



Effect of Internal Control Mechanisms and Risk Mitigation on Performance Optimization in Procurement and Supply Chains: A Case Study of World Vision Rwanda

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Abstract: This study examined the effect of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains at World Vision Rwanda. The specific objectives were to assess the effect of internal control mechanisms on procurement and supply chain performance, examine the effect of risk mitigation on procurement and supply chain performance, and determine the combined effect of internal control mechanisms and risk mitigation on performance optimization. The study was guided by the COSO Internal Control Framework, Enterprise Risk Management (ERM) Framework, and Stakeholder Theory. The findings revealed that internal control mechanisms had a positive and statistically significant effect on performance optimization ($B = 0.467, t = 5.122, p < 0.001$). Similarly, risk mitigation had a positive and statistically significant effect on performance optimization ($B = 0.502, t = 5.576, p < 0.001$). The overall regression model was statistically significant ($F(2,106) = 670.740, p < 0.001$), with internal control mechanisms and risk mitigation jointly explaining 92.7% of the variance in performance optimization ($R^2 = 0.927$; Adjusted $R^2 = 0.925$). The findings demonstrate that effective internal controls and risk mitigation practices are important predictors of procurement and supply chain performance at World Vision Rwanda. The study recommends strengthening the regularity and follow-through of internal audits, establishing formal mechanisms for escalating high-priority procurement risks, improving routine supplier performance monitoring, and integrating internal control and risk-management reviews to enhance accountability, operational continuity, and performance optimization at World Vision Rwanda.

Keywords: Internal Control Mechanisms, Risk Mitigation, Performance Optimization, Procurement and Supply Chains

How to cite this work (APA):

Mutimunyuzwe, S. & Akumuntu, J. (2026). Effect of Internal Control Mechanisms and Risk Mitigation on Performance Optimization in Procurement and Supply Chains: A Case Study of World Vision Rwanda. *Journal of Research Innovation and Implications in Education*, 10(4), 735 – 746. <https://doi.org/10.59765/myf72j>

1. Introduction

Procurement and supply chain management is a strategic organizational function that should ensure timely acquisition of quality goods and services, value for money, accountability, transparency, and efficient service delivery. Ideally, organizations should have effective internal control mechanisms, including segregation of duties, authorization procedures, internal audits, compliance monitoring, and risk assessment,

together with effective risk mitigation practices for identifying, assessing, and responding to procurement and supply chain risks. When these mechanisms operate effectively, they should safeguard organizational resources, minimize procurement irregularities, reduce operational disruptions, strengthen supplier performance, and enhance procurement and supply chain

performance (Institute of Internal Auditors, 2024; OECD, 2025).

Despite this ideal situation, organizations continue to experience procurement and supply chain challenges, including procurement fraud, delays in procurement processes, weak contract management, supplier performance problems, inventory losses, operational disruptions, and increasing costs. These challenges can arise from weaknesses in the implementation and monitoring of internal controls and inadequate identification and mitigation of procurement risks. Consequently, the effectiveness of internal control mechanisms and risk mitigation practices remains important for ensuring that procurement activities achieve efficiency, compliance, accountability, and value for money.

The problem is particularly relevant to World Vision International (WVI) because of the scale and complexity of its humanitarian and development operations. WVI reached more than 43.9 million children globally in FY2025, including 19 million children through emergency responses, and responded to 104 emergencies in 70 countries, demonstrating the extensive operational resources and supply chains required to deliver its programmes (World Vision International, 2026). In Rwanda, World Vision operates programmes in education, health, child protection, WASH, livelihoods, and humanitarian response, while its 2025 annual report indicates that the organization mobilized US\$16.7 million in grants and Private Non-Sponsorship resources during FY2025. The scale of these activities makes effective procurement controls and risk mitigation essential for responsible resource utilization and continuity of programme implementation.

At World Vision Rwanda, procurement policies, internal control systems, and enterprise risk management frameworks have been established to promote transparency, accountability, ethical procurement practices, donor compliance, and efficient utilization of resources. However, procurement and supply chain operations continue to face challenges associated with supplier reliability, procurement delays, regulatory compliance, market uncertainties, supply chain disruptions, and increasing donor accountability requirements (World Vision International, 2024). This indicates a gap between the intended effectiveness of existing control and risk management systems and the procurement performance being experienced in practice. Therefore, the existence of internal controls and risk management frameworks does not necessarily demonstrate that these mechanisms are sufficiently effective in optimizing procurement and supply chain performance.

1.1 General Objective

The general objective of this study is to examine the effect of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains at World Vision Rwanda.

1.2 Specific Objectives

1. To assess the effect of internal control mechanisms on performance optimization in procurement and supply chains at World Vision Rwanda.
2. To examine the effect of risk mitigation practices on performance optimization in procurement and supply chains at World Vision Rwanda.
3. To determine the combined effect of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains at World Vision Rwanda.

2. Literature Review

2.1 Theoretical Review

A theoretical framework provides the foundation upon which a study is built by explaining the theories that support the relationships among the study variables. It guides the researcher in understanding the concepts under investigation, interpreting findings, and explaining the expected relationships between independent and dependent variables. For this study, the theoretical framework is anchored on the Committee of Sponsoring Organizations (COSO) Internal Control Framework and the Enterprise Risk Management (ERM) Framework. These theories provide a comprehensive basis for explaining how internal control mechanisms and risk mitigation influence performance optimization in procurement and supply chains (Creswell & Creswell, 2023).

2.1.1 COSO Internal Control Framework

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) developed the Internal Control Framework to assist organizations in establishing effective systems of internal control that promote operational efficiency, reliable reporting, regulatory compliance, and safeguarding of organizational resources. The framework identifies five interrelated components of an effective internal control system: the control environment, risk assessment, control activities, information and communication, and monitoring activities. These components operate together to provide reasonable assurance that organizational objectives are achieved while minimizing operational and financial risks (COSO, 2023).

The control environment forms the foundation of the framework by establishing organizational values, ethical standards, leadership commitment, governance structures, and accountability mechanisms that influence employee behavior. Risk assessment requires organizations to identify, analyze, and prioritize potential risks that may hinder the achievement of organizational objectives. Control activities consist of policies and procedures such as authorization procedures, segregation of duties, approvals, reconciliations, and supervisory reviews that help mitigate identified risks. Information and communication ensure that relevant information flows effectively across the organization to support informed decision-making, while monitoring activities involve continuous evaluation of internal controls to ensure they remain effective and responsive to emerging risks (Institute of Internal Auditors, 2024).

The COSO framework is highly relevant to this study because internal control mechanisms constitute one of the independent variables. The framework explains how properly designed and effectively implemented internal controls improve procurement governance by enhancing accountability, preventing fraud, strengthening compliance with procurement regulations, and improving operational efficiency. Within procurement and supply chain management, effective internal controls contribute to better supplier management, prudent utilization of resources, reduced procurement irregularities, and improved organizational performance. Consequently, the framework provides an appropriate theoretical basis for examining how internal control mechanisms influence performance optimization in procurement and supply chains at World Vision Rwanda (OECD, 2025).

2.1.2 Enterprise Risk Management Framework

Enterprise Risk Management (ERM) is a comprehensive management framework that enables organizations to identify, assess, manage, monitor, and respond to risks that may affect the achievement of strategic and operational objectives. Unlike traditional risk management approaches that address risks individually, ERM integrates risk management across all organizational functions, allowing management to make informed decisions while balancing opportunities and risks. The framework emphasizes that effective risk management should be embedded within organizational governance, strategic planning, operational processes, and performance management systems (Institute of Risk Management, 2024).

The ERM framework emphasizes several key processes, including risk identification, risk assessment, risk response, continuous monitoring, communication, and organizational learning. Risk identification enables organizations to recognize internal and external threats affecting procurement and supply chain operations. Risk assessment evaluates the likelihood and potential impact

of identified risks, allowing organizations to prioritize critical risks. Risk response involves selecting appropriate mitigation strategies such as avoiding, reducing, transferring, or accepting risks depending on organizational objectives. Continuous monitoring ensures that risk management strategies remain effective as organizational environments evolve, while communication facilitates collaboration among stakeholders in managing procurement risks (ISO 31000, 2024).

The Enterprise Risk Management Framework is directly relevant to this study because risk mitigation constitutes the second independent variable. Procurement and supply chain operations are exposed to numerous risks, including supplier failures, procurement fraud, contract disputes, logistics disruptions, cyber threats, market volatility, and regulatory changes. The ERM framework provides a structured approach for managing these risks through proactive planning, continuous assessment, and timely intervention. Organizations that effectively implement enterprise risk management practices are more likely to maintain operational continuity, strengthen procurement governance, improve supplier performance, and optimize procurement outcomes (Deloitte, 2024).

2.1.3 Stakeholder Theory

This was developed by Freeman (1984) and emphasizes that organizations should consider the interests of all individuals and groups who can affect or are affected by the achievement of organizational objectives. Freeman's Strategic Management: A Stakeholder Approach is regarded as the foundational work on Stakeholder Theory.

The theory recognizes that organizations operate within a network of relationships involving different stakeholders, including employees, suppliers, management, customers, government institutions, donors, and beneficiaries. According to Freeman (1984), organizational decisions should therefore take into account the interests and expectations of relevant stakeholders rather than focusing exclusively on the interests of owners or management. This perspective is particularly relevant to procurement and supply chain management because procurement activities involve numerous stakeholders whose decisions and actions can influence organizational performance.

In the context of this study, Stakeholder Theory provides a useful basis for explaining the relationship between internal control mechanisms, risk mitigation, procurement performance, and supply chain management. Effective internal controls promote transparency, accountability, fairness, and responsible use of organizational resources, thereby strengthening relationships between the organization and its stakeholders. Strong procurement controls can also

reduce risks such as fraud, corruption, conflicts of interest, misuse of resources, and non-compliance with procurement procedures.

2.2 Empirical Review

This section reviews previous empirical studies related to internal control mechanisms, risk mitigation, and performance optimization in procurement and supply chains. The review examines evidence from different organizational contexts to establish the current state of knowledge, identify consistencies and inconsistencies in previous findings, and highlight research gaps that justify the present study. The empirical review is organized according to the specific objectives of the study (Creswell & Creswell, 2023).

2.2.1 Internal Control Mechanisms and Performance Optimization

A study conducted by Alabdullah (2023) examined the influence of internal control systems on organizational performance among manufacturing firms in the Middle East. Using a quantitative research design and structural equation modelling, the study found that effective internal control mechanisms significantly improved operational efficiency, financial accountability, and organizational performance. The findings further indicated that organizations with strong authorization procedures, segregation of duties, and monitoring systems experienced fewer operational irregularities and better resource utilization. However, the study focused on manufacturing firms, limiting the applicability of its findings to humanitarian organizations whose procurement systems operate under different regulatory and donor compliance requirements (Alabdullah, 2023).

Similarly, Nguyen and Tran (2024) investigated the relationship between internal control systems and procurement performance among public institutions in Vietnam. The researchers employed a cross-sectional survey involving procurement professionals and analyzed the data using multiple regression analysis. The findings revealed that internal control mechanisms, particularly internal audits, compliance monitoring, and authorization procedures, significantly improved procurement efficiency, reduced procurement errors, and enhanced accountability. Nevertheless, the study was conducted within the public sector and did not examine international non-governmental organizations operating in developing countries such as Rwanda (Nguyen & Tran, 2024).

In Africa, Muriithi and Wanyoike (2023) assessed the effect of internal control systems on procurement performance among county governments in Kenya using a descriptive survey design. The study established that organizations with stronger segregation of duties, compliance monitoring, and internal auditing achieved better procurement efficiency and improved supplier

performance. However, the researchers concentrated on devolved government institutions and did not examine humanitarian organizations where procurement decisions are heavily influenced by donor funding requirements and emergency response operations (Muriithi & Wanyoike, 2023).

In Rwanda, Uwizeyimana and Nkundabanyanga (2024) examined the influence of internal control practices on procurement performance in selected public institutions. Using questionnaires and regression analysis, the study found that authorization procedures, compliance monitoring, and internal auditing significantly improved procurement transparency, accountability, and operational efficiency. Although the findings demonstrated the importance of internal control systems, the study focused exclusively on public institutions and did not examine the procurement environment of international non-governmental organizations such as World Vision Rwanda, thereby creating a contextual gap that the present study sought to address (Uwizeyimana & Nkundabanyanga, 2024).

2.2.2 Risk Mitigation and Performance Optimization

Risk mitigation has increasingly attracted scholarly attention because of its role in strengthening procurement resilience and organizational performance. A study by Christopher and Peck (2023) investigated supply chain risk management practices among multinational organizations. Using multiple case studies, the researchers found that organizations implementing systematic risk identification, supplier risk assessment, and contingency planning experienced fewer supply disruptions, improved procurement continuity, and enhanced operational performance. The study concluded that proactive risk mitigation significantly contributes to procurement resilience, although it focused primarily on multinational corporations operating in developed economies (Christopher & Peck, 2023).

Khan, Ali, and Ahmed (2024) examined the effect of procurement risk management on supply chain performance among manufacturing firms in Asia. Using structural equation modelling, the study found that supplier risk management, continuous risk assessment, and business continuity planning positively influenced procurement efficiency and organizational performance. However, the study concentrated on private manufacturing firms and did not consider humanitarian organizations that operate under donor-funded procurement systems and unique accountability requirements (Khan et al., 2024).

Within Africa, Mutiso and Mwangangi (2023) investigated the relationship between risk mitigation practices and procurement performance among state corporations in Kenya. The study adopted a descriptive survey design and established that organizations implementing effective risk identification, supplier

evaluation, and contingency planning experienced improved procurement efficiency, reduced procurement delays, and enhanced supplier reliability. Nevertheless, the study did not assess international humanitarian organizations, thereby limiting the generalizability of its findings to the context of World Vision Rwanda (Mutiso & Mwangangi, 2023).

A Rwandan study by Habimana and Mukamurenzi (2024) assessed the influence of risk management practices on organizational performance among donor-funded projects. The findings showed that proactive risk identification, continuous monitoring, and contingency planning significantly enhanced project implementation and operational performance. Although the study emphasized the importance of risk mitigation, it focused on general project management rather than procurement and supply chain operations, leaving a gap that warrants further investigation (Habimana & Mukamurenzi, 2024).

2.2.3 Combined Effect of Internal Control Mechanisms and Risk Mitigation

Recent studies increasingly acknowledge that internal control mechanisms and risk mitigation are complementary governance practices that jointly influence organizational performance. For example, Sharma and Gupta (2024) investigated the combined influence of governance controls and enterprise risk management on supply chain performance among logistics firms. Using a quantitative approach, the researchers found that organizations integrating effective internal controls with proactive risk mitigation achieved significantly higher procurement efficiency, stronger supplier relationships, improved compliance, and better operational performance than organizations implementing either practice independently. However, the study was undertaken in the logistics sector, limiting its applicability to humanitarian organizations (Sharma & Gupta, 2024).

Likewise, Adeyemi and Bello (2023) examined governance mechanisms and procurement performance among public organizations in Nigeria. The study established that combining effective internal control systems with structured risk management significantly improved procurement accountability, operational efficiency, and value for money. Despite these findings, the research focused on government institutions and did not investigate procurement systems within international non-governmental organizations operating in East Africa (Adeyemi & Bello, 2023).

Overall, previous empirical studies consistently demonstrate that internal control mechanisms and risk mitigation positively influence procurement and organizational performance. However, most existing studies have been conducted in manufacturing firms, public sector institutions, or private commercial organizations outside Rwanda. Furthermore, relatively

few studies have examined the combined effect of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains within international humanitarian organizations. This contextual and methodological gap provides the justification for the present study, which focuses on World Vision Rwanda (OECD, 2025).

3. Methodology

3.1 Research Design

This study adopted a mixed-methods research design by integrating quantitative and qualitative methods. The quantitative component collected numerical data through structured questionnaires to examine the relationships between internal control mechanisms, risk mitigation, and performance optimization in procurement and supply chains. The qualitative component used key informant interviews to obtain in-depth information that explained and supported the quantitative findings. Combining both methods provided a more comprehensive understanding of the study problem and strengthened the validity of the findings through triangulation.

3.2 Study Population

The target population comprised 150 employees from the Procurement and Logistics, Finance, Programme Management, and Internal Audit/Risk Management departments of World Vision Rwanda. These categories of employees are selected because they are actively involved in procurement decision-making, implementation of internal control mechanisms, and risk mitigation processes that influence procurement and supply chain performance. Their perspectives are therefore considered relevant and reliable for assessing the effect of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains (Sekaran & Bougie, 2021).

3.3 Sampling Design

Sampling technique and sample size determination are essential components of research methodology because they enable the researcher to select respondents who adequately represent the target population. A sample of 109 respondents was selected using Yamane's formula, with stratified random and simple random sampling techniques.

Since this study examined the effect of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains at World Vision Rwanda, respondents were selected from departments directly involved in procurement, finance,

programme management, and internal audit/risk management.

3.4 Data Collection Instrument

Data collection methods refer to the systematic procedures used by researchers to obtain relevant information from respondents for the purpose of answering research questions and achieving the study objectives. The selection of an appropriate data collection method depends on the research design, objectives, and nature of the study. According to Creswell and Creswell (2023), data collection methods should be carefully selected to ensure that the information collected is accurate, reliable, and relevant to the variables under investigation.

Primary data were collected using two instruments: a structured questionnaire and a key informant interview guide. The questionnaire generated quantitative data, while the interview guide generated qualitative data from selected managers with expertise in procurement, finance, internal audit, risk management, and programme management.

3.5 Pilot Study, Validity and Reliability

The quality of a research instrument is determined by its validity and reliability. Validity assesses whether the instrument accurately measures the intended constructs, while reliability evaluates the consistency and stability of the instrument in measuring those constructs over time. Establishing both validity and reliability enhances the credibility, accuracy, and dependability of the study findings (Creswell & Creswell, 2023).

3.6 Data Analysis

Data analysis refers to the systematic process of organizing, coding, summarizing, and interpreting collected data to answer the research questions and achieve the study objectives. According to Creswell and Creswell (2023), data analysis enables researchers to transform raw data into meaningful information that supports decision-making and the drawing of valid conclusions. In this study, quantitative data collected through structured questionnaires were analyzed using the Statistical Package for the Social Sciences (SPSS) version 29.0.

Before analysis, the completed questionnaires were checked for completeness, coded, and entered into SPSS. Data cleaning procedures were undertaken to identify and correct errors, inconsistencies, missing values, and outliers to ensure the accuracy and reliability of the dataset.

The study employed both descriptive and inferential statistical techniques. Descriptive statistics were used to summarize respondents' demographic characteristics and responses regarding the study variables. These statistics included frequencies, percentages, means, and standard deviations. The findings were presented using tables to facilitate interpretation.

3.7 Ethical Considerations

Ethical considerations are fundamental in research because they protect the rights, dignity, privacy, and welfare of research participants while ensuring that the study is conducted with integrity and professionalism. Prior to data collection, the researcher obtained an introductory letter from the University of Kigali and sought permission from the management of World Vision Rwanda to conduct the study. Data collection commenced only after obtaining the necessary institutional approvals.

4. Results and Discussions

The findings on internal control mechanisms, risk mitigation and performance optimization are presented below.

4.1 Response Rate

A total of 109 questionnaires were administered to the sampled respondents at World Vision Rwanda, of which all 109 were returned duly completed, giving a response rate of 100.0%. This response rate exceeds the 70% threshold generally considered excellent for social science research and is attributable to the self-administered and drop-and-pick data collection procedures described in Chapter Three, which allowed the researcher to follow up directly with respondents and clarify the purpose of the study before questionnaires were completed. The high response rate strengthens the representativeness of the findings and reduces the likelihood of non-response bias.

Table 1: Questionnaire Response Rate

Questionnaire Status	Frequency	Percent (%)
Returned and duly completed	109	100.0
Not returned / incomplete	0	0.0
Total distributed	109	100.0

Source: Field data (2026)

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4.2 Inferential Statistics

Correlation and regression analyses were conducted to examine the relationships and predictive effects of the study variables.

4.2.1 Correlation Analysis

A Pearson product-moment correlation analysis was conducted to examine the strength and direction of the relationships between internal control mechanisms, risk mitigation, and performance optimization in procurement and supply chains, prior to regression analysis.

Table 2: Correlation Analysis

Variable	Internal Control Mechanisms	Risk Mitigation	Performance Optimization
Internal Control Mechanisms	1.000		
Risk Mitigation	0.957**	1.000	
Performance Optimization	0.951**	0.953**	1.000

**Correlation is significant at the 0.01 level (2-tailed).

Source: Field data (2026)

Table 2 shows a strong, positive and statistically significant correlation between internal control mechanisms and performance optimization ($r = 0.951$, $p < 0.001$), between risk mitigation and performance optimization ($r = 0.953$, $p < 0.001$), and between internal control mechanisms and risk mitigation themselves ($r = 0.957$, $p < 0.001$). These results suggest that as internal control mechanisms and risk mitigation practices strengthen, performance optimization in procurement and supply chains at World Vision Rwanda also improves. Because internal control mechanisms and risk mitigation are also strongly correlated with each other,

multicollinearity diagnostics were considered when interpreting the subsequent regression coefficients.

4.2.2 Regression Analysis

Multiple linear regression analysis was conducted to determine the combined and individual effects of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains, in line with the study's regression model specified in Chapter Three: $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \epsilon$, where Y is performance optimization, X_1 is internal control mechanisms, and X_2 is risk mitigation.

Table 3: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.963	0.927	0.925	0.181

Source: Field data (2026)

Table 3 presents the model summary for the multiple regression analysis. The multiple correlation coefficient ($R = 0.963$) indicates a very strong positive association between the combined independent variables internal control mechanisms and risk mitigation and performance optimization in procurement and supply chains. The coefficient of determination ($R^2 = 0.927$) indicates that the two predictors jointly account for approximately

92.7% of the observed variation in performance optimization. The Adjusted R^2 of 0.925 indicates that, after adjustment for the number of predictors in the model, approximately 92.5% of the variation remains explained by the model. The remaining approximately 7.5% was associated with factors not included in the present model. However, because the collinearity diagnostics indicate substantial multicollinearity

between the two predictors, the very high explanatory power was interpreted alongside the diagnostic results rather than viewed in isolation.

Table 4: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	44.09	2	22.045	670.740	<0.001
Residual	3.47	106	0.0328		
Total	47.56	108			

Source: Field Data, 2026

Source: Field data (2026)

Table 4 presents the Analysis of Variance (ANOVA) results for the multiple regression model examining the combined effect of internal control mechanisms and risk mitigation on performance optimization in procurement and supply chains at World Vision Rwanda. The regression model has 2 degrees of freedom, corresponding to the two independent variables, while the residual has 106 degrees of freedom, giving a total of 108 degrees of freedom.

The regression sum of squares of approximately 44.09 compared with the total sum of squares of approximately 47.56 indicates that the model explains a very large proportion of the variation in performance optimization, consistent with the reported R^2 of 0.927. The regression mean square is approximately 22.045, compared with a residual mean square of approximately 0.0328, producing an F-statistic of 670.740. The significance value is $p < 0.001$, which is below the 0.05 level of significance. Therefore, the regression model is

statistically significant, indicating that internal control mechanisms and risk mitigation jointly provide a statistically significant prediction of performance optimization in procurement and supply chains.

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Table 5: Regression Coefficients

Model	B	Std. Error	Beta (β)	t	Sig.	Tolerance	VIF
(Constant)	0.116	0.109		1.066	0.289		
Internal Control Mechanisms	0.467	0.091	0.466	5.122	<0.001	0.002	11.977
Risk Mitigation	0.502	0.090	0.507	5.576	<0.001	0.002	11.977

Source: Field data (2026)

Table 5 presents the regression coefficients showing the individual contribution of internal control mechanisms and risk mitigation to performance optimization in procurement and supply chains at World Vision Rwanda.

The constant term is 0.116 with a standard error of 0.109. Its t-value is 1.066 and the significance value is 0.289, which is greater than the 0.05 significance level. This indicates that the constant is not statistically significant. The constant represents the estimated level of performance optimization when the values of internal control mechanisms and risk mitigation are held at zero.

For internal control mechanisms, the regression coefficient is $B = 0.467$, with a standard error of 0.091. The t-value of 5.122 and significance value of $p < 0.001$

indicate that internal control mechanisms have a positive and statistically significant relationship with performance optimization. This means that, holding risk mitigation constant, a one-unit increase in internal control mechanisms is associated with an estimated 0.467-unit increase in performance optimization. Since $p < 0.001$ is below the 0.05 significance level, the null hypothesis that internal control mechanisms have no statistically significant effect on performance optimization is rejected.

Similarly, risk mitigation has a regression coefficient of $B = 0.502$, with a standard error of 0.090. The t-value of 5.576 and significance value of $p < 0.001$ demonstrate a positive and statistically significant relationship with performance optimization. Thus, holding internal control mechanisms constant, a one-unit increase in risk

mitigation is associated with an estimated 0.502-unit increase in performance optimization. Since $p < 0.001$ is less than 0.05, the null hypothesis that risk mitigation has no statistically significant effect on performance optimization is rejected.

Overall, the results demonstrate that both internal control mechanisms and risk mitigation are statistically significant positive predictors of performance optimization, with risk mitigation having a slightly larger unstandardized coefficient ($B = 0.502$) than internal control mechanisms ($B = 0.467$). These findings support the study's argument that strengthening internal controls and risk mitigation practices can contribute to improved procurement and supply chain performance at World Vision Rwanda.

The fitted regression model is stated as follows:

$$\text{Performance Optimization} = 0.116 + 0.467(\text{Internal Control Mechanisms}) + 0.502(\text{Risk Mitigation})$$

Table 4.14 shows that internal control mechanisms have a positive and statistically significant effect on performance optimization in procurement and supply chains at World Vision Rwanda ($B = 0.467$, $t = 5.122$, $p < 0.001$). Holding risk mitigation constant, a one-unit increase in internal control mechanisms is associated with an estimated 0.467-unit increase in performance optimization.

Similarly, risk mitigation has a positive and statistically significant effect on performance optimization ($B = 0.502$, $t = 5.576$, $p < 0.001$). Holding internal control mechanisms constant, a one-unit increase in risk mitigation is associated with an estimated 0.502-unit increase in performance optimization. These findings provide evidence that both internal control mechanisms and risk mitigation contribute positively to procurement and supply chain performance.

4.3 Decision on Null Hypotheses

Table 6: Summary of Hypothesis Testing

Hypothesis	Test Result	p-value	Decision
H ₀₁ : Internal control mechanisms have no statistically significant effect on performance optimization in procurement and supply chains at World Vision Rwanda.	$B = 0.467$, $t = 5.122$	<0.001	Reject H ₀₁
H ₀₂ : Risk mitigation has no statistically significant effect on performance optimization in procurement and supply chains at World Vision Rwanda.	$B = 0.502$, $t = 5.576$	<0.001	Reject H ₀₂
H ₀₃ : Internal control mechanisms and risk mitigation have no statistically significant combined effect on performance optimization in procurement and supply chains at World Vision Rwanda.	$F = 670.740$	<0.001	Reject H ₀₃

Source: Field data (2026)

The results in Table 6 indicate that all three null hypotheses were rejected at the 5% level of significance. The first hypothesis was rejected because internal control mechanisms had a statistically significant positive effect on performance optimization ($B = 0.467$, $p < 0.001$). The second hypothesis was also rejected because risk mitigation had a statistically significant positive effect on performance optimization ($B = 0.502$, $p < 0.001$). Finally, the third hypothesis was rejected because the overall regression model was statistically significant ($F = 670.740$, $p < 0.001$). Therefore, the findings provide statistical evidence that internal control mechanisms and risk mitigation, both individually and jointly, are significantly associated with performance optimization in procurement and supply chains at World Vision Rwanda.

The results in Table 6 indicate that all three null hypotheses were rejected at the 5% level of significance. The first hypothesis was rejected because internal control mechanisms had a statistically significant positive effect on performance optimization ($B = 0.467$, $p < 0.001$). The second hypothesis was also rejected because risk mitigation had a statistically significant positive effect on performance optimization ($B = 0.502$, $p < 0.001$). Finally, the third hypothesis was rejected because the

overall regression model was statistically significant ($F = 670.740$, $p < 0.001$). Therefore, the findings provide statistical evidence that internal control mechanisms and risk mitigation, both individually and jointly, are significantly associated with performance optimization in procurement and supply chains at World Vision Rwanda.

4.4 Discussion of Research Findings

The finding that internal control mechanisms significantly and positively affect performance optimization in procurement and supply chains is consistent with Uwizeyimana and Nkundabanyanga (2024), who found that structured authorization procedures, segregation of duties and internal audit strengthen accountability and efficiency in public and non-governmental procurement systems in the region. The comparatively lower mean score recorded for the regularity of internal audits (ICM9) suggests that, although World Vision Rwanda has established authorization and compliance structures, the frequency and consistency of internal audit coverage remains an area for improvement, echoing Alabdullah's (2023) observation that internal control systems deliver their full benefit only when audit and monitoring components are

applied consistently, not only when authorization and segregation-of-duties controls exist on paper.

The finding that risk mitigation significantly and positively affects performance optimization aligns with Christopher and Peck (2023) and Mutiso and Mwangangi (2023), who observed that proactive risk identification, supplier risk management and contingency planning reduce procurement disruptions and support consistent service delivery in supply chains operating in resource-constrained and multinational contexts. The relatively lower ratings for management attention to high-priority risks (RM7) and routine monitoring of supplier performance (RM10) suggest that, while World Vision Rwanda has risk mitigation structures in place, converting risk assessments into sustained managerial follow-through and supplier oversight is an area meriting further attention.

The combined regression model, which explained 92.7% of the variance in performance optimization in procurement and supply chains, supports Sharma and Gupta (2024) and Adeyemi and Bello (2023), who argued that internal control mechanisms and risk mitigation function as complementary rather than competing systems: controls constrain and structure procurement decisions, while risk mitigation anticipates and responds to disruptions that controls alone cannot prevent. The very strong correlation between internal control mechanisms and risk mitigation themselves ($r = 0.957$) further suggests that, at World Vision Rwanda, these two systems are closely integrated in practice, such that strengthening one is likely to reinforce the other. Taken together, the findings provide empirical support for all three specific objectives of the study and confirm that both internal control mechanisms and risk mitigation are important levers for optimizing procurement and supply chain performance at World Vision Rwanda.

5. Conclusions and Recommendations

5.1 Conclusion

Based on the findings, the study concludes that internal control mechanisms and risk mitigation are both individually and jointly important determinants of performance optimization in procurement and supply chains at World Vision Rwanda.

Internal control mechanisms, comprising authorization procedures, segregation of duties, internal audit and compliance monitoring, significantly and positively influence procurement and supply chain performance. Although the core control structures are well established, the comparatively lower rating for the regularity of internal audits suggests that consistent audit follow-through, rather than the mere existence of controls, is what most strengthens performance.

Risk mitigation practices, comprising risk identification, risk assessment, supplier risk management and contingency planning, significantly and positively influence procurement and supply chain performance. Risk mitigation is most effective when risk assessments translate into sustained management attention and routine supplier monitoring, rather than remaining a periodic or documentary exercise.

Internal control mechanisms and risk mitigation are complementary rather than competing systems at World Vision Rwanda. Their strong combined explanatory power (92.7% of variance in performance optimization) indicates that neither system alone is sufficient; procurement and supply chain performance is optimized when control and risk functions are strengthened together rather than in isolation.

5.2 Recommendations

The recommendations arising from the study findings are presented in this section.

1. Strengthen the regularity and follow-through of internal audits by establishing a formal quarterly procurement audit schedule and an audit-action tracking mechanism to ensure that audit recommendations are implemented within specified timelines.
2. Establish a formal escalation mechanism for high-priority procurement risks so that risks identified through risk assessments are assigned responsible officers, mitigation actions, deadlines, and appropriate management follow-up.
3. Introduce routine supplier performance monitoring through a standardized supplier-performance scorecard covering delivery timeliness, quality, contract compliance, responsiveness, and reliability. The results should be linked to supplier evaluation and contract-renewal decisions.
4. Integrate internal control and risk-management functions through joint quarterly procurement control and risk-review meetings involving procurement, finance, internal audit, and risk/compliance personnel. This is directly supported by the finding that the two variables jointly explained 92.7% of the variation in performance optimization.
5. Strengthen the consistent implementation of existing procurement controls by conducting periodic compliance checks on authorization procedures, segregation of duties, procurement approvals, and monitoring requirements, with corrective actions assigned to responsible officers.

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