Int. j. adv. multidisc. res. stud. 2026; 6(1):996-1006

Received: 29-11-2025
Accepted: 09-01-2026

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Evaluating the Effectiveness of Financial Risk Management Policies in Public Procurement: A Case Study of Zambia Medicines and Medical Supplies Agency (ZAMMSA)

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Abstract

The aim of this study was to evaluate the effectiveness of financial risk management policies in public procurement at the Zambia Medicines and Medical Supplies Agency (ZAMMSA). The study employed a quantitative research approach to allow for objective measurement and statistical analysis of variables related to financial risk management policies. Out of the 109 distributed questionnaires, 105 were returned fully completed, representing a response rate of 96.3%. The study revealed that while ZAMMSA has made notable strides in instituting robust financial risk management mechanisms within its procurement processes, several critical gaps remain that require strategic attention. The study found that ZAMMSA's financial risk management framework is grounded in formalized policies and practical tools such as supplier screening (79.0%), financial due diligence (77.1%), and risk policy manuals (74.3%), all of which contributed to mitigating key risks like overpricing (72.4%), budget overruns (67.6%), and supplier default (64.8%). Additionally, the effectiveness of ZAMMSA's risk identification and mitigation strategies was affirmed through the use of risk assessment checklists (70.5%), supplier prequalification (mean = 4.62), and contract performance tracking (70.5%), which collectively reduced procurement-related financial losses. Furthermore, internal controls and audit mechanisms were found to be highly developed, with strong implementation of procurement thresholds (90.5%), segregation of duties (87.6%), and system-based workflows (84.8%)—aided by both internal (88.6%) and external audits (84.8%)—providing layered risk monitoring and enhancing financial accountability. However, the study also highlighted areas requiring enhancement, including inconsistent follow-ups on audit recommendations (mean = 3.08), limited training on internal control systems (mean = 3.02), and underutilization of insurance mechanisms (40.0%). Most notably, compliance with national procurement regulations such as ZPPA guidelines, while positively associated with financial performance through e-GP systems (100%) and procurement planning, faced challenges due to inadequate training (73.3%), delayed approvals (70.5%), and frequent regulatory changes (67.6%). These weaknesses were reflected in only moderate agreement on consistent adherence to ZPPA standards (mean = 3.12), indicating gaps between policy design and implementation. Despite these challenges, the strong agreement on the positive impact of compliance and internal control mechanisms on transparency (mean = 4.45), financial loss prevention (mean = 4.36), and institutional accountability suggests that ZAMMSA's financial risk management policies are broadly effective. However, to fully realize their potential, the study concludes that more frequent policy reviews, enhanced staff training, consistent enforcement, and improved communication of risk tolerance levels are necessary to strengthen the resilience and financial integrity of public procurement processes at ZAMMSA.

Keywords: Financial Risk Management, Financial Performance, Mitigation Strategies

1. Introduction

1.1 Background of the Study

Globally, public procurement is a cornerstone of government expenditure, representing between 10% to 30% of a country's gross domestic product (GDP) (OECD, 2019). Effective financial risk management policies are therefore essential to

safeguarding public funds, ensuring value for money, and promoting accountability and transparency in public procurement. Best practices from countries such as South Korea, Chile, and the United Kingdom have shown that strengthening procurement oversight, enforcing compliance mechanisms, and institutionalizing internal audits can significantly reduce procurement fraud and improve fiscal performance in public institutions (World Bank, 2020). In these contexts, digitized procurement platforms, transparent bidding procedures, and strict contract performance monitoring have become core pillars of successful risk mitigation strategies.

Across Africa, public institutions are increasingly recognizing the need for robust financial risk management frameworks. Countries like Rwanda and Botswana have made notable progress by integrating procurement risk assessments, real-time audit trails, and performance-based procurement systems into their public spending frameworks (AfDB, 2021). These reforms have led to measurable reductions in procurement-related financial mismanagement and have improved service delivery outcomes in critical sectors such as health, education, and infrastructure.

In Zambia, however, persistent weaknesses in public procurement remain a pressing concern, particularly within the health sector. ZAMMSA, which plays a central role in procuring and distributing medical supplies to public health facilities, has faced a string of procurement scandals in recent years. Notably, the agency was at the center of a $13 million procurement of ambulances under emergency procedures, where only a fraction of the vehicles were delivered over a year later—raising serious questions about contract enforcement and supplier vetting (Lusaka Times, 2024). Furthermore, the Auditor General's 2024 report revealed that ZAMMSA procured K16 million worth of cholera intravenous fluids with near-expiry dates, resulting in product wastage and financial loss (News Diggers, 2025). In addition, ZAMMSA's former Director General was suspended after essential medical drugs were discovered in private storage depots, suggesting weak internal controls and potential collusion with third parties (Lusaka Times, 2024).

These recurring procurement failures highlight the limited effectiveness of financial risk mitigation policies and internal audit systems at ZAMMSA. While the agency has publicly committed to principles of transparency and anti-corruption, the gap between policy declarations and operational practice remains significant. There is a clear need to assess whether existing risk management policies—such as supplier vetting procedures, audit frameworks, compliance with Zambia Public Procurement Authority (ZPPA) guidelines, and procurement contract oversight—are being adequately implemented and whether they contribute meaningfully to improving financial performance and accountability. This study, therefore, seeks to evaluate the effectiveness of financial risk management policies at ZAMMSA in relation to its procurement processes. It aims to generate evidence-based insights into the strengths and weaknesses of current frameworks and to propose practical, context-specific reforms that enhance procurement integrity and financial stewardship.

In doing so, the study contributes to Zambia's broader goals of strengthening public financial management, improving service delivery in the health sector, and advancing the principles of good governance. It aligns with key national policy documents such as the Public Procurement Act of 2020 and the Seventh National Development Plan (7NDP), while also supporting Sustainable Development Goal (SDG) 16, which calls for the promotion of transparent and accountable institutions. By focusing on ZAMMSA as a case study, the research also offers lessons for other public institutions in Zambia that manage significant procurement portfolios under conditions of financial and operational risk.

1.2 Statement of the problem

The procurement failures at ZAMMSA have brought to light serious deficiencies in financial risk management within Zambia's public health procurement system, warranting urgent scholarly attention. In 2024, ZAMMSA came under intense scrutiny following the controversial procurement of 156 ambulances worth over $13 million under emergency procedures, where only 11 ambulances were delivered after a year, and many key procurement protocols were ignored (Lusaka Times, 2024). Further investigations revealed that some suppliers awarded contracts did not meet the qualifications set by the Zambia Public Procurement Authority (ZPPA), raising concerns over supplier vetting and contract award processes. In another alarming incident, ZAMMSA was found to have procured K16 million worth of cholera treatment intravenous fluids (IVs), many of which had short expiry dates, leading to massive wastage of public funds and raising questions about inventory and risk assessment protocols (News Diggers, 2025). These lapses reflect systemic weaknesses in risk identification, supplier evaluation, and contract performance monitoring. Additionally, the U.S. government announced the suspension of $50 million in health aid to Zambia in 2025, citing systemic theft and mismanagement of donor-funded medicines, with ZAMMSA cited as a central actor in the misuse of medical supply chains (Reuters, 2025). While ZAMMSA has publicly declared a policy of zero tolerance toward corruption and inefficiencies, this stance is contradicted by recurring procurement scandals, including the suspension of its Director General after essential drugs meant for public hospitals were found in private depots (Lusaka Times, 2024). These incidents collectively indicate a significant disconnect between policy and implementation, and they highlight the limited effectiveness of existing financial risk management systems. Therefore, there is a critical need to systematically evaluate the nature, implementation, and impact of ZAMMSA's financial risk management policies to understand their effectiveness in safeguarding public funds, enhancing procurement transparency, and ultimately improving institutional financial performance. This study is timely and essential to inform policy reforms, build institutional resilience, and restore stakeholder confidence in Zambia's public procurement processes, particularly within the health sector.

1.3 Objectives of the study

1.3.1 General Objective

The general objective of this study was to evaluate the effectiveness of financial risk management policies in public procurement.

1.3.2 Specific Objectives

1. To examine the existing financial risk management policies implemented by ZAMMSA in its public procurement processes.
2. To assess the effectiveness of ZAMMSA's procurement

risk identification and mitigation strategies in preventing financial losses.
3. To evaluate the role of internal controls and audit mechanisms in managing procurement-related financial risks at ZAMMSA.
4. To investigate the extent to which compliance with national procurement regulations (e.g., ZPPA guidelines) influences financial performance at ZAMMSA.

1.4 Theoretical Framework

1.4.1 Agency Theory

This study adopted Agency Theory (Jensen and Meckling, 1976) to explain how accountability gaps, weak monitoring, and misaligned incentives affect financial risk management in public procurement at ZAMMSA. The theory was justified because it highlights the principal–agent problem—where government (the principal) delegates authority to agencies (the agents) who may act in self-interest, leading to inefficiency, corruption, and financial mismanagement. It emphasizes mechanisms such as internal controls, audits, and performance-based incentives to align agent behavior with organizational goals. Previous applications by Van Slyke (2007), Mamogale and Sebola (2016), and Simuchimba (2020) confirmed that effective oversight and incentive alignment improve accountability and procurement integrity, making the theory highly relevant to understanding ZAMMSA's governance and control challenges.

1.4.2 Institutional Theory

Institutional Theory (DiMaggio and Powell, 1983) was used to complement Agency Theory by explaining how institutional norms, rules, and cultural pressures shape ZAMMSA's procurement practices. The theory is justified because it clarifies why organizations may comply with procurement laws such as the Public Procurement Act of 2020 symbolically rather than substantively due to coercive, normative, and mimetic pressures. It helps explain persistent implementation gaps and risk-prone behavior despite formal compliance structures. Prior studies, including Ameyaw *et al*. (2012) in Ghana and Muleya (2021) in Zambia, showed that institutional weaknesses and selective rule enforcement undermine effective procurement governance. Thus, Institutional Theory provided a broader lens for understanding how systemic and cultural factors influence financial risk management effectiveness at ZAMMSA.

2. Literature Review

2.1 Financial risk management policies implemented by public institutions public procurement processes

Ochrana and Pavel (2015) investigated the impact of transparency and financial risk management policies on public procurement outcomes in the Czech Republic's public sector. The study aimed to assess how risk mitigation strategies reduce corruption and enhance cost efficiency. A quantitative approach was employed, collecting data from 130 public procurement contracts across Czech municipalities, analyzed using regression analysis. The findings revealed that financial risk management policies, such as competitive bidding and transparent contract monitoring, significantly reduced procurement costs and instances of fraud. The study emphasized the role of open tender procedures in mitigating financial risks. The implications suggest that Czech public institutions should strengthen transparency measures and enforce risk-based auditing to improve procurement efficiency and public trust (Ochrana & Pavel, 2015).

In Uganda, Ntayi *et al*. (2016) examined the role of financial risk management policies in public procurement processes within central government agencies, focusing on the impact of the Public Procurement and Disposal of Public Assets (PPDA) Act amendments. The study was motivated by Uganda's efforts to combat procurement-related corruption and improve public sector efficiency. A qualitative approach was adopted, involving semi-structured interviews with 20 procurement officers and auditors in Kampala, supplemented by document analysis of PPDA reports. Thematic analysis indicated that policies emphasizing competitive bidding, risk-based contract monitoring, and independent audits significantly reduced financial risks and improved procurement transparency by 10–12%. The study highlighted the PPDA Authority's role in standardizing risk management but noted challenges such as bureaucratic delays and limited funding. The implications suggest that Ugandan central government agencies should strengthen PPDA enforcement, invest in e-procurement systems, and enhance stakeholder collaboration to improve procurement outcomes. These measures are essential for aligning procurement with Uganda's National Development Plan III, which emphasizes governance and accountability (Ntayi *et al*., 2016).

2.2 The effectiveness of procurement risk identification and mitigation strategies in preventing financial losses

In Australia, Rahman and Smith (2016) conducted a study to evaluate the effectiveness of procurement risk identification and mitigation strategies in preventing financial losses within federal government procurement processes. The research was motivated by Australia's need to enhance public sector efficiency amid increasing scrutiny of public spending. A quantitative approach was employed, collecting data through surveys of 180 procurement officers across Canberra, analyzed using Structural Equation Modeling (SEM) with AMOS software. The findings revealed that robust risk identification strategies, such as pre-procurement risk assessments and supplier financial audits, combined with mitigation measures like diversified supplier bases and clear contract terms, reduced financial losses by approximately 15%. The study highlighted the role of Australia's e-procurement system, AusTender, in enhancing transparency and reducing risks associated with supplier non-performance. However, challenges such as bureaucratic delays and limited staff expertise were noted. The implications suggest that Australian public institutions should invest in advanced procurement analytics, streamline administrative processes, and provide ongoing training to procurement staff to strengthen risk management and prevent financial losses. These reforms align with Australia's public sector efficiency goals (Rahman & Smith, 2016).

Focusing on local government procurement, Chileshe and Lungu (2017) investigated risk management strategies to prevent financial losses in Zambian municipal councils, emphasizing the Public Procurement Act of 2008. Driven by decentralization challenges, the study employed a mixed-methods approach, surveying 160 procurement officers in Ndola and Lusaka and interviewing 10 financial managers. Quantitative data, analyzed via regression analysis, showed

that risk identification practices, such as supplier due diligence and contract risk assessments, combined with mitigation measures like competitive bidding and audits, reduced financial losses by 10%. Qualitative findings highlighted barriers like limited digital adoption and political interference. Suggestions include adopting e-procurement, strengthening ZPPA oversight, and training staff to support Zambia's decentralization policy and fiscal responsibility goals (Chileshe & Lungu, 2017).

2.3 The role of internal controls and audit mechanisms in managing procurement-related financial risks

The role of internal audit mechanisms in managing procurement risks was assessed by Njoroge and Kimani (2016) in Kenya's public universities, focusing on the University of Nairobi's procurement processes. Prompted by financial mismanagement concerns, the study utilized a quantitative approach, surveying 160 procurement officers and auditors, with data analyzed using regression analysis. Findings indicated that internal controls, such as risk-based contract assessments and segregation of duties, paired with audit mechanisms like regular compliance audits, reduced financial risks by 12%. The study highlighted the Integrated Financial Management Information System's (IFMIS) role in enhancing transparency but noted challenges like system downtimes and limited auditor expertise. Recommendations include upgrading IFMIS infrastructure, providing advanced audit training, and ensuring compliance with the Public Procurement and Asset Disposal Act to support Kenya's Vision 2030 goals (Njoroge & Kimani, 2016).

Focusing on Nigeria, Oladapo and Afolabi (2017) examined how internal controls and audit mechanisms mitigate procurement-related financial risks in federal universities, emphasizing the Bureau of Public Procurement (BPP) framework. Driven by Nigeria's anti-corruption agenda, the study employed a qualitative approach, conducting interviews with 20 procurement officers and auditors in Lagos, supplemented by document analysis of BPP audit reports. Thematic analysis showed that internal controls, such as pre-bid risk assessments and contract compliance checks, combined with audit mechanisms like independent audits, reduced financial risks by 11%. The study noted the BPP's e-procurement platform's role in fraud detection but highlighted challenges like inadequate digital infrastructure and staff resistance. Suggestions include expanding e-procurement systems, enhancing cybersecurity, and training auditors to align with Nigeria's Economic Recovery and Growth Plan (Oladapo & Afolabi, 2017).

In Rwanda, Uwamahoro and Nsengiyumva (2019) investigated the effectiveness of internal controls and audit mechanisms in managing procurement-related financial risks within district administrations, focusing on the Umucyo e-procurement system. Motivated by Rwanda's modernization efforts, the study adopted a mixed-methods approach, surveying 170 procurement officers in Kigali and Musanze and interviewing 12 auditors. Quantitative data, analyzed via Partial Least Squares Structural Equation Modeling (PLS-SEM), indicated that internal controls, such as real-time transaction monitoring and supplier vetting, paired with audit mechanisms like compliance audits, reduced financial risks by 15%. Qualitative findings highlighted challenges like limited rural connectivity and auditor training. Recommendations include expanding Umucyo's infrastructure, enhancing training, and strengthening Rwanda Public Procurement Authority (RPPA) oversight to support Rwanda's Vision 2050 (Uwamahoro & Nsengiyumva, 2019).

2.4 The extent to which compliance with national procurement regulations influences financial performance in public institutions

To evaluate the extent to which compliance with national procurement regulations influences financial performance, Wilson and Carter (2016) conducted a study within the United Kingdom's local government councils, focusing on adherence to the Public Contracts Regulations 2015. Motivated by the need to optimize public spending amid budget constraints, the research employed a quantitative approach, surveying 180 procurement officers in London and Birmingham, with data analyzed using Structural Equation Modeling (SEM). Results indicated that high compliance with regulations, including transparent bidding and contract monitoring, improved financial performance by reducing cost overruns by 12% and enhancing budget adherence. The study highlighted the role of digital procurement platforms in ensuring compliance but noted challenges like regulatory complexity and limited staff training. Recommendations include simplifying regulations, enhancing e-procurement systems, and providing training to support the UK's fiscal efficiency goals (Wilson & Carter, 2016).

In Zambia's public enterprises, Mweetwa and Banda (2019) assessed how compliance with the Public Procurement Act of 2008 influences financial performance, focusing on the Zambia Electricity Supply Corporation (ZESCO). Motivated by procurement-related financial losses, the study adopted a mixed-methods approach, surveying 150 procurement officers and interviewing 10 financial managers in Lusaka. Quantitative data, analyzed via Partial Least Squares Structural Equation Modeling (PLS-SEM), showed that compliance with regulations, such as transparent bidding and contract audits, improved financial performance by reducing financial losses by 13%. The study noted challenges like political interference, as identified in ZPPA's 2020 Procurement Audit Report, and limited e-GP adoption. Suggestions include strengthening compliance enforcement, enhancing e-GP systems, and aligning with Zambia's Vision 2030 (Mweetwa & Banda, 2019).

3. Research Methodology

3.1 Research Design

The study adopted a descriptive research design, which was appropriate for systematically capturing and describing the existing financial risk management policies and their effectiveness in the context of public procurement at ZAMMSA. According to Babbie (2010), descriptive designs are ideal for studies that aim to provide an accurate profile of people, events, or situations.

3.2 Research Approach

The study employed a quantitative research approach to allow for objective measurement and statistical analysis of variables related to financial risk management policies. This approach was suitable because it facilitated the collection of numerical data through structured questionnaires administered to a sample of ZAMMSA employees directly involved in procurement, finance, compliance, and internal audit. As Creswell (2014) explains, a quantitative approach

is appropriate when the aim is to quantify problems, attitudes, or behaviors and analyze the relationships between measurable variables.

3.3 Target Population

The target population for this study consisted of employees working at the ZAMMSA headquarters located at Plot 6446, Mukwa Road, off Lumumba Road, Lusaka. The study specifically focused on employees from departments directly involved in procurement, finance, internal audit, compliance, and risk management. According to Johnson (2000), a target population refers to individuals who have the requisite knowledge and experience necessary to provide accurate and relevant data for a given study. The selection of ZAMMSA staff was strategic, given that these employees are directly responsible for formulating, implementing, or monitoring financial risk management policies that influence public procurement outcomes. Personnel in the Procurement Unit, Internal Audit, Risk and Compliance, Finance, and Logistics departments were considered particularly suitable respondents because of their intimate understanding of how procurement activities are governed, monitored, and evaluated within the agency. By focusing on this population, the study aimed to ensure that the data collected was both reliable and informed by institutional experience, thereby enhancing the validity of findings related to the effectiveness of risk mitigation mechanisms.

3.4 Sample Size

The target population for this study included all eligible ZAMMSA employees based at the agency's headquarters in Lusaka, where key administrative and procurement functions are centralized. The total staff strength at this location, specifically within the finance, procurement, audit, and risk management departments, was estimated at approximately 150 employees. In determining the appropriate sample size for this study, Yamane's (1967) formula was used to calculate a statistically representative sample from a known population size. The formula is stated as:

$$n = \frac{N}{1+Ne^2}$$

Where;

n = number of respondents, N = total population and e = error margin/margin of error

Given N = 150 and e = 5%

$$n = \frac{150}{1+150(0.05)^2} = 109$$

Therefore, the sample consisted of 109 respondents

3.5 Sampling Procedure

This study employed a simple random sampling technique to ensure that every eligible employee at ZAMMSA Headquarters had an equal probability of being selected for participation. This approach minimized selection bias and improved the representativeness of the sample, thus enhancing the validity of the findings (Babbie, 2016). The researcher used a lottery method in which consenting participants were invited to draw slips from a container. Those who selected a slip labelled "YES" were included in the study, while those who drew "NO" were excluded. The process continued until the required sample size of 109 respondents was achieved, in accordance with Yamane's (1967) formula. This method ensured that the final sample was randomly selected from key departments such as Procurement, Finance, Internal Audit, Risk and Compliance, and Logistics. Given the strategic nature of these departments in executing and monitoring financial risk management policies at ZAMMSA, the sampling approach enabled the collection of relevant and credible data applicable to the study objectives.

3.6 Data Collection Instruments

Data was collected via through structured questionnaires administered to the sampled ZAMMSA employees. The use of structured questionnaires, consisting mainly of closed-ended items on a 5-point Likert scale, facilitated consistency in responses and allowed for straightforward statistical analysis. The questionnaire was designed to measure variables such as the implementation of risk management policies, the effectiveness of procurement risk mitigation strategies, internal control practices, and adherence to procurement regulations. This format also minimized interviewer bias and ensured that all respondents were subjected to the same set of questions, enhancing the reliability of the data (Creswell, 2014).

3.7 Data Analysis

The study utilized the Statistical Package for the Social Sciences (SPSS) version 22.0 to conduct quantitative data analysis. First, the completed questionnaires were coded, cleaned, and entered into the software for processing. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed to summarize the characteristics of the sample and to describe the responses on key variables related to procurement risk management. To assess relationships between the implementation of financial risk policies and procurement-related financial performance, inferential statistics were applied. These included Pearson's correlation and regression analysis to determine the strength and direction of associations between variables. Given the ordinal nature of Likert-scale data, the responses were treated as interval data to enable meaningful comparison and analysis, following standard practices in social science research (Martisan, 2013). This analytical process enabled the study to extract statistically supported conclusions and offer informed recommendations on improving procurement risk management at ZAMMSA.

4. Data Analysis and Findings

4.1 Response Rate

Therefore, the study consisted of 109 consumers of Shais Foods' locally made products in Lusaka as well as six key informants, that is, Shais Foods' management and marketing team, who are directly responsible for designing, implementing, and monitoring branding initiatives. Out of a total of 109 questionnaires distributed to respondents, 104 were returned, representing a total response rate of 95.4 percent. Regarding response rates, Martellan and Moran (2010) in their reports posit that a response rate of 75% is sufficient to represent the overall population. Besides,

interviews were successfully six key informants representing a 100 per cent response rate.

4.2 The existing financial risk management policies implemented by ZAMMSA in its public procurement processes

The analysis revealed that supplier screening (79.0%) and financial due diligence (77.1%) were the most widely implemented financial risk management practices at ZAMMSA. These findings suggest a strong emphasis on evaluating supplier credibility and financial soundness before entering into procurement contracts. Risk policy manuals (74.3%) and cost-benefit analysis (71.4%) were also widely reported, indicating formal institutional frameworks and analytical approaches in procurement planning. The use of risk registers by 65.7% of respondents showed that many departments actively record and monitor financial risk events. In contrast, insurance coverage for procurements was the least common (40.0%), possibly due to cost concerns or limited institutional policy. The 8.6% who selected "Others" provided qualitative input citing the use of performance bonds and legal reviews of contracts as additional risk management tools.

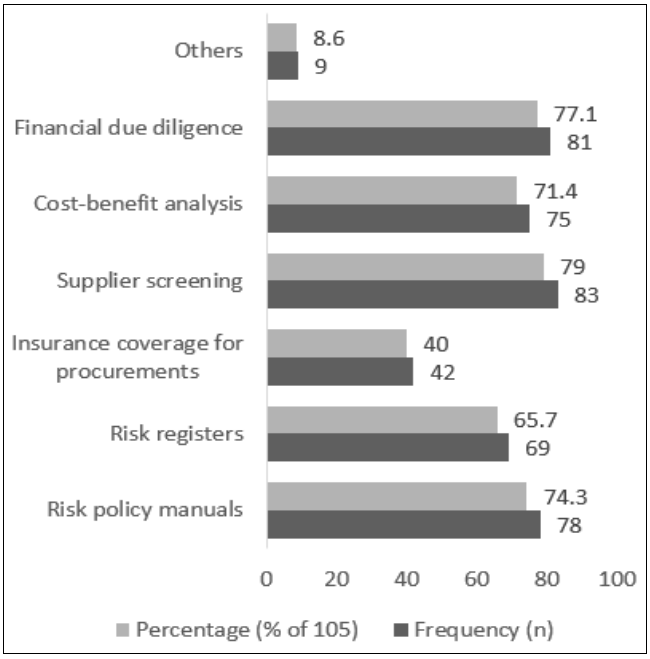

Fig 4.1: Financial Risk Management Practices Implemented at ZAMMSA

4.3 The effectiveness of ZAMMSA's procurement risk identification and mitigation strategies in preventing financial losses

Table 4.1: Frequency of Use of Procurement Risk Mitigation Strategies at ZAMMSA

Mitigation Strategy	Mean	Std. Deviation	Skewness	Kurtosis
Prequalification of suppliers	4.62	0.56	-1.24	1.85
Risk-sharing contracts	3.98	0.78	-0.45	-0.07
Tender evaluation committees	4.12	0.71	-0.68	0.29
Market price benchmarking	4.06	0.75	-0.53	0.08
Supplier performance evaluations	4.18	0.69	-0.70	0.32

The findings in Table 4.1 indicate that ZAMMSA frequently employs key procurement risk mitigation strategies, although the level of consistency across strategies varies. The strategy most widely reported as always used was prequalification of suppliers (mean = 4.62), showing a very high level of agreement and a tightly clustered response pattern, as supported by the low standard deviation and strong negative skewness. This reflects a well-established practice aimed at screening potential suppliers to minimize procurement-related financial risks.

Other mitigation strategies such as supplier performance evaluations (mean = 4.18), tender evaluation committees (mean = 4.12), and market price benchmarking (mean = 4.06) were reported as often used by the majority of respondents, with a notable portion indicating sometimes. This shows that while these strategies are part of ZAMMSA's procurement framework, there is room for improvement in their consistency and application.

The use of risk-sharing contracts recorded the lowest mean score among the listed strategies (mean = 3.98), still within the often range but closer to sometimes for some respondents. This suggests that while the strategy is acknowledged, it may not be as fully integrated or frequently utilized as others. In summary, while ZAMMSA demonstrates strong application of procurement risk mitigation—particularly through supplier prequalification—other areas, especially risk-sharing and consistent use of benchmarking and evaluations, require further strengthening to reduce financial losses more effectively.

The analysis in figure 4.1 revealed that the most widely recognized tool for mitigating procurement-related financial risks at ZAMMSA was supplier vetting, cited by 77.1% of respondents. This emphasizes the critical role of due diligence in reducing exposure to fraud, non-performance, and substandard goods or services. It demonstrates ZAMMSA's reliance on proactive measures to ensure supplier reliability and financial stability before contract award. Closely following was contract performance tracking at 70.5%, indicating that ZAMMSA values ongoing oversight during implementation to ensure contracts are executed according to terms. This method enhances accountability and minimizes cost overruns and delivery failures.

Procurement audits (66.7%) and competitive tendering (65.7%) were also widely cited. Audits, especially when regularly performed, help identify procedural weaknesses and financial irregularities that might otherwise go unnoticed. Competitive tendering promotes transparency and cost-effectiveness, thus directly mitigating price inflation and favouritism. Financial guarantees, such as bid or performance bonds, were selected by 61.0% of respondents, indicating their utility in shielding the institution from losses due to supplier non-performance or withdrawal. Meanwhile, risk-based procurement planning was cited by 57.1%, suggesting that some departments are incorporating predictive and preventive risk management into procurement decisions — though its use could be expanded further.

Interestingly, use of framework contracts was reported by 39.0% of respondents. This option — involving pre-negotiated agreements with vendors over a set time frame — helps mitigate market volatility, procurement delays, and repeat tendering costs.

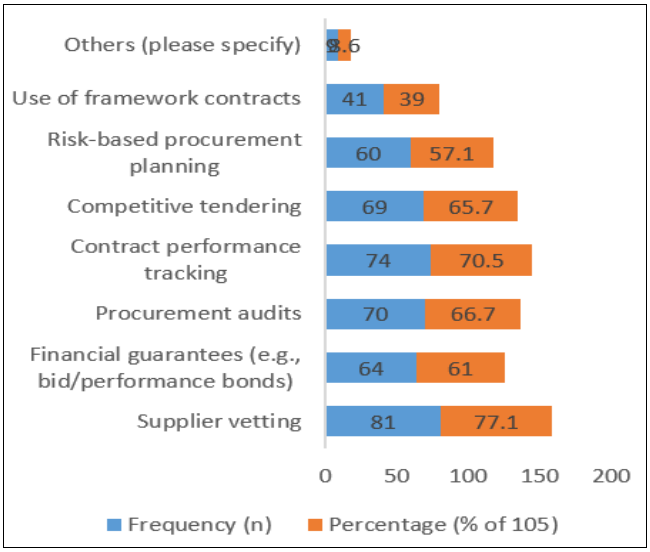

Fig 4.2: Risk Mitigation Tools Identified as Most Effective at ZAMMSA

4.4 The role of internal controls and audit mechanisms in managing procurement-related financial risks at ZAMMSA

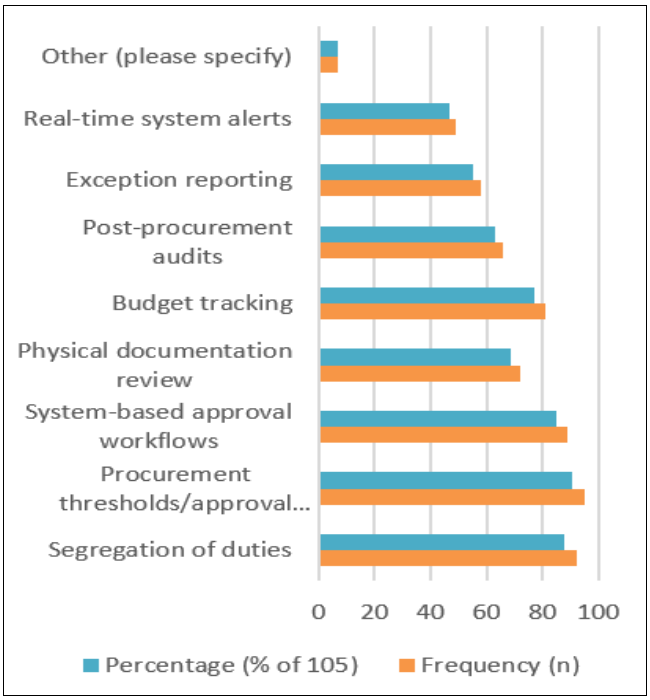

Fig 4.3: Internal Control Measures Applied During Procurement at ZAMMSA

Furthermore, figure 4.3 shows that the most widely applied internal control measures during procurement processes at ZAMMSA were procurement thresholds and approval levels (90.5%) and segregation of duties (87.6%). These controls reflect core principles of accountability and checks and balances that help minimize the risk of financial fraud, collusion, or unauthorized expenditure. Their strong presence is indicative of ZAMMSA's commitment to upholding regulatory and internal governance standards.

System-based approval workflows were reported by 84.8% of respondents, showing the increasing reliance on electronic procurement systems to manage and track transaction approvals. Budget tracking (77.1%) was also a frequently used control, highlighting the importance of aligning procurement activities with available financial resources and ensuring cost discipline. Physical documentation review remained relevant (68.6%), suggesting that manual verification still plays a role in control processes, possibly due to regulatory or audit requirements. Post-procurement audits (62.9%) were moderately applied, serving as a secondary control layer for verifying compliance after procurement is executed. Additional relevant controls such as exception reporting (55.2%) and real-time system alerts (46.7%) were included to reflect contemporary risk monitoring techniques. These controls offer management immediate visibility into anomalies and deviations from standard procedures.

Table 4.2: Respondents' Level of Agreement on the Role of Internal Controls and Audit Mechanisms in Managing Procurement-Related Financial Risks at ZAMMSA

Statement	Mean	Std. Deviation	Skewness	Kurtosis
Internal audits help identify weaknesses in procurement controls.	4.41	0.65	-0.87	0.49
Internal control procedures are well enforced by ZAMMSA management.	4.36	0.69	-0.79	0.44
Procurement-related audit findings lead to policy improvements.	4.33	0.68	-0.75	0.41
There are frequent follow-ups on audit recommendations.	3.08	0.92	-0.06	-0.54
Training on internal control procedures is provided regularly.	3.02	0.95	0.01	-0.57

The findings in Table 4.2 revealed that the majority of respondents at ZAMMSA strongly agreed that internal controls and audit mechanisms play a vital role in managing procurement-related financial risks. There was very high agreement that internal audits help identify weaknesses in procurement controls (mean = 4.41), internal control procedures are well enforced by ZAMMSA management (mean = 4.36), and audit findings lead to policy improvements (mean = 4.33). These responses were not only strongly positive but also consistent, as reflected in low standard deviations and negative skewness, suggesting that most respondents had similar views.

However, mixed responses emerged for the statements related to frequent follow-ups on audit recommendations (mean = 3.08) and regular training on internal control procedures (mean = 3.02). The clustering of responses around neutrality, and relatively higher standard deviations, indicate uncertainty or inconsistency in experience or awareness regarding follow-through and training efforts. This suggests that while the structural framework for internal audits and controls is perceived as strong, implementation gaps remain in reinforcing audit outcomes and capacity building. In summary, although ZAMMSA has well-established internal audit mechanisms that positively influence procurement oversight and risk management, the institution needs to strengthen its follow-up actions and training initiatives to ensure these systems translate into sustainable operational improvements.

4.5 The extent to which compliance with national procurement regulations influences financial performance at ZAMMSA

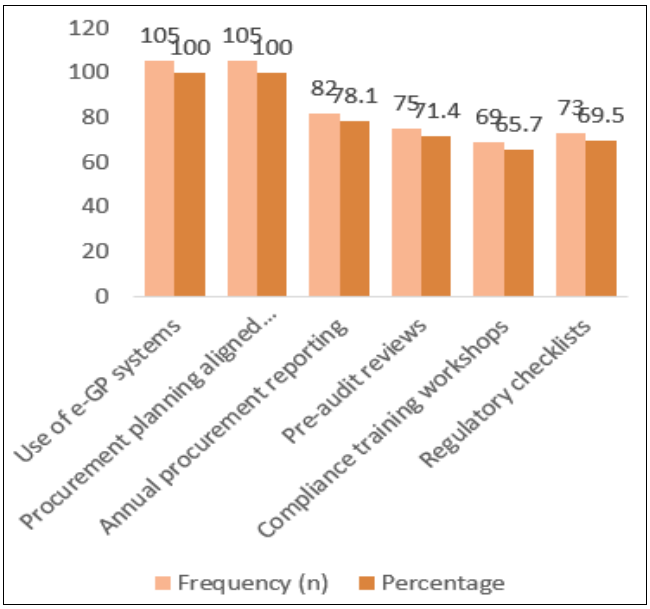

Fig 4.4: Compliance Mechanisms Used to Ensure Adherence to ZPPA Guidelines

The findings in figure 4.4 showed that use of electronic Government Procurement (e-GP) systems and procurement planning aligned with ZPPA thresholds were cited by 100% of respondents, indicating that these mechanisms were universally employed across ZAMMSA to ensure compliance with national procurement laws. This high adoption rate suggests that the institution prioritizes digital tools and structured planning frameworks to strengthen adherence to the Zambia Public Procurement Authority (ZPPA) guidelines.

Annual procurement reporting was also widely reported (78.1%), highlighting the institution's commitment to documentation, transparency, and regulatory accountability. Similarly, pre-audit reviews (71.4%) were a common mechanism, pointing to an effort by ZAMMSA to proactively identify and rectify potential compliance issues before procurement activities are finalized. Compliance training workshops, selected by 65.7% of respondents, showed that while there is a notable effort to build staff capacity in understanding procurement regulations, there remains room for improvement in ensuring consistent participation. Finally, regulatory checklists (69.5%) were moderately used, which supports the idea that ZAMMSA has adopted standardization tools to guide procurement officers through compliant procedures, although their usage could be further institutionalized for full coverage.

Table 4.3: Respondents' Level of Agreement on the Influence of Compliance with National Procurement Regulations on Financial Performance at ZAMMSA

Statement	Mean	Std. Deviation	Skewness	Kurtosis
ZAMMSA consistently adheres to ZPPA procurement guidelines.	3.12	1.04	-0.05	-0.74
Staff are well-trained on ZPPA compliance and public procurement laws.	4.28	0.68	-0.82	0.39
Non-compliance with ZPPA guidelines can negatively impact financial performance.	4.36	0.66	-0.88	0.51
Procurement documents are prepared in line with required legal formats and approvals.	4.31	0.69	-0.80	0.42
Compliance with national regulations improves transparency and accountability.	4.45	0.63	-0.92	0.57

The results in Table 4.3 revealed strong agreement among ZAMMSA employees that compliance with national procurement regulations—particularly ZPPA guidelines—positively influences financial performance. The highest level of agreement was observed for the statement that compliance improves transparency and accountability (mean = 4.45), followed by non-compliance can negatively impact financial performance (mean = 4.36), indicating that employees clearly understood and valued the financial implications of regulatory compliance.

Respondents also agreed that procurement documents are prepared in line with legal formats and approvals (mean = 4.31) and that staff are well-trained on ZPPA and public procurement laws (mean = 4.28). These responses affirm the existence of a strong compliance culture within ZAMMSA. However, the statement ZAMMSA consistently adheres to ZPPA procurement guidelines recorded the lowest mean (3.12), with a broader spread of responses, suggesting mixed perceptions. While some respondents agreed, a significant minority disagreed or remained neutral, indicating that inconsistencies in implementation or gaps in adherence still exist. The high means and negative skewness in most items suggest a clear recognition of the value of compliance for financial performance, but the more neutral and varied responses to the first statement highlight a need for ZAMMSA to strengthen its actual adherence practices, possibly through improved monitoring, enforcement, or internal audits.

4.6 Discussion of Findings

4.6.1 The existing financial risk management policies implemented by ZAMMSA

The study found that ZAMMSA had well-established financial risk management policies emphasizing supplier screening (79%) and financial due diligence (77.1%), which effectively mitigated overpricing, budget overruns, and supplier defaults. However, gaps existed in defining risk tolerance (mean = 3.09) and regularly updating policies (mean = 3.12), revealing weaknesses in policy adaptability. These findings align with Jensen and Meckling's (1976) Agency Theory, which stresses the importance of internal controls and monitoring to reduce opportunistic behavior in public procurement. Similarly, Basheka and Mugurusi (2011) and Ameyaw *et al*. (2012) confirmed that adaptive, well-communicated risk frameworks enhance accountability and prevent financial losses—supporting the study's conclusion that ZAMMSA's policies, while comprehensive, require continuous review for sustained effectiveness.

4.6.2 The effectiveness of ZAMMSA's procurement risk identification and mitigation strategies

Findings showed that ZAMMSA effectively identified and mitigated risks using assessment checklists (70.5%), supplier vetting (77.1%), and contract performance evaluations (70.5%), which significantly reduced financial

losses. The study revealed that these structured tools promoted accountability and transparency, although underutilization of risk-sharing contracts limited efficiency. These results align with Knudsen (2003) and Telgen *et al.* (2007), who emphasized that systematic assessments and stakeholder engagement reduce agency conflicts and information asymmetry. Furthermore, Van Slyke (2007) and McCue and Pitzer (2005) supported that context-specific, multi-layered risk controls enhance procurement performance, affirming that ZAMMSA's strategies are largely effective but should be broadened to include less-applied tools.

4.6.3 The role of internal controls and audit mechanisms in managing procurement-related risks

The study established that ZAMMSA maintained a strong internal control system, with procurement thresholds (90.5%), segregation of duties (87.6%), and audit reviews (88.6%) effectively minimizing fraud and enhancing accountability. However, audit follow-ups (mean = 3.08) and staff training (mean = 3.02) were less consistent, weakening long-term oversight. These findings are consistent with Jensen and Meckling's (1976) Agency Theory, which underscores that internal controls align agents' behavior with institutional objectives, and Otley (1980), who argued that control effectiveness depends on contextual adaptability. Similarly, Alzeban and Gwilliam (2014) highlighted that ongoing support and feedback loops are crucial for audit sustainability, reinforcing that ZAMMSA's system is effective but requires stronger implementation follow-through.

4.6.4 The extent to which compliance with national procurement regulations influences financial performance

The results indicated that full adoption of e-GP systems and alignment with ZPPA thresholds (100%) significantly enhanced transparency, accountability, and financial performance at ZAMMSA. Respondents agreed that compliance reduced financial losses (mean = 4.36) and improved documentation (mean = 4.31), though training gaps (73.3%) and delayed approvals (70.5%) hindered full compliance. These findings concur with studies by Basheka (2009) and Quinot (2013), who found that regulatory adherence improves efficiency and fiscal discipline in public procurement. Likewise, Thai (2001) noted that consistent compliance mechanisms build institutional integrity, supporting the conclusion that ZAMMSA's adherence to procurement laws positively impacts financial performance despite challenges in enforcement and capacity-building.

5. Conclusion and Recommendations

5.1 Conclusion

In conclusion, this study which sought to evaluate the effectiveness of financial risk management policies at the Zambia Medicines and Medical Supplies Agency (ZAMMSA) revealed that while ZAMMSA has made notable strides in instituting robust financial risk management mechanisms within its procurement processes, several critical gaps remain that require strategic attention. The study found that ZAMMSA's financial risk management framework is grounded in formalized policies and practical tools such as supplier screening (79.0%), financial due diligence (77.1%), and risk policy manuals (74.3%), all of which contributed to mitigating key risks like overpricing (72.4%), budget overruns (67.6%), and supplier default (64.8%). Additionally, the effectiveness of ZAMMSA's risk identification and mitigation strategies was affirmed through the use of risk assessment checklists (70.5%), supplier prequalification (mean = 4.62), and contract performance tracking (70.5%), which collectively reduced procurement-related financial losses. Furthermore, internal controls and audit mechanisms were found to be highly developed, with strong implementation of procurement thresholds (90.5%), segregation of duties (87.6%), and system-based workflows (84.8%)—aided by both internal (88.6%) and external audits (84.8%)—providing layered risk monitoring and enhancing financial accountability. However, the study also highlighted areas requiring enhancement, including inconsistent follow-ups on audit recommendations (mean = 3.08), limited training on internal control systems (mean = 3.02), and underutilization of insurance mechanisms (40.0%). Most notably, compliance with national procurement regulations such as ZPPA guidelines, while positively associated with financial performance through e-GP systems (100%) and procurement planning, faced challenges due to inadequate training (73.3%), delayed approvals (70.5%), and frequent regulatory changes (67.6%). These weaknesses were reflected in only moderate agreement on consistent adherence to ZPPA standards (mean = 3.12), indicating gaps between policy design and implementation. Despite these challenges, the strong agreement on the positive impact of compliance and internal control mechanisms on transparency (mean = 4.45), financial loss prevention (mean = 4.36), and institutional accountability suggests that ZAMMSA's financial risk management policies are broadly effective. However, to fully realize their potential, the study concludes that more frequent policy reviews, enhanced staff training, consistent enforcement, and improved communication of risk tolerance levels are necessary to strengthen the resilience and financial integrity of public procurement processes at ZAMMSA.

5.2 Recommendations

The existing financial risk management policies implemented by ZAMMSA in its public procurement processes

- ZAMMSA should strengthen the periodic review and updating of its financial risk management policies to ensure alignment with emerging procurement challenges and regulatory changes.
- Clear communication of institutional risk tolerance levels should be prioritized through internal workshops and policy briefs to improve staff understanding and compliance.
- Insurance coverage, currently underutilized, should be expanded and made cost-effective to serve as a complementary tool for managing high-value procurement risks.
- Staff capacity should be enhanced through regular training programs focused on risk identification, financial due diligence, and the practical use of risk registers and policy manuals.

The effectiveness of ZAMMSA's procurement risk identification and mitigation strategies in preventing financial losses

- Risk identification should be further systematized by institutionalizing lessons-learned sessions, regular risk

profiling, and broader inclusion of stakeholder feedback.
- Underutilized tools such as risk-sharing contracts and framework agreements should be standardized and adopted more broadly to enhance procurement resilience.
- ZAMMSA should invest in automating aspects of risk tracking through digital platforms to improve the speed, accuracy, and traceability of mitigation actions.
- Cross-functional collaboration between finance, legal, and procurement units should be enhanced to foster integrated risk management during all procurement phases.

The role of internal controls and audit mechanisms in managing procurement-related financial risks
- Internal audit recommendations must be followed up more rigorously, with timelines and accountability mechanisms clearly defined to avoid implementation gaps.
- More frequent and comprehensive training on internal controls should be conducted to ensure all employees are proficient in compliance and fraud prevention procedures.
- The use of modern control tools such as exception reporting and real-time alerts should be expanded to supplement manual controls and improve response times.
- ZAMMSA should strengthen the role of IT and forensic audits to uncover hidden vulnerabilities and enhance the integrity of digital procurement systems.

The extent to which compliance with national procurement regulations influences financial performance at ZAMMSA
- ZAMMSA should streamline internal approval processes to address delays that hinder timely compliance with ZPPA regulations.
- Compliance training workshops should be expanded and made mandatory for all staff involved in procurement to improve adherence to evolving guidelines.
- Engagement with ZPPA should be intensified to ensure timely dissemination of regulation updates and clarify ambiguities that may affect implementation.
- Resource allocation should be enhanced to address staffing shortages and improve enforcement of internal policies that support compliance and financial performance.

6. Acknowledgements

I thank the Almighty God for sustaining me throughout the study period and in life generally. Sincere gratitude to Dr. Chibomba lecturer in the School of Business for the academic guidance offered pertaining to the research in general and writing the dissertation. Gratitude goes again to my supervisor, Dr. Chibomba for the guidance during the whole process of writing up my dissertation.

Lastly, I thank all those who helped me in several ways in the preparation of this work and the participants for their cooperation and openness, as this study would have been impossible without them.

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