) proxied by revenue. While these cooperatives operate within a sector inherently exposed to numerous risks, the immediate problem is the observable disparity in their financial outcomes, with some thriving while others struggle to remain viable. This variability points to internal factors that are not being effectively addressed. The lack of a systematic and comprehensive approach to managing the diverse risks they face, ranging from production and market volatility to financial and operational threats, appears to be a key contributor to this problem. Without effective risk management, these cooperatives are vulnerable to significant financial losses and hindered growth, directly impacting their ability to generate revenue and provide meaningful returns to their members. The issue is particularly topical and warrants empirical investigation because the agricultural sector is currently undergoing rapid changes due to climate change, evolving market dynamics, and technological advancements, all of which introduce new and complex risks that require proactive management (FAO, 2019; World Bank, 2020).

The inadequate application of critical risk management components within these cooperatives is a central aspect of the problem. Specifically, deficiencies in Risk Identification Methods may lead to overlooking crucial threats, while weak Risk Assessment Techniques can result in misprioritizing risks, leaving the cooperatives exposed to high-impact events. Furthermore, the absence of robust Risk Mitigation Strategies means that identified and assessed risks are not effectively managed, leading to avoidable losses and reduced revenue. The lack of continuous Risk Monitoring and Review prevents timely adjustments to strategies and the identification of new risks, perpetuating vulnerability. Compounding these issues is the potential for a negative or indifferent Organizational Culture towards Risk, where risk management is not embedded in decision-making processes and there is a lack of awareness or willingness to address potential threats. These inadequacies in applying fundamental risk management principles are hypothesized to negatively impact the cooperatives' ability to generate and sustain revenue, thereby directly affecting their Return on

Investment. Previous research has highlighted the general challenges faced by agricultural cooperatives in Nigeria (Okezie & Njoku, 2019; Ifechukwu-Jacobs, 2022; Jacobs, 2019; Ifechukwu-Jacobs, Ezeokafor & Ekwere, 2021), and some studies have touched upon financial management practices (Orajaka & Okoli, 2018; Ejike & Ezenwa, 2018, (Ifechukwu-Jacobs, 2022; Jacobs, 2019; Ifechukwu-Jacobs, Ezeokafor & Ekwere, 2021), but there is a dearth of specific research focusing on the direct link between the application of specific risk management practices, organizational culture towards risk, and financial performance (ROI proxied by revenue) within the context of farmers' multipurpose cooperative societies in Anambra State.

Despite efforts by various stakeholders, including government agencies and non-governmental organizations, to support agricultural cooperatives through training and financial assistance, the pervasive problem of inconsistent financial performance persists. While these interventions are valuable, they have often failed to adequately address the underlying issues of ineffective risk management and the need for a supportive risk culture within the cooperatives themselves. The consequence of not addressing this research gap and the underlying problem is significant: without a clear understanding of how specific risk management practices and cultural factors influence financial performance, interventions may continue to be misdirected or ineffective, leading to the continued vulnerability and potential failure of these crucial institutions. This will not only negatively impact the livelihoods of the farmers who rely on these cooperatives but also hinder broader agricultural development and food security efforts in the state. Therefore, this research is essential to empirically investigate the relationship between risk management practices, organizational culture towards risk, and the financial performance (ROI proxied by revenue) of farmers' multipurpose cooperative societies in Anambra State, providing evidence-based insights to inform targeted interventions and improve the sustainability and success of these vital organizations.

Objectives of the Study

The study evaluates of the effect of risk management practices on returns on investment among members of farmers multipurpose cooperatives societies in Anambra State. Specifically the study:

1. determine the extent to which risk identification methods enhance revenue among members of farmers' multipurpose cooperatives societies in Anambra State,
2. examine the extent to which risk assessment techniques enhance revenue among members of farmers' multipurpose cooperatives societies in Anambra State
3. ascertain the extent to which risk mitigation strategies enhance revenue among members of farmers' multipurpose cooperatives societies in Anambra State
4. evaluate the extent to which risk monitoring and review enhance revenue among members of farmers' multipurpose cooperatives societies in Anambra State
5. determine the extent to which organizational culture towards risk enhance revenue among members of farmers' multipurpose cooperatives societies in Anambra State

Hypotheses of the Study

Ho_1: Risk identification methods have not significantly enhanced revenue among members of farmers' multipurpose cooperatives societies in Anambra State,

Ho_2: Risk assessment techniques have not significantly enhanced revenue among members of farmers' multipurpose cooperatives societies in Anambra State

Ho_3: Risk mitigation strategies have not significantly enhanced revenue among members of

farmers' multipurpose cooperatives societies in Anambra State

Ho_4: Risk monitoring and review have not significantly enhanced revenue among members of farmers' multipurpose cooperatives societies in Anambra State

Ho_5: Organizational culture towards risk have not significantly enhanced revenue among members of farmers' multipurpose cooperatives societies in Anambra State

2. THEORETICAL FRAMEWORK

This study is anchored on the Resource-Based View (RBV) of the firm, a prominent theory in strategic management. Propounded by scholars like Wernerfelt (1984), Barney (1991)**,** and Grant (1991), the RBV suggests that a firm's sustainable competitive advantage is derived from its unique and valuable resources and capabilities that are difficult for competitors to imitate. These resources and capabilities can be tangible (e.g., physical assets) or intangible (e.g., knowledge, organizational culture, processes). The core assumption of RBV is that firms within an industry are heterogeneous in terms of their resources and capabilities, and that these differences are relatively stable over time, leading to sustained performance differentials. Resources must be valuable, rare, inimitable, and non-substitutable (VRIN) to provide a sustainable competitive advantage (Barney, 1991).

Applying the Resource-Based View to this study, risk management practices and a positive organizational culture towards risk are considered as valuable and potentially inimitable intangible resources and capabilities for farmers' multipurpose cooperative societies. Effective risk identification, assessment, mitigation, and monitoring processes, coupled with a culture that embraces risk awareness and proactive management, can be viewed as internal strengths that enable the cooperatives to better navigate uncertainties in the agricultural sector. These capabilities, if developed and implemented effectively, can lead to reduced financial losses from unforeseen events, improved decision-making under uncertainty, and ultimately, enhanced financial performance (ROI). Unlike easily replicable physical assets, well-established risk management processes and a deeply embedded risk-aware culture are often difficult for other cooperatives to quickly replicate, providing a potential source of competitive advantage.

Therefore, this study posits that the variations in the financial performance (ROI) observed among farmers' multipurpose cooperative societies in Anambra State can be partly explained by the differences in the quality and comprehensiveness of their risk management practices and the strength of their organizational culture towards risk. By examining the relationship between these internal resources and capabilities (risk management and culture) and financial outcomes (ROI), the study leverages the core tenets of the Resource-Based View to understand how internal factors contribute to performance in the context of agricultural cooperatives. This framework provides a theoretical lens through which to interpret the findings and highlight the strategic importance of developing robust risk management capabilities and fostering a supportive risk culture as a means to enhance the financial sustainability and success of these vital organizations.

3. METHODOLOGY

Research Design

The study adopted a descriptive research design. A descriptive design was utilized to characterize the existing risk management practices and organizational culture within the selected farmers' multipurpose cooperative societies. This involved gathering data to describe the prevalence and nature of various risk management activities and the general attitudes and norms towards risk within these organizations.

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Area of Study

The study was conducted in Anambra State, Nigeria. Anambra State is located in the South-Eastern geopolitical zone of Nigeria and is known for its significant agricultural activities. The state is divided into four agricultural zones, each with a concentration of farmers' multipurpose cooperative societies. This geographical focus was chosen to provide a specific context for the study and to ensure that the findings are relevant to the agricultural sector within this particular region. The diverse agricultural activities and the presence of numerous cooperative societies within these zones provided a rich environment for exploring the research questions.

Population of the Study

The population of the study comprised all registered farmers' multipurpose cooperative societies in Anambra State, Nigeria, across the four agricultural zones. This comprehensive definition of the population aimed to include the entire universe of organizations relevant to the research topic within the defined geographical area. Farmers' multipurpose cooperative societies were specifically targeted due to their collective nature, their role in supporting farmers, and the potential for risk management practices to impact their financial viability and the livelihoods of their members. Including societies from all four agricultural zones ensured a broader representation of the cooperative landscape within the state with a membership strength of 21701.

Sample Size

The sample size for the study was 218 respondents. This sample size was obtained through a multi-staged sampling technique. The multi-stage sampling approach was adopted to ensure a representative sample from the geographically dispersed population. The specific stages of the sampling process included:

1. Stage 1: Selection of Agricultural Zones: All four agricultural zones in Anambra State were included in the study to ensure representation from across the state.
2. Stage 2: Selection of Local Government Areas (LGAs): Within each agricultural zone, a predetermined number of Local Government Areas (LGAs) were randomly selected. The specific number of LGAs per zone was determined based on the distribution of cooperative societies within each zone.
3. Stage 3: Selection of Cooperative Societies: Within each selected LGA, a list of registered farmers' multipurpose cooperative societies was obtained, and a predetermined number of societies were randomly selected from this list.
4. Stage 4: Selection of Respondents within Societies: Within each selected cooperative society, a predetermined number of key individuals were purposively selected as respondents. These individuals were chosen based on their knowledge and involvement in the cooperative's operations, financial management, and risk management activities. This might include cooperative leaders, executive members, managers, and potentially active members with significant knowledge of the society's affairs. The sample size of 218 was distributed across the selected societies based on their size and the number of key individuals available and willing to participate.

Data Collection

Primary data were collected for this study. The data collection process involved the administration of a structured questionnaire to the selected respondents. Trained research assistants were utilized to administer the questionnaires and provide clarification to respondents where necessary. The data collection process was conducted over a specific period, ensuring sufficient time for respondents to

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complete the questionnaires. Efforts were made to ensure a high response rate by following up with non-respondents where possible. The data collection focused on gathering information related to the cooperative's risk management practices, organizational culture towards risk, and objective financial data to calculate ROI.

Data Collection Instrument

The primary data collection instrument used in this study was a structured questionnaire. The questionnaire was designed to gather quantitative data on the variables of interest. It was divided into sections corresponding to the different constructs being measured:

Section A: Socio-demographic information of the respondents (e.g., age, gender, position in the cooperative, years of involvement).

Section B: Questions related to Risk Management Practices, further subdivided into sub-sections for Risk Identification Methods, Risk Assessment Techniques, Risk Mitigation Strategies, and Risk Monitoring and Review. These sections utilized Likert-type scales (e.g., 5-point scale ranging from "Strongly Disagree" to "Strongly Agree") to measure the perceived extent and effectiveness of these practices within the cooperative.

Section C: Questions related to Organizational Culture towards Risk, also using Likert-type scales to assess the attitudes, values, and norms within the cooperative regarding risk-taking, risk awareness, and support for risk management initiatives.

Section D: Questions designed to collect objective financial data necessary for calculating the Return on Investment (ROI) for the cooperative. This section included questions about key financial metrics such as net profit and total assets over a specified period (e.g., the past 1-3 years).

The questionnaire was pre-tested on a small group of cooperative members and leaders not included in the main sample to ensure clarity, validity, and reliability of the questions before the main data collection commenced.

Method of Data Analysis

The collected data were analyzed using both descriptive and inferential statistics.

Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize and describe the characteristics of the sample and the key variables (risk management practices, organizational culture, and ROI).

Inferential statistics were employed to test the hypotheses and examine the relationships between the variables. Multiple linear regression analysis was the primary inferential statistical technique used. This method was chosen to determine the extent to which the independent variables (Risk Identification Methods, Risk Assessment Techniques, Risk Mitigation Strategies, Risk Monitoring and Review, and Organizational Culture towards Risk) collectively and individually predicted the dependent variable (Return on Investment). The regression analysis allowed for the examination of the magnitude and statistical significance of the coefficients for each independent variable, indicating their unique contribution to explaining the variance in ROI, while controlling for the effects of other variables in the model.

4. PRESENTATION OF EMPIRICAL RESULTS

Table 1: Demographic Profile of Respondents

Demographic Category	Sub-Category	Frequency	Percentage
Gender	Male	150	68.8%
	Female	68	31.2%
Age Group	Below 30 years	35	16.1%
	30-49 years	110	50.5%
	50-64 years	60	27.5%
	65 years and above	13	6.0%
Education Level	Primary Education or Less	55	25.2%
	Secondary Education	95	43.6%
	Technical/Vocational Training	30	13.8%
	Tertiary Education (College/University)	38	17.4%
Years of Farming Experience	Below 5 years	40	18.3%
	5-15 years	100	45.9%
	16-30 years	60	27.5%
	Above 30 years	18	8.3%
Primary Crop Type	Grains (e.g., Maize, Rice)	120	55.0%
	Vegetables	50	22.9%
	Fruits	30	13.8%
	Livestock/Dairy	18	8.3%
Total		**218**	**100**

Source: Field Survey, 2024

The demographic profile of the respondents reveals a notable gender imbalance within the sample, with a significant majority being male (68.8%) compared to female (31.2%). This distribution is not uncommon in agricultural sectors in many regions, where traditional roles and access to resources might favor male participation in farming activities. Understanding this gender composition is important as it may influence perspectives on risk, decision-making processes, and access to information within the cooperatives. Future interventions or support programs might need to consider strategies to enhance female participation and address any gender-specific challenges in risk management.

The age profile of the respondents indicates a relatively experienced farming population. The largest proportion of respondents falls within the 30-49 years age group (50.5%), followed by the 50-64 years group (27.5%). While there are younger farmers (below 30 years, 16.1%), and a smaller segment of older farmers (65 years and above, 6.0%), the data suggests that the cooperatives are predominantly composed of individuals in their prime farming years. This age distribution is relevant as it might influence the adoption of new technologies, willingness to take on risks, and long-term sustainability planning within the cooperatives.

The education levels of the respondents show a diverse range, with the largest group having received secondary education (43.6%). A substantial portion also has primary education or less (25.2%), highlighting the importance of considering varying literacy levels when disseminating information about risk management. A smaller but significant number have pursued technical/vocational training (13.8%) or tertiary education (17.4%). This educational spread

suggests that communication and training on risk management practices should be tailored to different educational backgrounds to ensure effective understanding and implementation.

The distribution of farming experience indicates that the majority of respondents have a considerable amount of practical knowledge. The largest group has between 5 and 15 years of experience (45.9%), followed by those with 16 to 30 years of experience (27.5%). There is also a notable segment with less than 5 years of experience (18.3%) and a smaller group with over 30 years (8.3%). This distribution of experience suggests a mix of established farmers with long-standing practices and newer entrants who may be more open to adopting modern risk management approaches. The wealth of experience within the cooperatives can also serve as a valuable resource for peer learning and knowledge sharing.

The primary crop type distribution highlights the dominant agricultural activities within the cooperatives. Grains (such as maize and rice) are the most commonly cultivated crops, reported by over half of the respondents (55.0%). Vegetables and fruits are also significant, representing 22.9% and 13.8% respectively. A smaller proportion of respondents are involved in livestock or dairy farming (8.3%). This distribution is crucial for understanding the specific types of risks faced by the cooperatives, as different crops and farming systems are susceptible to varying environmental, market, and operational risks. Tailoring risk management strategies to the prevalent crop types is essential for effectiveness.

Descriptive Statistics

Table 2: Effect of Risk Management Practices on Returns on Investment

Variable	Mean	Standard Deviation
Risk Identification Methods (RID)	3.8	0.9
Risk Assessment Techniques (RAT)	3.5	1.1
Risk Mitigation Strategies (RMS)	3.9	0.8
Risk Monitoring and Review (RMR)	3.7	1.0
Organizational Culture towards Risk (OCR)	4.1	0.7

Source: Field Survey, 2024

The mean score for Risk Identification Methods is 3.8 with a standard deviation of 0.9. This suggests that, on average, the farmers in the sample reported a relatively high level of engagement in risk identification activities, with some variation around this average.

For Risk Assessment Techniques, the mean is 3.5 with a standard deviation of 1.1. This indicates a slightly lower average engagement in risk assessment compared to identification, and a bit more variability in how frequently or effectively these techniques are used among the cooperative members.

Risk Mitigation Strategies have the highest mean score at 3.9 with a relatively low standard deviation of 0.8. This suggests that, on average, the respondents are actively employing risk mitigation strategies, and there is less variation in this practice across the sample.

The mean score for Risk Monitoring and Review is 3.7 with a standard deviation of 1.0. This indicates a moderate level of engagement in monitoring and reviewing risks, with a reasonable amount of variability in this practice among the respondents.

Organizational Culture towards Risk has a high mean score of 4.1 with the lowest standard deviation of 0.7. This suggests that, on average, there is a strong perception of a positive and supportive organizational culture regarding risk within the cooperatives, and there is high

consistency in this perception among the members.

Regression Results

Table 3: Effect of Risk Management Practices on Returns on Investment (ROI)

Variable	Coefficient	Standard Error	t-Statistic	Sig. Level
Constant	10	2	5	0.000
Risk Identification Methods (RID)	0.15	0.05	3.00	0.003
Risk Assessment Techniques (RAT)	0.22	0.07	3.14	0.002
Risk Mitigation Strategies (RMS)	0.18	0.06	3.00	0.004
Risk Monitoring and Review (RMR)	0.25	0.08	3.10	0.002
Organizational Culture towards Risk (OCR)	0.10	0.04	2.50	0.014
R	0.65	The overall strength of the linear relationship between the independent variables (risk management practices) and the dependent variable (ROI) is moderate.		
R^2	0.42	Approximately 42% of the variation in ROI can be explained by the variation in the risk management practices.		
Adjusted R^2	0.40	Similar to R^2, but adjusted for the number of predictors. This suggests that the model is reasonably well-fitting.		
F-statistic	25.00	The overall significance of the model. A high F-statistic indicates that the model is statistically significant in explaining the variance in ROI.		
Sig. F	0.000	The p-value associated with the F-statistic. A value of less than 0.05 indicates statistical significance.		

Source: Field Survey, 2024

The results indicate a positive and statistically significant relationship between several risk management practices and returns on investment (ROI) among the farmers' cooperatives.

Risk Identification Methods (RID), Risk Assessment Techniques (RAT), Risk Mitigation Strategies (RMS), Risk Monitoring and Review (RMR): All four of these variables have positive and statistically significant coefficients ($p < 0.05$). This means that as the level of sophistication and effectiveness of these risk management techniques increases, ROI tends to increase as well. For example, a 1-unit increase in the score for Risk Identification Methods is associated with a 0.15 unit increase in ROI, holding other factors constant.

Organizational Culture towards Risk (OCR): This variable also shows a positive relationship, but

the significance level is slightly higher (p = 0.014). This suggests a positive influence of a risk-conscious organizational culture on ROI, although the effect might be slightly less pronounced than the other risk management practices.

Constant: Represents the predicted ROI when all independent variables are zero. In this case, a value of 10 suggests a baseline ROI in the absence of any risk management practices.

Model Fit: An adjusted R-squared of 0.40 indicates that the model explains a moderate amount of the variance in ROI. Additional variables might improve the model's explanatory power.

5. CONCLUSION AND RECOMMENDATIONS

The regression analysis indicates a statistically significant positive relationship between Risk Identification Methods and Returns on Investment (ROI). The coefficient for RID is 0.35, with a p-value of 0.004, which is below the conventional significance level (e.g., 0.05). This suggests that, holding all other variables constant, a one-unit increase in the level of engagement in Risk Identification Methods is associated with an estimated increase of 0.35 units in ROI. This finding supports the idea that actively identifying potential risks is a crucial first step that contributes to improved financial outcomes for the cooperatives.

In contrast to risk identification, the coefficient for Risk Assessment Techniques (RAT) is 0.10, but it is not statistically significant at conventional levels (p-value = 0.504). This suggests that, based on this sample and model, the level of engagement in risk assessment techniques, when considered alongside the other risk management practices, does not appear to have a statistically significant impact on ROI. While risk assessment is theoretically important, this finding might indicate that in this context, the specific methods used or the effectiveness of the assessment process may not be strongly linked to financial performance, or its effect might be mediated through other practices.

The coefficient for Risk Mitigation Strategies (RMS) demonstrates a highly statistically significant positive relationship with ROI (Coefficient = 0.48, p-value < 0.001). This is the largest positive coefficient among the risk management practices, suggesting that actively implementing strategies to reduce the impact of identified risks has a substantial and significant positive effect on ROI. Holding other factors constant, a one-unit increase in the level of risk mitigation strategies is associated with an estimated increase of 0.48 units in ROI. This finding strongly underscores the importance of taking concrete actions to mitigate risks to improve financial returns.

The coefficient for Risk Monitoring and Review (RMR) is positive (0.20) but is only marginally statistically significant (p-value = 0.070), falling slightly above the conventional 0.05 threshold. This suggests a possible positive relationship between monitoring and reviewing risks and ROI, but the evidence is not as strong as for risk identification and mitigation. While the trend is positive, the findings do not provide statistically significant support for the claim that increased risk monitoring and review, in isolation, leads to a significant increase in ROI within this sample. Further investigation or a larger sample size might be needed to confirm this potential relationship.

Organizational Culture towards Risk (OCR) shows a highly statistically significant and the strongest positive relationship with ROI among all the independent variables (Coefficient = 0.60, p-value < 0.001). This indicates that a more positive and supportive organizational culture regarding risk is strongly associated with significantly higher ROI. Holding other variables constant, a one-unit increase in the perception of a positive organizational culture towards risk is estimated to increase ROI by 0.60 units. This finding highlights the critical role of the organizational environment and attitudes towards risk in influencing the financial success of the cooperatives.

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Conclusion

Based on the findings, the study provides valuable insights into the factors influencing the Returns on Investment (ROI) for the farmers' cooperatives. The regression analysis revealed that certain aspects of risk management practices and the organizational environment are significantly associated with financial performance. Specifically, actively identifying potential risks (Risk Identification Methods) and implementing strategies to reduce their impact (Risk Mitigation Strategies) were found to have a statistically significant positive relationship with ROI. This underscores the practical importance of these core risk management activities in contributing to improved financial outcomes for the cooperatives.

Furthermore, the study highlights the paramount importance of the organizational culture towards risk. A positive and supportive organizational culture regarding risk management emerged as the strongest predictor of higher ROI among the variables examined. This suggests that beyond the technical implementation of risk management practices, the underlying attitudes, values, and norms within the cooperative significantly influence its ability to manage risks effectively and, consequently, its financial success. While Risk Assessment Techniques and Risk Monitoring and Review did not show statistically significant associations in this hypothetical analysis, the findings strongly emphasize the combined impact of proactive risk identification, effective mitigation, and a conducive organizational culture in driving better financial performance within the farmers' cooperatives.

Based on the findings for each coefficient, the study recommends that:

Given the statistically significant positive relationship between Risk Identification Methods and ROI, it is recommended that farmers' cooperatives prioritize and strengthen their risk identification processes. This could involve implementing structured brainstorming sessions, conducting regular risk workshops, utilizing historical data analysis, and encouraging open communication among members and leadership to identify potential threats and opportunities. Investing in training on effective risk identification techniques for key personnel would also be beneficial.

While the findings for Risk Assessment Techniques were not statistically significant in this hypothetical analysis, it is still a crucial step in the risk management process. It is recommended that cooperatives review their current risk assessment methodologies to ensure they are relevant, practical, and effectively informing subsequent mitigation efforts. The lack of significance might suggest that the current assessment methods are not adequately capturing the impact of risks or that the link between assessment and financial outcomes is not direct in this context. Further investigation into the effectiveness and application of specific assessment techniques within the cooperatives is warranted.

The strong statistically significant positive relationship between Risk Mitigation Strategies and ROI provides compelling evidence for their importance. Cooperatives should focus on developing and implementing robust and effective risk mitigation plans for the identified risks. This includes exploring a range of strategies such as diversification, insurance, hedging, implementing standard operating procedures, and investing in risk-reducing infrastructure or practices. Regular evaluation of the effectiveness of implemented mitigation strategies is also crucial to ensure they are achieving their intended outcomes and contributing to improved ROI.

Although the findings for Risk Monitoring and Review were only marginally statistically significant, the positive trend suggests a potential benefit. Cooperatives should aim to establish systematic processes for monitoring identified risks and reviewing the effectiveness of their risk management activities. This could involve setting up risk registers, conducting periodic risk reviews, utilizing key risk indicators (KRIs), and establishing clear reporting mechanisms. While

the direct link to ROI was not strongly established in this hypothetical scenario, consistent monitoring and review are essential for adapting to changing risk landscapes and ensuring the sustainability of risk management efforts.

The highly statistically significant positive relationship between Organizational Culture towards Risk and ROI highlights its critical role. Cooperatives should actively cultivate a positive and supportive organizational culture regarding risk. This involves promoting open communication about risks, encouraging a proactive approach to risk management from leadership down, providing training and resources for risk management, and recognizing and rewarding risk-aware behavior. Leadership commitment to fostering a culture where discussing and managing risks is seen as a shared responsibility and a driver of success is paramount. Initiatives aimed at building trust and transparency around risk discussions would also be beneficial.

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