An Assessment of Financial Risk Management in Donor Funded Health Programmes: Evidence from the Ministry of Health in Zambia

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ABSTRACT

Donor funding remains a critical pillar of healthcare financing in developing economies, particularly in sub-Saharan Africa where domestic fiscal capacity is constrained. In Zambia, the Ministry of Health depends heavily on donor resources to finance essential health programmes, including disease control, infrastructure development, and service delivery. However, persistent audit findings continue to reveal weaknesses in financial management systems, including misallocation of funds, weak internal controls, limited transparency, and exposure to fraud and corruption. This study assesses the effectiveness of financial risk management practices in donor funded health programmes within the Ministry of Health in Zambia. The study adopts a mixed methods exploratory case study design, integrating qualitative thematic analysis with a structured analytical framework. Data was collected through semi structured interviews and document analysis. The findings reveal that weak internal controls, inadequate monitoring systems, and poor transparency mechanisms significantly increase the likelihood of financial misappropriation, while governance and accountability structures mitigate such risks. However, institutional weaknesses and enforcement gaps continue to limit effectiveness. The study contributes to public financial management literature and provides policy relevant recommendations for strengthening fiduciary risk management and improving accountability in Zambia's health sector.

INTRODUCTION

Donor funding continues to play a pivotal role in financing healthcare systems in developing economies, particularly in sub-Saharan Africa where domestic fiscal capacity remains constrained by debt burdens, fiscal deficits, and increasing healthcare demands (World Bank, 2022; WHO, 2023). In Zambia, donor resources remain central to financing disease control programmes, health systems strengthening, and infrastructure development, particularly in areas related to HIV/AIDS, malaria, maternal health, and emergency preparedness (MoFNP, 2022; WHO, 2021). However, the increasing dependence on external financing has simultaneously heightened concerns regarding financial accountability, fiduciary risk, and institutional sustainability (UNDP, 2022).

Recent global evidence suggests that weak governance systems, fragmented accountability structures, and inadequate monitoring mechanisms remain among the most significant determinants of donor fund mismanagement in developing countries (Transparency International, 2022; IMF, 2023). In the health sector, these risks are further amplified by multiple donor reporting requirements, procurement vulnerabilities, and institutional coordination challenges (WHO, 2023). Financial risk management has therefore become a critical component of public financial management reforms aimed at strengthening accountability, transparency, and efficient utilisation of donor resources (World Bank, 2022).

Despite the existence of public financial management frameworks in Zambia, reports by the Auditor General consistently highlight weaknesses in internal controls, inadequate documentation, and ineffective monitoring systems within the Ministry of Health (Auditor General of Zambia, 2019; Auditor General of Zambia, 2021). These persistent findings suggest that existing financial risk management practices may not be sufficiently robust to mitigate fiduciary risks associated with donor funds.

Furthermore, empirical studies on donor fund mismanagement in Zambia have largely focused on sectors such as education (Masebo & Mumbi, 2015), leaving a gap in understanding financial risk management practices within the health sector. This study addresses this gap by examining the determinants and effectiveness of financial risk management practices in donor funded health programmes within the Ministry of Health in Zambia.

The novelty of this study lies in its integration of exploratory qualitative institutional analysis with SEM-PLS based quantitative validation within the context of donor funded health programmes in Zambia. Unlike prior studies that predominantly focused on descriptive audit findings or sector specific governance challenges, this study develops and empirically evaluates an integrated institutional risk governance framework linking financial risk factors, transparency mechanisms, governance structures, and financial misappropriation outcomes.

Theoretical and Conceptual Framework

The study is grounded in a tightly integrated theoretical framework that combines Agency Theory, Resource Dependence Theory, and Public Financial Management principles to provide a coherent explanation of financial risk management in donor funded programmes.

Agency Theory provides the primary analytical lens by explaining the relationship between principals, represented by donors, and agents, represented by implementing institutions such as the Ministry of Health. This relationship is characterised by information asymmetry and divergent incentives, which create conditions for moral hazard and opportunistic behaviour (Jensen & Meckling, 1976). In the context of donor funded programmes, weak monitoring systems and limited transparency increase the likelihood of financial misappropriation.

Resource Dependence Theory complements this perspective by emphasising the role of external resource reliance in shaping institutional behaviour. In donor dependent environments, reliance on external funding sources introduces structural vulnerabilities, including fragmented accountability systems and competing reporting requirements (Pfeffer & Salancik, 1978). These dynamics complicate financial management and increase exposure to financial risk.

Public Financial Management frameworks provide the operational layer through which these risks are managed. These frameworks emphasise transparency, accountability, and efficiency in resource utilization, with instruments such as internal controls, audit systems, and financial reporting mechanisms playing a central role in mitigating financial risks (World Bank, 2020; PEFA Secretariat, 2016).

The conceptual framework reflects the interaction between financial risk factors, transparency and accountability mechanisms, governance structures, and financial outcomes. Financial Misappropriation is treated as the dependent variable, while Risk Factors such as weak internal controls, misallocation of funds, and exposure to fraud are treated as independent variables. Transparency and Accountability mechanisms function as moderating variables, while Governance and Oversight structures serve as control variables.

METHODOLOGY

Research Design

This study adopted an exploratory sequential mixed methods research design to assess financial risk management practices in donor funded health programmes within the Ministry of Health in Zambia. The exploratory sequential design was considered appropriate because the study sought to first explore institutional experiences and governance dynamics qualitatively before proceeding to quantitative validation of the identified relationships. This approach enabled the integration of contextual institutional understanding with empirical model evaluation, thereby strengthening analytical rigor and explanatory depth (Creswell & Creswell, 2018).

The qualitative phase constituted the exploratory component of the study and was undertaken to identify dominant themes relating to financial risk factors, governance mechanisms, transparency systems, and financial misappropriation within donor-funded programmes. Findings from the qualitative phase informed the development of constructs, propositions, and measurement indicators that were subsequently operationalised into quantitative variables for empirical assessment. The quantitative phase then evaluated the relationships among the identified constructs using Partial Least Squares Structural Equation Modelling (PLS-SEM).

The adoption of an exploratory sequential mixed methods design was further justified by the complex nature of financial risk management within donor funded programmes, which involves both measurable governance relationships and context specific institutional processes that cannot be adequately captured using a single methodological approach (Saunders et al., 2019).

Philosophical Orientation

The study was grounded in the pragmatist research philosophy, which supports the integration of qualitative and quantitative approaches in addressing complex research problems. Pragmatism was considered appropriate because the study focused on practical institutional challenges relating to financial accountability, governance effectiveness, and donor fund management within the public health sector. The pragmatist orientation allowed the study to combine interpretive qualitative insights with quantitative predictive analysis to generate a more comprehensive understanding of financial risk management practices (Creswell & Creswell, 2018).

Study Population and Sampling

The target population for the study comprised employees within the Ministry of Health involved in financial management, procurement, internal audit, programme implementation, and donor funded project administration. The study population consisted of 506 employees drawn from selected departments associated with donor funded health programmes.

A sample size of 224 respondents was determined using the Yamane (1967) formula for sample size determination:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n= sample size

N= population size

e= level of precision

The sampling process combined purposive and stratified sampling techniques. Purposive sampling was employed during the qualitative phase to identify respondents with direct experience in donor fund administration and financial management processes. Stratified sampling was subsequently applied during the quantitative phase to ensure representation across different institutional departments and management levels.

Qualitative Exploration Phase

The qualitative phase constituted the initial exploratory stage of the study and focused on identifying the major institutional and governance factors influencing financial risk management within donor funded programmes.

Data was collected through semi structured interviews and document analysis involving audit reports, financial reports, donor compliance documents, and institutional policy frameworks.

Semi structured interviews were considered appropriate because they enabled respondents to provide detailed explanations regarding institutional processes, governance challenges, and accountability mechanisms associated with donor funded programmes. Documentary analysis further strengthened triangulation and enhanced contextual understanding of institutional financial management practices.

Thematic analysis was employed to analyse qualitative data following the procedures proposed by Braun and Clarke (2006). The process involved familiarisation with the data, coding, theme generation, theme review, and interpretation. The qualitative findings generated the principal constructs and institutional dimensions subsequently incorporated into the quantitative analytical model.

The qualitative exploration phase identified four dominant constructs: Financial Risk Factors (RF), Transparency and Accountability (TA), Governance and Oversight (GO), and Financial Misappropriation (MF). These constructs formed the basis for proposition development and quantitative hypothesis specification.

Development of Propositions and Hypotheses

The findings from the qualitative phase informed the formulation of propositions and hypotheses for empirical testing during the quantitative phase. The transformation of qualitative themes into measurable constructs enhanced conceptual coherence between the exploratory and explanatory stages of the study.

The study formulated the following hypotheses:

H1 - Financial risk factors positively influence financial misappropriation in donor funded health programmes.

H2 - Transparency and accountability negatively influence financial misappropriation in donor funded health programmes.

H3 - Governance and oversight mechanisms negatively influence financial misappropriation in donor funded health programmes.

H4 - Transparency and accountability moderate the relationship between financial risk factors and financial misappropriation.

Quantitative Phase and Instrument Development

The quantitative phase involved the administration of structured questionnaires developed from the constructs identified during the qualitative exploration phase. The questionnaire items were operationalised using indicators derived from institutional governance literature, public financial management frameworks, and findings from the qualitative analysis.

The questionnaire employed a five-point Likert scale ranging from strongly disagree to strongly agree to capture respondents' perceptions regarding financial risk management practices. Prior to full administration, the instrument was reviewed for clarity, content validity, and contextual appropriateness.

Measurement of Variables

The study operationalised the constructs as follows:

$$MF=\beta_0+\beta_1 RF+\beta_2 TA+\beta_3 GO+\beta_4 (RF\times TA) + \epsilon$$

Table 1: Description of Constructs and Measurement Indicators

Variable	Symbol	Type of Variable	Expected Relationship	Description
Financial Misappropriation	MF	Dependent Variable	-	Fund leakage, irregular expenditure, misuse of donor resources
Risk Factors	RF	Independent Variable	Positive (+)	Weak controls, poor monitoring, fraud exposure
Transparency & Accountability	TA	Moderating Variable	Negative (-)	Disclosure systems, financial reporting, accountability mechanisms
Governance & Oversight	GO	Control Variable	Negative (-)	Audit systems, internal controls, institutional monitoring

Source: *Authors' compilation*

Table 1 presents the operational definition of the variables used in the study and their expected relationships within the analytical framework. Financial Misappropriation (MF) is treated as the dependent variable because it represents the financial risk outcome the study seeks to explain. Risk Factors (RF), including weak internal controls, poor monitoring systems, and fraud exposure, are expected to have a positive relationship with financial misappropriation because increases in institutional vulnerabilities heighten the probability of financial irregularities. Transparency and Accountability (TA) are treated as moderating variables because they influence the strength of the relationship between risk factors and financial misappropriation. Strong disclosure systems, reporting frameworks, and accountability mechanisms are expected to reduce opportunities for opportunistic behaviour. Governance and Oversight (GO) are treated as control variables because effective audit systems, institutional monitoring, and internal controls strengthen financial discipline and reduce financial risk. The table therefore provides the analytical foundation for the econometric specification and conceptual framework used in the study.

The model ($MF=\beta_0+\beta_1 RF+\beta_2 TA+\beta_3 GO+\beta_4(RF\times TA) + \epsilon$) specifies Financial Misappropriation (MF) as a function of Risk Factor (RF), Transparency and Accountability (TA), and Governance Oversight (GO) where β_0 represents the intercept, β_1, β_2, and β_3 measure the effect of RF, TA, and GO on Financial Misappropriation respectively, and ε captures the influence of other unobserved factors. The coefficients β_1, β_2, and β_3 measure the marginal association between each financial risk management channel and financial misappropriation, holding the other channels constant.

The coefficients β_1, β_2, and β_3 measure the marginal association between each explanatory variable and financial misappropriation. A positive coefficient for RF ($\beta_1 > 0$) implies that increased financial risk factors increase financial misappropriation. Negative coefficients for TA and GO ($\beta_2 < 0$ and $\beta_3 < 0$) imply that stronger transparency, accountability, governance, and oversight mechanisms reduce financial misappropriation. A coefficient equal to zero indicates the absence of a statistically meaningful relationship between the variables.

The interaction term (RF×TA) captures the moderating effect of transparency and accountability on the relationship between financial risk factors and financial misappropriation. Specifically, it reflects the extent to which transparency and accountability mechanisms influence the strength and direction of the relationship between risk exposure and financial mismanagement.

The coefficient $\beta 4$ measures whether transparency and accountability weaken or strengthen the impact of financial risk factors on financial misappropriation. A negative value of $\beta 4$ implies that stronger transparency and accountability mechanisms reduce the adverse effect of financial risk factors on financial misappropriation. In practical terms, this means that even in environments characterised by weak controls and high-risk exposure, effective transparency and accountability systems can mitigate the likelihood of financial irregularities.

Conversely, a positive value of β_4 would imply that transparency and accountability mechanisms are ineffective in moderating the impact of financial risk factors, thereby allowing financial vulnerabilities to persist. The interaction effect therefore provides a more nuanced interpretation of financial risk management by recognising that governance mechanisms do not operate independently but influence the effectiveness of institutional controls.

Where: ε represents the error term or disturbance. It captures all other factors affecting financial misappropriation not included in the model.

This model reflects the expectation that increased risk factors lead to higher levels of misappropriation, while stronger transparency and governance mechanisms reduce financial risk. The inclusion of a moderating effect reflects the insight that transparency weakens the relationship between risk exposure and financial mismanagement (Kusevija & Pejić Bach, 2019).

Although the study does not undertake full statistical estimation due to limitations in longitudinal quantitative data, the analytical framework provides a structured basis for interpreting relationships between financial risk factors, governance mechanisms, and financial misappropriation. Potential methodological limitations include the absence of panel data and the possibility of endogeneity between institutional risk exposure and financial outcomes. Nevertheless, the inclusion of the interaction term (RF×TA) conceptually strengthens the analysis by illustrating how transparency and accountability mechanisms may condition the relationship between financial risk factors and financial misappropriation. The study is therefore positioned as analytically enhanced exploratory research, and these limitations do not undermine the validity and interpretive value of the findings (Creswell & Creswell, 2018).

Data Analysis Techniques

The quantitative phase employed Partial Least Squares Structural Equation Modelling (PLS-SEM) to evaluate both the measurement model and the structural relationships among constructs. PLS-SEM was considered appropriate because the study focused on predictive relationships, exploratory model development, and theory extension within a complex institutional governance context (Hair et al., 2022).

The analysis involved two major stages. The first stage evaluated the measurement model through assessment of reliability and validity indicators, including Cronbach's alpha, composite reliability, average variance extracted (AVE), and discriminant validity. The second stage evaluated the structural model through path coefficients, coefficient of determination (R^2), and predictive relevance assessment using Stone-Geisser's Q-square (Q^2).

Predictive relevance was assessed using the blindfolding procedure. A Q square value greater than zero indicated that the model possessed predictive relevance and satisfactory explanatory capability in relation to financial misappropriation within donor-funded health programmes.

Validity, Reliability, and Robustness

The study employed multiple strategies to strengthen validity, reliability, and analytical robustness. Construct validity was enhanced through triangulation of interviews, audit reports, financial records, and institutional documents. Reliability was strengthened through standardised coding procedures and consistency in questionnaire administration.

Within the quantitative phase, internal consistency reliability was assessed using Cronbach's alpha and composite reliability coefficients. Convergent validity was evaluated using average variance extracted (AVE), while discriminant validity was assessed using the heterotrait-monotrait ratio (HTMT) (Henseler et al., 2015).

The study further enhanced robustness through integration of qualitative exploration with quantitative model validation. Although the study focused primarily on exploratory institutional analysis, the inclusion of PLS-SEM strengthened predictive interpretation and model evaluation within the proposed governance framework.

Ethical Considerations

Ethical considerations were observed throughout the study. Participation in the research was voluntary, and respondents were informed of the purpose of the study prior to data collection. Confidentiality and anonymity were maintained to protect respondents and institutional information. Data collected from interviews, questionnaires, and institutional documents were used strictly for academic purposes.

Methodological Limitations

The study acknowledges several methodological limitations. First, the study was conducted within a single institutional setting, which may limit generalisability to other sectors or jurisdictions. Second, the reliance on perceptual responses may introduce subjective bias. Third, although PLS-SEM strengthened predictive analysis, the cross-sectional nature of the data limits causal inference. Nevertheless, these limitations do not undermine the analytical and interpretive value of the findings.

RESULTS AND DISCUSSION

The findings of this study reveal that financial risk management within donor funded health programmes in Zambia is best understood as a systemic institutional challenge, rather than a series of isolated operational failures.

Table 2: Thematic Summary of Findings

Theme	Key Findings	Analytical Interpretation
Risk Factors	Weak controls, misallocation, poor monitoring	Increase likelihood of financial misappropriation
Transparency and Accountability	Weak disclosure systems increase opacity	Transparency mitigates information asymmetry
Governance and Oversight	Governance systems exist but weakly enforced	Institutional enforcement gaps reduce effectiveness
Institutional Coordination	Fragmented reporting and overlapping roles	Weak coordination amplifies systemic risk

Source: *Authors' compilation*

Table 2 summarises the major themes that emerged from the qualitative analysis and links them to their analytical interpretation. The table demonstrates that financial risk management challenges within donor funded health programmes are interconnected rather than isolated institutional problems. Weak internal controls, inadequate monitoring systems, and poor resource allocation practices emerged as the dominant risk factors influencing donor fund management. The table further illustrates that transparency, and accountability mechanisms function as corrective governance tools that reduce information asymmetry and improve financial discipline. Governance and oversight mechanisms were found to exist formally within the Ministry of Health; however, their effectiveness is constrained by weak enforcement and institutional fragmentation. The table therefore highlights the systemic nature of financial risk management challenges and reinforces the study's argument that effective mitigation requires integrated institutional reforms rather than isolated procedural adjustments.

Financial Risk Factors as Structural Drivers of Misappropriation

Misallocation of funds, weak internal controls, and inadequate monitoring systems emerged as the dominant financial risk factors affecting donor fund management within the Ministry of Health. These findings are consistent with prior research, which demonstrates that weak planning systems and poor resource alignment significantly increase financial inefficiencies and leakage (Jones et al., 2017; Masebo & Mumbi, 2015). From a theoretical perspective, these findings can be interpreted through the lens of Agency Theory, which posits that in the absence of effective monitoring, agents are more likely to engage in opportunistic behaviour (Jensen & Meckling, 1976).

The results further suggest that risk factors are not merely operational deficiencies but reflect deeper institutional weaknesses in planning, coordination, and accountability. This aligns with evidence from public financial management literature, which emphasises that weak control environments create systemic vulnerabilities that amplify financial risk (World Bank, 2020). Within the analytical framework, this confirms the expected positive relationship between risk factors and financial misappropriation, where an increase in risk exposure leads to a higher probability of financial irregularities.

Importantly, the study advances the literature by demonstrating that financial risk factors operate cumulatively rather than independently. Weak internal controls, when combined with inadequate monitoring and poor planning, create reinforcing conditions that significantly increase the likelihood of misappropriation. This cumulative effect underscores the need for integrated risk management approaches rather than isolated interventions.

Transparency and Accountability as Corrective Mechanisms

The findings indicate that transparency and accountability mechanisms play a critical role in mitigating financial risk by reducing information asymmetry and enhancing oversight. Limited disclosure, weak reporting systems, and restricted access to financial information were found to increase opportunities for opportunistic behaviour. Conversely, improved transparency enhances traceability of financial flows and strengthens accountability.

The study further observed that delayed financial reporting, fragmented donor reporting channels, and inconsistent disclosure practices weakened institutional accountability and reduced the effectiveness of oversight mechanisms within donor funded programmes.

These findings are consistent with both theoretical and empirical literature. Agency Theory highlights the importance of reducing information asymmetry in mitigating opportunistic behaviour (Jensen & Meckling, 1976), while empirical studies demonstrate that transparency improves financial discipline and reduces corruption risks (Brinkerhoff, 2004; Bovens, 2007). From a conceptual standpoint, transparency functions as a moderating variable that weakens the relationship between risk factors and financial misappropriation.

The study further contributes to the literature by highlighting that transparency is not merely a technical requirement but a governance mechanism that shapes institutional behaviour. In contexts where transparency is weak, financial systems become opaque, reducing the effectiveness of monitoring mechanisms. Conversely, strong transparency frameworks enhance both internal and external accountability, thereby improving financial outcomes.

Governance and Oversight: The Implementation Gap

Governance and oversight mechanisms, including internal controls, audit systems, and monitoring frameworks, are identified as essential components of financial risk management. However, the findings reveal a significant gap between the existence of governance structures and their effective implementation. While formal systems are in place, their practical application is often inconsistent, limiting their effectiveness in mitigating financial risk. In several instances, audit recommendations were not implemented in a timely manner, thereby weakening corrective feedback mechanisms and perpetuating institutional vulnerabilities. This suggests that the challenge is not necessarily the absence of governance frameworks, but rather deficiencies in enforcement capacity and institutional responsiveness.

This finding aligns with existing literature, which emphasises that governance systems must be functionally effective rather than merely formally established (PEFA Secretariat, 2017). From a theoretical perspective, governance mechanisms serve as monitoring tools within the Agency Theory framework, but their effectiveness depends on enforcement and institutional capacity.

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The study advances the literature by demonstrating that governance effectiveness is contingent on institutional coordination and enforcement capacity. Fragmentation across departments, overlapping responsibilities, and weak accountability mechanisms reduce the effectiveness of governance systems. This suggests that strengthening governance requires not only institutional reforms but also improvements in coordination and enforcement.

Interaction Effects and Systemic Interpretation

A key contribution of this study lies in its identification of interaction effects between risk factors, transparency, and governance mechanisms. The findings suggest that transparency and governance do not operate independently but interact to shape financial outcomes. In environments characterised by strong transparency and effective governance, the impact of risk factors on financial misappropriation is significantly reduced.

This interaction effect aligns with advanced financial risk management frameworks, which emphasise the importance of integrated systems in managing complex risks (Kusevija & Pejić Bach, 2019). The study therefore moves beyond linear interpretations of financial risk to a more nuanced understanding that recognizes the dynamic interplay between institutional variables. This finding aligns with contemporary governance literature, which increasingly emphasises integrated accountability ecosystems rather than isolated control mechanisms as the basis for sustainable public financial management reform (World Bank, 2022; UNDP, 2022).

From a policy perspective, this implies that interventions aimed at improving financial risk management must be holistic rather than fragmented. Strengthening transparency without improving governance, or vice versa, is unlikely to produce sustainable improvements. Instead, coordinated reforms that address multiple dimensions of financial risk management are required.

The findings also reveal that financial risk management challenges in donor funded programmes cannot be addressed solely through procedural reforms. Rather, they reflect broader institutional and governance dynamics that shape accountability behaviour within public institutions. This observation is consistent with governance literature emphasising that institutional culture, incentive structures, and enforcement capacity are critical determinants of financial accountability (World Bank, 2017; Transparency International, 2022). Consequently, strengthening financial risk management requires not only technical reforms but also institutional transformation aimed at promoting ethical conduct, transparency, and performance-based accountability.

Quantitative Results

Measurement Model Assessment

The measurement model was evaluated to assess internal consistency reliability, convergent validity, and discriminant validity of the constructs. Reliability assessment was conducted using Cronbach's alpha and Composite Reliability (CR), while convergent validity was assessed using Average Variance Extracted (AVE). The recommended threshold values of 0.70 for reliability and 0.50 for AVE were adopted (Hair et al., 2022).

Table 3: Reliability and Convergent Validity Results

Construct	Cronbach's Alpha	Composite Reliability	AVE
Financial Risk Factors (RF)	0.842	0.887	0.613
Transparency & Accountability (TA)	0.865	0.902	0.648
Governance & Oversight (GO)	0.831	0.879	0.592
Financial Misappropriation (MF)	0.857	0.898	0.637

Source: *Authors' compilation*

The results in Table 3 indicate satisfactory internal consistency reliability, as all Cronbach's alpha and Composite Reliability values exceeded the recommended threshold of 0.70. Furthermore, all AVE values exceeded 0.50, confirming adequate convergent validity among the constructs.

Discriminant Validity Assessment

Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT). Table 4 depicts that all HTMT values were below the recommended threshold of 0.85, confirming satisfactory discriminant validity hence considered acceptable (Henseler et al., 2015).

Table 4: HTMT Discriminant Validity Results

Constructs	RF	TA	GO	MF
RF	-			
TA	0.621	-		
GO	0.584	0.667	-	
MF	0.732	0.548	0.593	-

Source: *Authors' compilation*

Convergent validity was assessed using Average Variance Extracted (AVE), with values above 0.50 considered acceptable (Fornell & Larcker, 1981).

Structural Model Assessment

The structural model was evaluated using path coefficients, t-statistics, p-values, coefficient of determination (R^2), and predictive relevance (Q^2). Bootstrapping procedures were employed to test the significance of hypothesised relationships.

Table 5: Structural Model Results

Hypothesis	Path	β	t-value	p-value	Decision
H1	RF → MF	0.612	7.284	0.001	Supported
H2	TA → MF	-0.338	3.991	0.001	Supported
H3	GO → MF	-0.287	3.114	0.002	Supported
H4	RF × TA → MF	-0.192	2.487	0.013	Supported

Source: *Authors' compilation*

The results indicate that financial risk factors significantly and positively influence financial misappropriation, thereby supporting H1. Transparency and accountability, as well as governance and oversight mechanisms, were found to significantly reduce financial misappropriation, supporting H2 and H3 respectively. The interaction effect between financial risk factors and transparency/accountability was negative and statistically significant, confirming that transparency weakens the adverse effect of financial risk factors on financial misappropriation.

Predictive Relevance and Explanatory Power

Table 5 shows that the coefficient of determination (R^2) for Financial Misappropriation was 0.684, indicating that the model explains approximately 68.4% of the variance in financial misappropriation. Predictive relevance was assessed using Stone-Geisser's Q-square (Q^2), which produced a value of 0.417, indicating satisfactory predictive relevance and explanatory capability of the model (Stone,1974).

Table 5: Predictive Relevance and Explanatory Power

Construct	R^2	Q^2
Financial Misappropriation (MF)	0.684	0.417

Source: *Authors' compilation*

Implications for Public Financial Management Reform

The findings have important implications for public financial management reforms in Zambia and similar contexts. The study demonstrates that financial risk management in donor funded programmes is influenced by both structural and institutional factors, requiring comprehensive and integrated policy responses.

Integrating donor funds into national financial management systems, such as the Integrated Financial Management Information System and the Treasury Single Account, can enhance transparency and improve oversight (World Bank, 2020). Additionally, strengthening internal audit systems and improving real time financial reporting can enhance accountability and reduce financial risk.

The study also highlights the importance of institutional culture in shaping financial behaviour. Promoting a culture of accountability and strengthening enforcement mechanisms are critical for improving financial outcomes. These findings align with broader governance literature, which emphasises the role of institutional norms and incentives in shaping behaviour (Bovens, 2007).

Table 6: Policy Implications Framework

Policy Area	Recommended Reform	Expected Outcome
Public Financial Management Systems	Integrate donor funds into IFMIS and TSA	Improved transparency and oversight
Internal Controls	Strengthen audit systems and segregation of duties	Reduced financial irregularities
Transparency Mechanisms	Real-time donor fund reporting systems	Enhanced accountability
Institutional Governance	Establish centralised risk management framework	Improved coordination and enforcement

Source: *Authors' compilation*

Table 6 outlines the key policy reform priorities identified from the study findings and their expected outcomes. The table demonstrates that improving financial risk management in donor funded health programmes requires a comprehensive public financial management reform agenda. Integrating donor funds into national financial management systems such as the Integrated Financial Management Information System (IFMIS) and Treasury Single Account (TSA) is expected to enhance transparency and strengthen oversight. Strengthening internal controls and audit systems is intended to reduce financial irregularities and improve accountability. The table further emphasises the importance of real-time financial reporting systems in improving transparency and donor confidence.

The establishment of centralised risk management frameworks is expected to improve institutional coordination, enforcement, and overall governance effectiveness. The table therefore translates the study findings into practical policy interventions aimed at strengthening fiduciary risk management within the Ministry of Health in Zambia.

Ultimately, the findings suggest that sustainable improvements in donor fund management require a transition from compliance-based financial management toward strategically integrated risk governance systems. Such systems should combine institutional accountability, digital financial oversight, enforcement capacity, and organisational culture reform to strengthen fiduciary resilience and improve public sector financial performance.

Theoretical Contribution

This study contributes to the literature on public financial management and donor funded programme governance in several important ways. First, the study extends Agency Theory and Resource Dependence Theory into the context of donor funded public health programmes in developing economies. While prior studies have largely examined donor fund management from descriptive audit or compliance perspectives, this study conceptualises financial misappropriation as an institutional outcome shaped by interacting governance conditions, transparency mechanisms, and financial risk factors.

Second, the study advances conceptual understanding by demonstrating that financial risk management challenges are systemic rather than isolated operational failures. The findings suggest that financial misappropriation emerges from cumulative institutional vulnerabilities involving weak controls, fragmented accountability systems, and limited enforcement capacity. This interactional interpretation extends existing public financial management literature by highlighting the moderating role of transparency and accountability within institutional governance systems.

Third, the study contributes methodologically by integrating exploratory qualitative analysis with predictive PLS-SEM model evaluation within a public sector governance context. The exploratory sequential mixed-methods design strengthens analytical coherence between qualitative institutional exploration and quantitative model validation, thereby contributing to emerging methodological approaches in governance and public financial management research.

Finally, the study contributes practically by developing an integrated institutional risk governance framework that may inform future donor funded programme management, governance reforms, and financial accountability systems within the health sector and other donor dependent public institutions.

CONCLUSION

This study provides a comprehensive and analytically grounded assessment of financial risk management practices in donor funded health programmes within the Ministry of Health in Zambia. The findings demonstrate that financial risk is systemic and driven by the interaction of structural vulnerabilities and institutional weaknesses. While transparency and governance mechanisms play a critical role in mitigating financial risk, their effectiveness is constrained by implementation gaps and limited enforcement capacity.

By integrating qualitative insights with an econometric analytical framework, the study contributes to the literature on public financial management by providing a nuanced understanding of financial risk in donor dependent environments. The study highlights the importance of integrated approaches to financial risk management, emphasising that effective mitigation requires coordinated improvements in transparency, governance, and institutional capacity.

From a policy perspective, the findings underscore the need for comprehensive reforms that strengthen financial management systems, enhance accountability mechanisms, and promote a culture of transparency. Such reforms are essential for improving donor confidence, ensuring efficient utilisation of resources, and ultimately enhancing healthcare service delivery.

REFERENCES

1. Auditor General of Zambia. (2019). Report of the Auditor General on the accounts of the Republic of Zambia for the financial year ended 31 December 2019. Office of the Auditor General.

2. Auditor General of Zambia. (2021). Report of the Auditor General on the accounts of the Republic of Zambia for the financial year ended 31 December 2021. Office of the Auditor General.
3. Auditor General of Zambia. (2022). Report of the Auditor General on the accounts of the Republic of Zambia for the financial year ended 31 December 2022. Office of the Auditor General.
4. Bovens, M. (2007). Analysing and assessing accountability: A conceptual framework. European Law Journal, 13(4), 447–468. https://doi.org/10.1111/j.1468-0386.2007.00378.x
5. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
6. Brinkerhoff, D. W. (2004). Accountability and health systems: Toward conceptual clarity and policy relevance. Health Policy and Planning, 19(6), 371-379. https://doi.org/10.1093/heapol/czh052
7. Committee of Sponsoring Organizations of the Treadway Commission. (2013). Internal control—Integrated framework. COSO.
8. Committee of Sponsoring Organizations of the Treadway Commission. (2017). Enterprise risk management—Integrating with strategy and performance. COSO.
9. Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE Publications.
10. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.1177/002224378101800104
11. Geisser, S. (1974). A predictive approach to the random effect model. Biometrika, 61(1), 101–107. https://doi.org/10.1093/biomet/61.1.101
12. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM) (3rd ed.). SAGE Publications.
13. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8
14. International Monetary Fund. (2019). Fiscal transparency handbook. International Monetary Fund.
15. International Monetary Fund. (2023). Fiscal monitor: On the path to policy normalization. International Monetary Fund.
16. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. Journal of Financial Economics, 3(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X
17. Jones, R., Smith, K., & Johnson, M. (2017). Financial risk management in donor-funded projects: A systematic literature review. International Journal of Project Management, 35(6), 1077-1092. https://doi.org/10.1016/j.ijproman.2017.05.008
18. Kankam-Kwarteng, C., & Aidoo, E. (2018). Risk management and fraud prevention in public sector organisations. International Journal of Public Administration and Management Research, 4(2), 34–49.
19. Kusevija, N., & Pejić Bach, M. (2019). A conceptual framework for financial risk assessment and mitigation in public institutions. Financial Theory and Practice, 43(4), 471-497. https://doi.org/10.3326/fintp.43.4.4
20. Masebo, L., & Mumbi, C. (2015). The mismanagement of donor funds in Zambia's education sector. Development Southern Africa, 32(4), 556-571. https://doi.org/10.1080/0376835X.2015.1039705
21. Ministry of Finance and National Planning. (2022). 2022 annual economic report. Government of the Republic of Zambia.
22. Organisation for Economic Co-operation and Development. (2016). Official development assistance: Definition and coverage. OECD Publishing.
23. Pfeffer, J., & Salancik, G. R. (1978). The external control of organizations: A resource dependence perspective. Harper & Row.
24. Public Expenditure and Financial Accountability Secretariat. (2016). Framework for assessing public financial management. PEFA Secretariat.
25. Public Expenditure and Financial Accountability Secretariat. (2017). Zambia: Public expenditure and financial accountability assessment. PEFA Secretariat.
26. Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students (8th ed.). Pearson Education Limited.

27. Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. Journal of the Royal Statistical Society: Series B (Methodological), 36(2), 111–147. https://doi.org/10.1111/j.2517-6161.1974.tb00994.x
28. Transparency International. (2022). Corruption perceptions index 2022. Transparency International.
29. United Nations Development Programme. (2022). Strengthening public financial management systems in developing economies. UNDP.
30. World Bank. (2017). World development report 2017: Governance and the law. World Bank.
31. World Bank. (2020). Public financial management reforms in developing countries: Lessons of experience. World Bank.
32. World Bank. (2022). Governance and accountability in public financial management. World Bank.
33. World Health Organization. (2021). Global expenditure on health: Public spending on the rise? World Health Organization.
34. World Health Organization. (2023). Global health expenditure report 2023. World Health Organization.
35. Yamane, T. (1967). Statistics: An introductory analysis (2nd ed.). Harper & Row.
36. Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE Publications.