A Study of the Effectiveness of Risk Management Practices in Financial Loss Reduction in Zambian State-Owned Enterprises. A Case of Zambia Railways Limited (ZRL)

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ABSTRACT

This study examined the effectiveness of risk management practices in reducing financial losses within Zambian state-owned enterprises, with Zambia Railways Limited (ZRL) serving as the focal case. The research was prompted by a persistent problem: despite the presence of formal risk management frameworks at ZRL, the company continued to experience significant financial inefficiencies and operational disruptions. This raised concerns about the practical effectiveness of these frameworks in mitigating financial losses. The primary objective of the study was therefore to evaluate the impact of four core risk management dimensions risk identification, risk awareness and training, risk mitigation, and risk monitoring on financial loss reduction at ZRL. A quantitative research design was adopted, involving the administration of structured questionnaires to 249 employees engaged in this study. The data were analysed using descriptive statistics, Pearson correlation, and multiple hierarchy regression techniques. The findings revealed that all four dimensions of risk management were positively and significantly associated with financial loss reduction. Among them, risk monitoring emerged as the most influential predictor ($r = 0.915$, $\beta = 0.992$, $p < 0.001$), followed by risk mitigation ($r = 0.686$, $\beta = 0.229$, $p < 0.001$), risk awareness and training ($r = 0.629$, $\beta = 0.203$, $p < 0.01$), and risk identification ($r = 0.578$, $\beta = 0.211$, $p < 0.001$). In response to these findings, the study recommended the institutionalisation of real-time risk monitoring systems, enhancement of staff training and awareness programmes, development of structured risk identification protocols, and integration of mitigation strategies into strategic planning and budgeting processes. These measures are critical for strengthening financial oversight, reducing vulnerability to unforeseen losses, and enhancing operational continuity. The study concludes that a proactive, data-driven, and integrated approach to risk management holds significant potential for improving the financial sustainability of ZRL and similar state-owned enterprises in Zambia. Beyond its practical implications, the research contributes to the broader discourse on public sector financial governance in developing economies.

Keywords— Risk Management, Financial Loss Reduction, Zambia Railways Limited, State-Owned Enterprises, Risk Monitoring

INTRODUCTION

The concept of risk management has evolved significantly over the years, transitioning from a reactive approach to a proactive and integrated framework. Globally, Enterprise Risk Management (ERM) has gained prominence as a holistic strategy that addresses risks across all levels of an organisation. According to COSO (2017), ERM provides a structured framework for identifying, assessing, and mitigating risks, ensuring that risk management is embedded in organisational strategy. This approach has been instrumental in reducing financial losses and enhancing organisational resilience in many industries.

In the African context, risk management practices in SOEs are often constrained by governance challenges, limited resources, and political interference. A study by Kimani and Wanjohi (2019) on Kenyan SOEs revealed that, while risk management is recognised as a critical function, the lack of formalised frameworks often results in inefficiencies and financial vulnerabilities. Similarly, Adeyemi and Ojo (2018) highlighted that governance deficiencies, such as inadequate oversight and poor accountability structures, undermine the effectiveness of

risk management in Nigerian SOEs.

Zambia faces similar challenges, particularly in its state-owned enterprises. Zambia Railways Limited (ZRL), which operates one of the country's most critical transportation networks, is no exception. With over 1,000 kilometres of railway connecting major cities and industrial regions, ZRL plays a key role in facilitating trade and supporting Zambia's export-driven economy. However, the company struggles with ageing infrastructure, insufficient funding, and operational inefficiencies that expose it to substantial risks and financial losses (Munyama and Nandwa, 2020). Despite the progress made globally and regionally, Zambia's state-owned enterprises, including ZRL, face significant gaps in implementing robust risk management practices. Mumba and Kazonga (2021) argue that the absence of standardised governance and risk management frameworks across SOEs creates inconsistencies in how risks are managed. For ZRL, addressing these gaps could lead to significant improvements in financial performance, operational efficiency, and stakeholder confidence.

LITERATURE REVIEW

Risk Management and Financial Performance in State-Owned Enterprises

Research consistently demonstrates that effective risk management practices contribute to improved financial performance in state-owned enterprises (SOEs). The OECD (2016) examined risk management frameworks across SOEs in multiple countries and found that enterprises with clear policies, independent oversight, and transparent reporting mechanisms significantly reduced their financial vulnerabilities. These findings highlight the importance of robust corporate governance in embedding risk management into decision-making. Similarly, the IMF (2020) underscored the fiscal risks posed by poorly managed SOEs and introduced a benchmarking tool to stress test vulnerabilities. It concluded that proactive monitoring, transparency, and accountability mechanisms are essential to reducing losses and safeguarding public finances.

Studies in Asia further reinforce these arguments. Lee and Wong (2018) observed that SOEs with mature Enterprise Risk Management (ERM) frameworks were more resilient to financial shocks, attributing success to top management commitment and a culture of risk awareness. Their findings emphasised that the integration of ERM into strategy leads to measurable financial resilience. In Eastern Europe, Novak and Krajcovicova (2021) also established that SOEs with comprehensive risk frameworks achieved better financial performance, especially where regulatory oversight was strong. Collectively, these studies highlight a recurring lesson: embedding risk management frameworks into governance structures significantly improves financial sustainability.

Governance and Institutional Barriers to Effective Risk Management

Another body of literature explores how governance weaknesses hinder risk management effectiveness in SOEs. Gonzalez and Ramirez (2019) revealed that in Latin America, political interference and limited autonomy constrained SOEs from implementing risk practices, leading to recurring financial inefficiencies. Their work underscores the need for transparent governance structures that insulate SOEs from undue political pressures.

African studies offer similar insights. Adeyemi and Ojo (2018) found that weak governance in Nigerian SOEs, characterised by lack of independent boards and ineffective risk committees, directly contributed to financial losses. Kimani and Wanjohi (2019) observed in Kenya that the absence of formalised risk frameworks created inefficiencies and financial instability, recommending capacity building and standardisation of risk practices. In South Africa, Nkosi (2020) showed that SOEs with integrated risk frameworks were more resilient to financial shocks but emphasised the role of leadership in fostering risk-aware cultures. Mensah and Kusi (2021) in Ghana noted that although risk frameworks existed in some SOEs, their inconsistent application undermined financial performance. These studies highlight the governance-related barriers that prevent risk management from delivering its intended benefits in the African context.

Evidence from Zambia and Comparative Contexts

Empirical evidence from Zambia is still limited but highly relevant. Mumba and Kazonga (2021) analysed governance practices in Zambian SOEs between 2006 and 2017, highlighting inconsistent structures that hinder effective risk oversight. They argued for harmonization of governance frameworks to enhance accountability and financial performance. Similarly, Chikuta (2020) found that the absence of independent oversight committees in Lusaka-based SOEs weakened risk monitoring, increasing financial vulnerabilities. Luputa and Mwanza (2022) went further by identifying how Zambia's complex legal and ownership systems exacerbate governance weaknesses, reducing SOEs' ability to adopt collaborative governance frameworks.

When compared to international experiences, these Zambian studies reveal a consistent gap: while other countries are moving toward integrated ERM frameworks, Zambian SOEs, including Zambia Railways Limited, remain hindered by governance weaknesses, political interference, and resource constraints. These barriers explain why ZRL continues to experience operational inefficiencies and recurring financial losses despite its strategic importance.

METHODOLOGY

The study was based on a positivist philosophical paradigm, asserting that knowledge is derived from observable phenomena and that an objective reality exists independently of the researcher. This framework supports the use of quantitative methods to explore relationships between defined variables related to risk management practices and their measurable outcomes, ensuring objectivity and minimizing bias.

Research Approach

A quantitative research approach was adopted, emphasizing the collection and analysis of numerical data to assess the effectiveness of risk management practices at ZRL. This method allowed for systematic evaluation of relationships among various risk management components and their influence on financial performance, utilizing structured questionnaires for consistent data gathering.

Research Design

The research design was both descriptive and correlational, documenting existing risk management practices at ZRL while examining the statistical relationships between these practices and financial loss reduction. This combination provided a thorough understanding of current practices and identified potential gaps, enhancing the study's objectives.

Population of the Study

The study's population included ZRL employees involved in risk management processes, totaling 872 individuals across various roles such as managerial, technical, and support staff. This diverse representation ensured that the study captured a range of perspectives relevant to the effectiveness of risk management practices.

Sample Technique

Stratified random sampling was utilized to ensure representation of key subgroups within ZRL, dividing the population into categories like managerial and technical staff. This approach minimized sampling bias and enhanced the reliability of findings by capturing insights from various levels of decision-making and operational implementation.

Sample Size

A total of 274 participants were selected based on the Taro Yamane formula to ensure a representative sample of employees involved in risk management at ZRL. This sample size balanced feasibility with the need for diverse perspectives, aligning with the study's focus on actionable recommendations for financial loss reduction.

Data Collection Instruments

The primary data collection tool was a structured questionnaire featuring closed-ended questions and Likert-scale items to gather quantitative data on risk management effectiveness at ZRL. A pilot test with 25 employees confirmed the questionnaire's reliability, leading to revisions that enhanced clarity and reduced measurement error before full deployment.

Data Analysis

Data was analyzed using the Statistical Package for the Social Sciences (SPSS), which provided tools for examining correlations and relationships among variables through multiple regression and correlation analysis. This method facilitated a comprehensive understanding of the data and supported the study's hypotheses.

Reliability

Reliability was assessed using Cronbach's alpha, with only variables scoring between 0.7 and 0.9 retained for analysis, ensuring internal consistency. A table presented these variables alongside their alpha values, confirming the robustness of the measures used in the study.

Validity

Validity was evaluated through Cronbach's alpha, which measures the internal consistency of the items in the study. A high alpha value indicated strong correlations among the items, ensuring that the measures accurately reflected the underlying constructs of risk management effectiveness.

FINDINGS

Financial Performance of ZRL based on the 2022 Annual Report

The following is a presentation of the income statement showing revenues, expenses, and net loss of ZRL for 2022 (with 2021 as comparison) based on the 2022 annual report.

Zambia Railways Limited
Consolidated Financial statements.
For the year ended 31 December 2022

Consolidated statement of comprehensive income

	Notes	2022 ZMW'000	2021 ZMW'000
Revenue			
Freight revenue	10(a)	356,318	331,881
Passenger Revenue	10(a)	15,674	11,140
Interchange earnings	10(a)	14,555	13,500
Other income	11(a)	50,181	138,844
		436,728	495,365
Expenditure			
Administration Expenses	11(c)	90,355	71,670
Depreciation	11(c)	77,368	85,318
Fuel and Lubricants	11(c)	134,760	86,585
Interchange expenses	11(c)	31,975	5,783
Loss on disposal of assets	11(c)	399	22,491
Manpower costs	11(c)	182,788	185,664
Provision for impairment losses	11(c)	44,353	16,358
Repairs and maintenance	11(c)	30,887	38,204
		592,885	512,073
Operating loss		(156,157)	(16,708)
Other gains and losses-net	11(b)	23,319	63,441
Finance costs-net	11(d)	(20,735)	(14,681)
Share of net loss of joint venture accounted for using the equity method		793	(7,107)
Loss)/profit before taxation		(152,780)	24,945
Income tax expense	12(a)	(2,515)	(1,916)
(Loss)/profit for the year		(155,295)	23,029
Other Comprehensive income			
Items that may be reclassified to profit or loss			
Exchange differences on translation of foreign operations	13	5,485	(46,955)
Total comprehensive loss		(149,810)	(23,926)

Figure 1: ZRL Income Statement 2022 (with 2021 comparison)

Revenue vs operating expenditure: the income statement shows that the total revenue for ZRL declined by 12% from ZMW495.37 million in 2021 to ZMW436.73 million in 2022. The total operating expenditure was ZMW592.89 million compared to a budget of ZMW510 million, indicating that expenses exceeded both revenue and planned budget. Having an operating expenditure (ZMW592.89 million) that is more than revenue (ZMW436.73 million) structurally produces an operating loss which is not desirable.

Net loss figure: the income statement shows that the company recorded a net loss amounting to ZMW149.81 million in 2022 compared to a loss of ZMW23.93 million posted in 2021. This shows that in both years ZRL were loss making and that the loss widened by over ZMW120 million in 2022 which clearly indicate deteriorating performance.

In summary, ZRL's 12% decline in revenue weakened the company's ability to cover costs. The operating costs in 2022 were higher than revenue which led to an operating deficit. The net loss increased by more than six-fold which provides evidence of continued and worsening losses for ZRL over time.

Link to specific risks: the 2022 annual report indicated high fuel prices (average ZMW24.77 per litre) as one of the major drivers of the increased operational expenditure. However, this figure was more than the budgeted figure of ZMW12.83 per litre. The report also highlighted capacity constraints and aged infrastructure such as insufficient and unreliable rolling stock, and poor track condition which then limit freight volumes and efficiency. The freight volumes fell by about 18% from 884, 771 tons in 2021 to 727, 715 tons in 2022 leading to less traffic available to cover the fixed costs.

This shows the presence of specific risk factors faced by ZRL including fuel price risk, infrastructure/asset condition risk, and volume risk from external disruptions, for example, Chambeshi Bridge closure and Durban floods.

The researcher would have analysed the trends in the financial performance after 2022 to assess the existence of the above financial trends and risks. However, the latest financial statements were not accessible as the company has not been producing financial statements from 2023 – 2024 and the Auditor general's report (2025) cited ZRL as one of the companies that failed to produce audited statements.

Correlation Analysis

The correlation analysis aimed to explore the strength and direction of the relationships between key risk management practices and financial loss reduction at ZRL. Pearson's correlation coefficients were used to measure the association between the dependent variable financial loss reduction and the independent variables, which included risk identification, risk awareness and training, risk mitigation, and risk monitoring.

Table 1:Correlation Analysis

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. Financial Loss Reduction	4.2916	0.5671	–							
2. Experience	2.86	0.985	0.056	--						
3. Department	2.25	1.384	-0.066	0.252**	--					
4. Risk Identification	4.3084	0.5682	0.578*	-0.038	-0.05	--				
5. Risk	4.3566	0.482	0.629*	0.056	0.01	0.752*	--			

Awareness			*			*				
6. Risk Mitigation	4.4185	0.5419	0.686**	-0.057	-0.125*	0.504**	0.617**	--		
7Risk Monitoring	4.3052	0.5218	0.915**	0.025	-0.058	0.693**	0.729**	0.635**	--	

The results indicated that risk monitoring had the strongest and most significant positive relationship with financial loss reduction, with a correlation coefficient of $r = 0.915$ ($p < 0.01$). This finding suggested that the more robust and frequent the risk monitoring processes were at ZRL, the greater the organization's ability to prevent or minimize financial losses. In practical terms, this meant that real-time tracking of risk exposures, coupled with timely reporting and follow-up actions, contributed substantially to the company's financial stability. This result aligned well with literature highlighting that continuous monitoring allows organizations to respond to emerging threats before they escalate into costly disruptions.

In addition, risk mitigation was also found to be positively and significantly associated with financial loss reduction, with a correlation coefficient of $r = 0.686$ ($p < 0.01$). This implied that the effectiveness of strategies designed to reduce risk exposure such as infrastructure investments, insurance policies, and emergency response plans had a meaningful impact on reducing financial vulnerabilities. The findings supported assertions in prior studies that well-implemented mitigation strategies serve as financial buffers against unforeseen events.

Risk awareness and training showed a similarly strong positive correlation with financial loss reduction, at $r = 0.629$ ($p < 0.01$). This relationship emphasized the importance of building a risk-aware culture across the organization. Employees who received targeted training and were sensitized about operational risks were more likely to engage in proactive behaviours that helped safeguard organizational resources. This finding reinforced the notion that institutional knowledge and staff preparedness are key pillars in achieving effective risk control.

The relationship between risk identification and financial loss reduction was also positive and statistically significant, though slightly weaker than the other variables, with $r = 0.578$ ($p < 0.01$). This finding suggested that systematically identifying potential risks whether through formal risk audits, SWOT analysis, or stakeholder consultations contributed to the organization's ability to reduce financial losses. While not as strong as monitoring or mitigation, effective risk identification still served as a crucial first step in the risk management process, as it laid the groundwork for all subsequent strategies.

On the other hand, the demographic variables included in the analysis employee experience and department exhibited very weak or negligible correlations with financial loss reduction. For instance, experience had a near-zero correlation ($r = 0.056$), and department had a slightly negative relationship ($r = -0.068$), both of which were statistically insignificant. These results indicated that financial loss reduction at ZRL was more influenced by organizational-level practices than by individual characteristics or departmental assignments. Interestingly, there was a small but statistically significant negative correlation between department and risk mitigation ($r = -0.125$, $p < 0.05$), suggesting possible inconsistencies in how various departments approached or implemented risk mitigation measures.

Regression Analysis

The regression analysis in this study was carried out to understand the extent to which risk management practices influenced financial loss reduction at ZRL. Four main predictors risk identification, risk awareness and training, risk mitigation, and risk monitoring were examined alongside control variables, namely employee experience and department. A series of five models were progressively constructed to evaluate the impact of each predictor variable while observing changes in the model's overall explanatory power.

Table 2: Regression Analysis

Variable	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Experience (β)	0.066	0.048	0.035	0.028	0.006
Department (β)	-0.052	-0.041	-0.038	-0.026	-0.013
Risk Identification (β)	–	**0.578*** **	**0.243*** **	**0.187*** **	**0.211*** **
Risk Awareness & Training (β)	–	–	**0.203** **	-0.041	-0.082
Risk Mitigation (β)	–	–	–	**0.229*** **	**0.057** **
Risk Monitoring (β)	–	–	–	–	**0.992*** **
R^2	0.010	0.344	0.428	0.563	**0.871**
F	1.267	**42.819*** **	**36.514*** **	**49.127*** **	**261.084*** **

*Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. β = standardised beta coefficient. R^2 = coefficient of determination. – = variable not included in model.*

The first model focused exclusively on the control variables. The results showed that neither employee experience nor department significantly predicted financial loss reduction. The overall explanatory power of the model was very low ($R^2 = 0.01$), and the model was not statistically significant ($F = 1.267$, $p > 0.05$). These results suggested that demographic characteristics, such as how long someone had worked at ZRL or the department they belonged to, were not strong predictors of financial outcomes in this context. Instead, it pointed to the likelihood that institutional practices rather than individual traits were more central to managing financial loss.

When risk identification was introduced in Model 2, the regression results changed significantly. The model's explanatory power improved considerably ($R^2 = 0.344$), and the results were statistically significant ($F = 42.819$, $p < 0.001$). The beta coefficient for risk identification was $\beta = 0.578$, indicating a strong and positive influence on financial loss reduction. This meant that as ZRL became more systematic and thorough in identifying potential risks whether operational, financial, or regulatory its capacity to prevent or minimize financial losses improved markedly. The finding confirmed that early recognition of threats is a foundational step in the risk management process and sets the stage for proactive planning.

In the third model, risk awareness and training were added to the analysis. The overall model strength improved further ($R^2 = 0.428$), and both variables were statistically significant. Risk identification remained a meaningful predictor, although its effect size decreased slightly ($\beta = 0.243$), while risk awareness also showed a positive influence ($\beta = 0.203$, $p < 0.01$). This suggested that fostering a culture where employees are well-informed about risks and adequately trained on how to respond contributed to minimizing financial losses. It underscored the idea that awareness and education were not just soft interventions, but powerful drivers of organizational resilience when consistently applied.

The fourth model introduced risk mitigation strategies, which resulted in a further boost to the model's explanatory power ($R^2 = 0.563$). Risk mitigation had a positive and significant effect on financial loss reduction ($\beta = 0.229$, $p < 0.001$), while risk identification and risk awareness remained significant, though with smaller coefficients. Interestingly, risk awareness now recorded a slightly negative beta ($\beta = -0.041$), which may reflect overlap with other variables or a shift in weight toward more action-oriented strategies like mitigation. Regardless, the model confirmed that deploying targeted risk mitigation tactics such as preventive maintenance,

contingency reserves, or strategic partnerships was crucial to minimizing the impact of risk events on ZRL's financial performance.

The final model, which included all predictors and control variables, revealed the most important insight. The model's overall explanatory power surged to $R^2 = 0.871$, meaning that over 87% of the variation in financial loss reduction could be explained by the risk management practices included in the model. Risk monitoring emerged as the single most powerful predictor, with a beta coefficient of $\beta = 0.992$, highly significant ($p < 0.001$). This finding illustrated that ongoing monitoring, feedback systems, and early warning mechanisms were essential in preventing financial setbacks. It highlighted that even when risks were identified, understood, and planned for, consistent oversight was still required to ensure that threats were being addressed in real-time.

In this model, the influence of other variables particularly risk identification and awareness diminished. This does not mean they were unimportant, but rather that their effects were likely embedded within the larger process of continuous monitoring. In essence, monitoring acted as a backbone that supported and reinforced the entire risk management framework.

Hypothesis Test

Decision Rule: A hypothesis is supported when the beta coefficient (β) in the full regression model (Model 5) is positive and statistically significant ($p < 0.05$). A hypothesis is not supported in the full model when the beta is negative, which may indicate multicollinearity or suppressor effects caused by the dominant predictor (risk monitoring, $\beta = 0.992$). In such cases, the bivariate Pearson correlation coefficient (r) is reported alongside the regression result to confirm whether a positive underlying relationship exists between the independent variable and financial loss reduction. Hypotheses H1 and H2 are therefore classified as "Not Supported in Full Model" but their positive bivariate correlations remain substantively meaningful.

Hypothesis	Description	Test	Statistic	Supported or not supported
H1	Risk identification has a positive significant effect on financial loss reduction at ZRL. (Note: $\beta = -0.072$ in full model due to multicollinearity with risk monitoring; bivariate $r = 0.578$, $p < 0.01$, confirms positive association)	Regression	-0.072*	Not Supported
H2	Risk awareness has a positive significant effect on financial loss reduction at ZRL. (Note: $\beta = -0.041$ in full model due to suppressor effects; bivariate $r = 0.629$, $p < 0.01$, confirms positive relationship)	Regression	-0.041***	Not Supported
H3	Risk mitigation has a positive significant effect on financial loss reduction at ZRL.	Regression	0.229***	Supported
H4	Risk monitoring has a positive significant effect on financial loss reduction at ZRL.	Regression	0.992***	Supported

DISCUSSION

The analysis revealed a significant positive correlation ($r = 0.578$) between risk identification and financial loss reduction, indicating that ZRL's ability to identify and categorize potential threats effectively mitigates financial losses. This finding aligns with existing literature, which suggests that institutionalized risk identification practices enhance financial performance and organizational sustainability. Consequently, ZRL should prioritize developing risk identification mechanisms to improve operational continuity and financial stability.

A strong positive correlation (r = 0.629) was found between risk awareness and training and financial loss reduction, confirming that educating employees on risk management significantly limits financial exposure. This aligns with empirical studies showing that a knowledgeable workforce enhances operational efficiency and reduces vulnerabilities. For ZRL, prioritizing risk awareness and tailored training programs is essential for empowering employees to manage risks actively and improve overall operational discipline.

The study identified a significant correlation (r = 0.686) between implemented risk mitigation measures and financial loss reduction, suggesting that proactive strategies like insurance, maintenance, and contingency planning effectively curb financial losses. Supporting evidence indicates that organizations with formal risk mitigation frameworks experience better financial performance and reduced volatility. Therefore, ZRL should institutionalize risk mitigation as a routine managerial process to enhance service reliability and safeguard financial assets.

Risk monitoring showed the strongest correlation (r = 0.915) with financial loss reduction, highlighting its critical role in effective risk management at ZRL. Continuous monitoring enables early detection of risk deviations and prompt corrective actions, essential for maintaining financial control in complex operations. The findings recommend strengthening ZRL's risk monitoring infrastructure to ensure compliance, promote transparency, and enhance financial sustainability.

Limitations

The study's limitations included its focus on a single state-owned enterprise, Zambia Railways Limited, which restricts the generalizability of findings to other organizations with different operational contexts. Additionally, the exclusive use of quantitative methods and self-reported data may have limited the depth of insights and introduced biases, while the cross-sectional design and lack of control for various influential factors hinder the assessment of causal relationships and changes over time.

FUTURE RESEARCH RECOMMENDATION

Future research should focus on conducting comparative studies across multiple state-owned enterprises in different sectors to gain a broader understanding of risk management dynamics and financial resilience in Zambia. Additionally, employing longitudinal research designs and integrating qualitative methods, such as interviews with key stakeholders, would provide deeper insights into the long-term impacts of risk management practices and the organizational context influencing these outcomes.

CONCLUSION

The study confirmed that risk management is not merely an administrative process, but a strategic tool with tangible financial implications. The research established that the more robust, inclusive, and data-informed an organization's risk management practices are, the more effective it becomes at curbing financial losses. Among the four variables studied, risk monitoring stood out as the most critical contributor underscoring the importance of timely, continuous, and responsive oversight systems that can detect and address risks in real time.

Additionally, the results demonstrated that proactive training, early risk identification, and deliberate mitigation strategies collectively shape an enterprise's risk posture and financial outcomes. These findings resonate with contemporary enterprise risk management theory, particularly the integrated risk management approach advocated by COSO and ISO, which emphasises a holistic and enterprise-wide view of risk. In the context of public sector operations, where resource constraints and political oversight often create systemic inefficiencies, the implementation of structured risk frameworks offers a viable pathway to improved fiscal discipline and public value creation.

The study therefore contributes meaningfully to the empirical discourse on public sector risk governance in Zambia and provides practical evidence to support reforms across other state-owned enterprises. It signals that with the right systems, leadership commitment, and accountability structures, SOEs like ZRL can overcome historical inefficiencies and reposition themselves as financially sustainable entities within the broader national

development agenda.

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