Evaluating the effect of internal control systems on organizational performance in Zambia's mining sector: Evidence from Konkola Copper Mines, Chingola

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ABSTRACT

Internal control systems are globally recognized as critical mechanisms for ensuring financial accountability, operational efficiency and regulatory compliance. Mining contributes over 70% of Zambia's export earnings. However, governance and accountability challenges raise concerns about the robustness of internal control mechanisms. This study evaluates the effectiveness of internal control systems on organizational performance at Konkola Copper Mines (KCM) in Chingola. Guided by the Agency and Stakeholder Theories, the study employs a convergent parallel mixed-methods design. Structured questionnaires were used for quantitative data collection while interviews, were used to collect qualitative data. The target population comprised of accounting staff, internal auditors, finance officers and administrative managers. The sample size was 234 participants selected using purposive sampling. The study used a mixed-methods approach. Qualitative data was analyzed using thematic analysis while quantitative data was analyzed using the statistical package for social sciences, SPSS and presented in tables. The qualitative findings revealed that the control environment at KCM is not robust. Interviewees emphasized that internal controls do not receive adequate attention. They reported that risk management systems are ineffective and that control activities and Information and Communication Technology (ICT) systems were inconsistently applied. Interviewees emphasized that monitoring activities are not effective enough. The quantitative findings revealed that the control environment, risk management systems, control activities and financial reporting effectiveness have a positive and statistically significant correlation with organizational performance. Similarly, transparency and accountability showed a positive and statistically significant correlation with organizational performance. The study concluded that internal control systems at KCM are not robust. The study recommends that management at KCM should strengthen and consistently enforce internal control systems by establishing clear financial control policies, using updated communication systems, standardizing control activities, strengthening the internal audit function through independence from management influence and conducting regular risk assessment integrating them into strategic planning.

Keywords: Financial Reporting, Internal Control Systems, Mining Sector, Organizational Performance, Risk Management, Zambia

I. INTRODUCTION

Effective internal control systems are widely recognized as essential for ensuring organizational sustainability, protecting assets, and promoting operational efficiency, especially in high-risk, capital-intensive industries such as mining. Effective internal controls ensure efficient use of resources (Otoo et al., 2023). The global mining sector is navigating a landscape shaped by economic uncertainty, supply chain disruptions and evolving regulations. Rising operational costs, geopolitical tensions and shifting policies are influencing investment decisions. Supply chain bottlenecks and international conflicts are further increasing delays and expenses, while regulatory shifts including trade policies and tariffs, add layers of complexity (Radebe & Chipangamate, 2024) In Zambia, mining continues to underpin the national economy: copper, cobalt, and gold exports collectively accounted for US$6.7 billion in export earnings in 2023, down from US$8.3 billion in 2022, highlighting the sector's central role and vulnerability to market volatility (Zambia Mining Report, 2024).

Zambia still grapples with several challenges related to governance, transparency and financial integrity in its extractives sector. (Zambia Extractive Industries Transparency Initiative, 2025) Vedanta's 79.4% owned Konkola Copper Mines (KCM) were seized and ordered to be liquidated in May 2019 over alleged mismanagement (ZCCM-IH, 2020). In July 2024, Vedanta Resources regained control by depositing approximately US$245.75 million to creditors to regain control of the Konkola Copper Mines in Zambia after about five years (Bloomberg, 2024). However, operational challenges persist:

investigative reports noted that by 2025, KCM's facilities operated well below capacity, with production declining by over 75% since 2018 and operating losses nearing US$200 million.

Internal control is fundamentally a system made up of integrated policies, procedures and practices (Hoai & Nguyen, 2022). The internal control system is a comprehensive framework that encompasses a range of approved policies, and procedures implemented by management to facilitate the effective management of business. Five essential components are outlined by the COSO framework, namely: control environment, risk management, control activities, information and communication systems and monitoring (Fourie & Ackerman, 2013). Each component plays a distinct but synergistic role in reducing the risk of errors, fraud or irregularities in the organization's operations (Tian & Sun, 2023). Nevertheless, empirical research examining the effects of these internal control components on organizational performance in Sub-Saharan Africa's extractive industries remains limited. Much of the existing literature focuses on public sector or financial institutions, with relatively little attention paid to the complex realities of mining firms. This study seeks to address this gap by investigating how the five key components of internal control systems affect organizational performance at Konkola Copper Mines, thereby providing valuable insights for managers, policymakers and researchers.

1.1 Statement of the Problem

Internal control systems are recognized globally as mechanisms necessary for ensuring financial accountability, operational efficiency and compliance with regulations. The 2020 Wirecard scandal in Germany shows that companies must have adequate and effective internal control systems and a specialized audit committee where the chairman of the committee is an independent financial expert ((Jo et al., 2021) The Association of Certified Fraud Examiners (ACFE, 2022) also reports that organizations worldwide lose approximately 5% of annual revenue to fraud, underscoring the costly consequences of weak internal control frameworks.

In Sub-Saharan Africa, corruption is a major challenge to economic, social and political developments. Transparency International (2024) indicates that many nations in Africa rank low on the Corruption Perceptions Index, reflecting systematic weaknesses in internal controls and oversight. Studies within corporate organizations show that, fraud, which encompasses financial statement manipulation, asset misappropriation and corruption, often occurs when oversight in a company is weak (Kalia & Gill, 2023). Despite the existence of international frameworks such as COSO and SOX, their adoption and practical application in African contexts remain limited due to resistance to change, lack of awareness, resource constraints and bureaucracy and political inference (Mahlangu et al, 2025).

In Zambia, the mining industry contributes over 70% of the country's export and remains a cornerstone of economic development (Zambia Development Agency, 2024). However, governance and accountability challenges in mining companies raise concerns about the robustness of internal control mechanisms. Reports have pointed out inefficiencies in financial reporting, weak internal auditing structures and inadequate risk assessment procedures in major mining firms, which undermine operational performance and erode stakeholder trust. Konkola Copper Mines (KCM) has been at the center of significant public controversy concerning its corporate governance, financial practices, and management of revenues generated from Zambia's mineral resources. The dispute has included allegations regarding the diversion of company assets and concerns over whether value generated from mining activities has been retained within the Zambian economy or transferred to related parties (High Court of Justice of England and Wales, 2014). Such challenges emphasize the need for a systematic evaluation of how internal control systems impact organizational performance within this critical sector.

Although internal controls have been studied extensively in Zambian financial institutions and public entities, there is limited empirical research on their effectiveness in the mining sector. This knowledge gap is significant given the sector's contribution to the national economy and the persistent concerns about corporate governance and financial integrity. This study, therefore, investigates the impact of internal control components - particularly the control environment, risk assessment, control activities, information and communication systems, monitoring activities, financial reporting and accountability on organizational performance at Konkola Copper Mines in Chingola.

1.2 Research Questions

i. What effect does the control environment have on the performance of Konkola Copper Mines in Chingola?
ii. What relationship exists between risk management systems and organizational performance at Konkola Copper Mines in Chingola?
iii. How effective are control activities and communication and information systems at Konkola Copper Mines in Chingola?
iv. To what extent are monitoring activities implemented at Konkola Copper Mines in Chingola?

II. LITERATURE REVIEW

2.1 Theoretical Review

This study is underpinned by an integrated theoretical framework that combines Agency Theory and Stakeholder Theory to explain the relationship between the control environment and organizational performance at Konkola Copper Mines. Established by Jensen and Meckling (1976), Agency Theory states that in the absence of robust oversight, managers may pursue personal goals that are not aligned with the company's strategic objectives and financial health. A strong control environment is characterized by effective corporate governance, transparent financial reporting and rigorous internal audit. It serves as the essential mechanism to mitigate agency problems and ensures that management's decisions are in alignment with the interests of shareholders, thereby minimizing inefficiencies, combating opportunism and safeguarding assets.

Complementing this, the Stakeholder Theory (Freeman, 1984) expands the focus beyond shareholders to encompass the broad array of stakeholders, including employees, local communities, government regulators and environmental advocates. The Stakeholder Theory argues that long-term corporate success is contingent upon the effective management of these relationships. In Konkola Copper Mines' case, this translates into earning a "social license to operate". This license is secured through consistent ethical conduct rather than being granted by regulators. It is secured through proactive environmental stewardship and meaningful engagement with the community. The control environment is, therefore, not merely an internal financial mechanism but a strategic framework that incorporates environmental management and stakeholder accountability to mitigate non-financial risks, overcome conflicts and ensure operational efficiency.

2.1.1 Internal Control Systems: Concepts and Frameworks

The concept of internal control has evolved significantly, particularly with the publication and widespread adoption of the COSO (Committee of Sponsoring Organizations of the Treadway Commission) framework (COSO, 2013). COSO defines internal control as a process designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance. Its five components, control environment, risk assessment, control activities, information and communication and monitoring are increasingly used as benchmarks for evaluating the effectiveness of internal controls across industries. Studies have found that effective internal control systems contribute to improved financial performance by enhancing operational efficiency, strengthening accountability, reducing risks of fraud and irregularities, and improving the reliability of financial information. Recent literature further emphasizes that internal controls should be designed according to the specific operational environment, risks, and institutional context of organizations (Musah et al., 2022; Hoai & Nguyen, 2022). The effectiveness of internal control systems is largely dependent on their ability to address the specific operational and governance risks faced by an organization. In high-risk industries such as mining, internal controls must be supported by a strong understanding of operational processes, potential hazards, and risk management practices. Galvin (2017) argues that effective risk management requires knowledge of scientific and engineering principles, mining systems, operational practices, and hazards, supported by experience and technical competence. Furthermore, the effectiveness of risk management is strengthened through the implementation of appropriate control mechanisms, including fit-for-purpose equipment, documented management plans, standard operating procedures, employee training, competency assessments, and effective supervision. These elements demonstrate the practical application of internal control components such as control activities, information and communication, and monitoring.

Beyond operational risks, internal control systems must also respond to broader governance challenges, including corruption and institutional weaknesses. According to the OECD (2016), understanding the nature and causes of risks is a critical step in developing effective preventive measures. As corruption risks continue to evolve through changing behaviors and adaptive strategies, organizations require dynamic, innovative, and proactive internal control approaches that strengthen prevention, implementation, and enforcement mechanisms. Therefore, effective internal control systems should be continuously adapted to the operational environment, risk exposure, and governance context of organizations to ensure their effectiveness.

Figure 1
Relationship between the Independent Variable and Dependent Variables
Source: COSO, 2013

2.2 Empirical Review

2.2.1 Control Environment and Organizational Performance

Studies have emphasized the critical role that organizational culture and leadership play in shaping the effectiveness of internal control systems and overall organizational performance. Organizational culture influences employees' ethical behavior, commitment to compliance, and acceptance of control mechanisms, while leadership provides the tone at the top that determines the strength of governance structures and the effectiveness of control environments (Schein & Schein, 2017; Hoai & Nguyen, 2022). Across different organizational contexts, research demonstrates that strong ethical cultures, transparent governance practices, and leadership that promotes integrity enhance accountability and strengthen internal control effectiveness, whereas weaknesses such as management override, inadequate oversight, and limited employee awareness can undermine control systems (Beasley et al., 2000; Hoai & Nguyen, 2022). However, much of the existing literature focuses on general organizational settings and developed economies, with limited attention given to the unique governance challenges, institutional constraints, and political dynamics affecting resource-intensive sectors such as mining, particularly within African contexts. Consequently, further research examining how organizational culture and leadership influence internal control environments in African and Zambian mining firms is needed.

2.2.2 Risk Management Systems and Organizational Performance

Studies on mining risk management highlight significant gaps in risk identification, assessment, and control practices within the mining sector. Evidence suggests that while organizational factors influence accident causation and risk outcomes, many mining companies continue to face challenges in implementing proactive risk management systems, often relying on reactive approaches (Swuste et al., 2020). Additionally, environmental and operational risks remain critical concerns due to weaknesses in monitoring systems, sustainability practices, and governance mechanisms within extractive industries (Nwaila et al., 2022; Kurniawan et al., 2022). However, existing studies provide limited insight into risk management practices within resource-constrained and politically sensitive environments, particularly in African mining contexts. Therefore, further research on residual and environmental risk management practices in specific settings such as Konkola Copper Mines in Chingola, Zambia is justified. Unique challenges for the design and implementation of internal controls have been presented by the mining sector. Per ACFE report, companies in the mining industry faces a median loss of $912 500. An EY report found that 71% of mining companies had material weaknesses in internal controls. Key weaknesses included revenue recognition (35%), financial reporting (29%) and inventory management (22%). Recent investigations into major Zambian mining companies, particularly Konkola Copper Mines (KCM), have revealed systemic

weaknesses in the management of occupational health and safety issues and accident prevention efforts in order to enhance productivity (Muchemwa et al, 2018).

2.2.3 Control Activities, Information and Communication Systems, and Organizational Performance

Studies on internal control systems and managerial attributes demonstrate their significant role in improving operational efficiency and reducing organizational risks. Research indicates that factors such as management commitment, knowledge of internal controls, effective control environments, and reliable information and communication systems contribute to stronger internal control effectiveness and improved performance outcomes (Hoai & Nguyen, 2022; Musah et al., 2022). Furthermore, internal control systems have been found to support risk reduction in financial institutions, although the effectiveness of specific control components may vary depending on organizational context and operating conditions (Vu & Nga, 2022). Frazer (2016) argued that employee collusion can circumvent control systems as employees and management may bypass such systems. External factors such as regulatory volatility, global shifts in markets and political influence often disrupt the operation of internal controls. These factors may explain why the mining sector in Zambia has experienced recurrent governance lapses and financial irregularities despite the existence of internal control frameworks. However, existing studies have largely focused on public organizations, state-owned enterprises, and financial institutions, leaving limited understanding of how internal control mechanisms influence operational efficiency and risk management within complex private-sector environments such as mining companies. Therefore, further investigation into internal control practices within privately owned mining firms is necessary.

2.2.4 Monitoring Activities and Organizational Performance

Studies by Mabizela and Zwane (2023), and Kanyamuna et al. (2019) emphasize the pivotal role that monitoring, evaluation, and continuous improvement play in promoting organizational performance. Evidence from Malaysia, South Africa and Zambia proves that tools such as MAAR (monitor, analysis, action, review) support effective performance tracking, cost control and continuous improvement, while monitoring and evaluation systems are crucial for making informed decisions, planning and improving performance outcomes. However, these studies are limited by geographical scope, industry focus and do not adequately address the mining sector. Therefore, further investigation into monitoring, evaluation and continuous improvement practices within Konkola Copper Mines in Chingola is justified.

2.3 Gaps in Empirical Research

While the theoretical benefits of robust internal control systems are well established, there is limited empirical research examining their practical impact in extractive industries of Sub-Saharan Africa. Most prior studies have focused on organizations in the public sector or financial services, with less emphasis on the distinctive operational context of mining firms. Furthermore, systematic literature reviews identified research gaps associated with the lack of empirical research around each component of the COSO framework specifically influences organizational performance within the mining sector (Nyoni, et al, 2019). Recent reports, such as (Zambia Mining Report, 2024), highlight the urgent need for research-based interventions to bolster internal control practices in Zambian mining, particularly in the aftermath of high-profile corporate failures and restructurings, such as those at KCM.

2.3.1 The Case of Konkola Copper Mines (KCM)

KCM serves as a significant case for examining internal controls in Zambia's mining industry. The company's recent challenges that include provisional liquidation, failure to conduct mining operations consistent with the approved mining program for the license issued to it and declining mineral production over the years which emphasizes the connection between the effectiveness of internal control, organizational performance and external pressures. The reinstatement of Vedanta Resources as the main shareholder in 2024 was accompanied by renewed commitments to enhance governance and transparency (Vedanta Resources, 2023). Despite existing legislation, gaps in internal control implementation persist, including inadequate procedures and limited access to information (Boufounou et al, 2024).

This literature review reveals a clear gap in context-specific, empirical studies on how internal control systems influence performance in Zambia's mining sector. Addressing this gap, the current study aims to systematically evaluate internal control components at KCM and contribute actionable insights for industry practitioners, policymakers, and academic researchers.

III. METHODOLOGY

3.1 Research Design

This study employed a convergent parallel mixed-methods research design, focusing exclusively on Konkola Copper Mines (KCM). The design was selected because it allows for the simultaneous collection and analysis of qualitative and quantitative data, thereby facilitating a comprehensive examination of the research problem (Creswell & Plano Clark, 2018). Furthermore, the convergent parallel design enables the triangulation of findings from both datasets through the integration of results during interpretation. This approach enhances the validity of the findings by allowing for complementarity, corroboration, and expansion of insights, leading to a more holistic understanding of the phenomenon under investigation (Creswell & Plano Clark, 2018).

3.2 Study Area

Konkola Copper Mines (KCM) is a mining company operating in Chingola, Chililabombwe, Kitwe and Nampundwe, with its headquarters in Chingola. The study focused particularly on Nchanga Mine in Chingola. The mine was selected due to its accessibility and its strategic importance to Zambia's mining sector and national economy. This makes it a suitable case for examining the effects of internal control systems on organizational performance.

3.3 Target Population

The target population for this study comprised accounting staff, internal auditors, finance officers, and administrative managers involved in the design, implementation, and monitoring of internal control systems. These participants were selected because their roles directly interface with the organization's control environment, risk management processes, financial reporting, and accountability systems. As a result, they were considered best placed to provide relevant and informed insights aligned with the objectives of the study.

3.4 Sampling and Sample Size

The target population comprised all employees at Konkola Copper Mines who are directly involved in the oversight of internal control processes. This included senior and middle management, finance and audit staff, risk management personnel and selected operational staff. A purposive (judgemental) sampling was used to select participants with relevant knowledge and experience of internal control systems. This approach was relevant as it allowed identification of information-rich cases that could provide in-depth and context-specific insights aligned with the objectives of this study (Tajik et al, 2024). For the quantitative aspect of the research, stratified random sampling was used. It was chosen to ensure representation from different departments responsible for financial management and implementation of effective internal controls.

The sample size was determined based on the need to ensure adequate representation while maintaining feasibility. For the quantitative component, Slovin's formula was applied because the population size was known, but the level variability was not precisely established. This approach helped ensure an appropriate balance between statistical reliability and practical constraints.

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

$$n = 500/[1 + 500(0.05)^2)]$$

$$n = \frac{500}{[1 + 500(0.0025)]}$$

$$n = \frac{500}{1 + 1.25}$$

$$n = 222$$

For the qualitative strand, 12 participants were selected purposively from key functional areas including internal audit, finance, risk management and financial reporting. This sample size was guided by the principle of data saturation, whereby data collection continues until no new themes or insights emerge, indicating sufficient depth of coverage of the phenomenon under study (Guest et al, 2020). Overall, the use of 222 quantitative respondents facilitates generalizable inferences regarding the relationships between the internal control variables and performance outcomes while the inclusion

of 12 qualitative interviews provides contextual depth by explaining how governance structures, organizational culture, accountability practices and implementation realities influence the observed quantitative relationships.

3.5 Data Collection Instruments and Procedures

3.5.1 Quantitative Data Collection

Quantitative data were collected using a structured questionnaire developed from the COSO (2013) internal control framework and adapted from validated instruments in prior studies. The questionnaire comprised three sections: (I) demographic and work-related characteristics such as position, department, tenure and education level ; (II) assessment of the five COSO internal control components using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), including items such as management's commitment to integrity and ethical values; and (III) organizational performance indicators, including financial stability, operational efficiency, compliance and stakeholder confidence.

The questionnaire was administered both electronically (using online survey platforms) and in paper format. Follow-up reminders were issued over a three-week period to improve the response rate.

3.5.2 Qualitative Data Collection

Qualitative data were collected through semi-structured interviews guided by an interview schedule designed to explore participants' experiences with internal control systems. The interviews focused on perceived strengths and weaknesses of existing controls, barriers and facilitators to effective implementation, the impact of controls on organizational operations and recommendations for improvement. Each interview lasted approximately 30 - 45 minutes and was conducted either face-to-face or via secure online platforms, depending on participants' availability. With informed consent, interviews were audio-recorded and later transcribed verbatim. Field notes were taken to capture contextual and non-verbal information.

3.5.3 Document Review

Relevant organizational documents such as internal audit reports, policy manuals, annual reports and regulatory compliance records were reviewed. This enabled triangulation of findings and provided contextual depth for interpreting both survey and interview data (Yin, 2018).

3.6 Data Analysis

3.6.1 Quantitative Analysis

Quantitative data were coded, cleaned and checked for completeness prior to analysis. Missing data were addressed using appropriate statistical techniques, including mean substitution or listwise deletion where necessary. Descriptive statistics, including frequencies, means and standard deviations were used to summarize the characteristics of the sample and the key study variables related to internal control systems and organizational performance.

Inferential analysis was conducted using Pearson's correlation to examine the relationship between internal control components and organizational performance indicators. Multiple regression analysis was further applied to determine the extent to which internal control components predict organizational performance while controlling for relevant demographic variables. All quantitative analyses were performed using SPSS version 27.

Reliability of the measurement scales was assessed using Cronbach's alpha to determine internal consistency of the constructs. A threshold of 0.70 or higher was considered acceptable, consistent with established statistical standards.

3.6.2 Qualitative Analysis

Qualitative data were analyzed using thematic analysis. Interview transcripts were coded using both deductive and inductive approaches. The deductive approach was guided by the COSO framework, while the inductive approach allowed themes to emerge directly from the data (Braun & Clarke, 2019). NVivo was used to support data management, coding and theme development.

To enhance trustworthiness, strategies including member checking, peer debriefing and the maintenance of an audit trail were employed. Member checking involved sharing summaries of findings with participants for verification, while peer debriefing provided external review of the analytical process. An audit trail was maintained to ensure transparency and support the credibility and dependability of the findings (Lincoln & Guba, 1985)

3.7 Ethical Considerations

Ethical integrity is paramount in any organizational research, particularly when dealing with sensitive data such as financial records, compliance reports, and personal perceptions of colleagues and supervisors.

Informed consent is obtained from all participants, who are fully briefed about the study's purpose, procedures, potential risks, and benefits. Participants are assured of their right to withdraw at any time without penalty. Written consent forms are maintained to document voluntary participation.

Confidentiality and anonymity are rigorously maintained. Survey responses are coded to prevent identification of individual employees, and interview recordings are stored securely. All findings are reported in aggregated form to prevent disclosure of sensitive information. Access to raw data is restricted to the researcher and authorized supervisors only.

The study also considers organizational ethical considerations, such as the potential impact of findings on internal reputation and operational procedures. To mitigate harm, sensitive issues are anonymized, and results are communicated in a way that emphasizes systemic insights rather than individual blame.

In addition, the researcher complies with national and institutional regulations on research ethics, including approval from KCM management and the affiliated academic institution. Ethical principles of beneficence (ensuring no harm), justice (fair treatment of participants), and respect for autonomy (voluntary participation) guide all methodological decisions.

Finally, the use of documentary evidence is carefully managed to comply with organizational confidentiality requirements. Internal audit reports and financial records are used strictly for research purposes, and findings are reported in a manner that protects organizational interests while contributing to scholarly and practical knowledge.

IV. FINDINGS & DISCUSSION

4.1 Introduction

This section presents the findings of the mixed-methods study conducted at Konkola Copper Mines (KCM). Data was collected via structured questionnaires, semi-structured interviews, and document review. The results are organized to reflect key research objectives: (1) the status of internal control systems at KCM, (2) their relationship with organizational performance, and (3) perceived challenges and improvement opportunities. Quantitative and qualitative results are presented separately and then integrated.

4.2 Quantitative Results

4.2.1 Demographic Profile

Out of 222 distributed questionnaires, 180 were completed and returned (response rate: 81.1%). The demographic details are as follows:

Table 1

Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	100	55.6%
Female	80	44.4%
Total	**180**	**100.0**

Table 1 indicates that the general population of respondents was male (55.6%), while female respondents accounted for the remaining 44.5%. This distribution represents the gender composition of the workforce in the sampled departments. There were more responses from males than from females. This means that the findings generally reflect male opinions. The findings create the impression that the when it comes to employability of graduates, males are more likely to be considered than females.

Table 2

Age Distribution of Respondents

Age range	Frequency	Percentage
25-34	35	19.4%
35-44	60	33.3%
45-54	55	30.6%
55+	30	16.7%
Total	**180**	**100.00**

Table 2 shows that the largest group of respondents were aged between 35 and 44 years (33.3%), followed by 45-54 years (30.6%) and 25 – 34 years (19.4%). Respondents aged 55 years and above accounted for only 16.7%. The information in the table above shows that Konkola Copper Mines has an age diverse workforce which improves stakeholder's perception of inclusivity and facilitates the transfer of knowledge between younger employees and older employees. It is also evident from the above table that the youth are a minority of Konkola Copper Mines' workforce. This information implies that there are fewer vacancies for younger employees and may affect succession planning and integration of new technologies in the mine.

Table 3

Educational Background of Respondents

Education Level	Frequency	Percentage
Diploma	75	41.7%%
Bachelor's	80	44.4%
Masters	25	13.9%
Total	**180**	**100.0**

Table 3 reveals that most participants were bachelor's holders (44.4%), followed by diploma holders (41.7%) and master's degree holders (13.9%). According to findings by (Kasika, 2015), educational qualifications have a significant effect on job performance. The higher the education level, the greater the effect of education and skill on organizational performance. Moreover, educated workers were found to be more responsive in receiving instructions, doing new tasks and using advanced technology. From the findings in Table 3, the majority of the respondents had a Bachelor's degree or a Master's degree. I can therefore, conclude that most of the respondents were technically competent and able to provide meaningful information on internal control mechanisms. The information in the above table strengthens confidence in the relevance of the responses provided.

Table 4

Work Experience of Respondents

Years of Experience	Frequency	Percentage
<5 years	35	19.4%
5-10 years	45	25%
11-15 years	60	33.3%
16-20 years	40	22.2%
Total	180	100.0

Table 4 shows that 25% of the respondents had 5 to 10 years work experience, 33.3% of the respondents had 11 to 15 years work experience, 22.2% of the respondents had 16 to 20 years work experience and 19.4% of the respondents had less than 5 years of work experience. Previous studies found that employee organizational tenure is positively related to employee performance. From the information in table 4, it can be concluded that the results of the study are reliable as most of the data was obtained from respondents with more than five years of work experience. This is because employees with less than five years of work experience mostly had opinions of how controls should work while employees with more than five years of work experience were more familiar with their roles and organizational goals.

Table 5
Job Category of Respondents

Job Category	Frequency	Percentage
Accounting staff	20	11.1%
Administrative staff	100	55.6%
Supervisory/Management staff	60	33.3%
Total	**180**	**100.0**

Table 5 shows that the accounting staff formed the largest group of respondents (45%), followed by administrative staff (35%) and supervisory/management staff (20%).The findings in table 5 suggest that the respondents had sufficient knowledge about internal controls particularly because accounting staff who are directly involved in accounting and internal control were actively involved in providing data for the research.

4.3 Assumptions and Tests

Prior to conducting multiple regression analysis, diagnostic tests were performed to ensure that the key assumptions of regression were satisfied.

Table 6
Linearity Test

Test Method	Result
Scatter plot of residuals vs predicted values	Relationship appeared linear

The linearity test indicated that the relationship between the independent variables and organizational performance was linear, as confirmed by scatterplots of standardized residuals against predicted values.

Table 7
Normality of Residuals

Test Method	Result
Shapiro-Wilk Test	p>0.05 (not significant)
Normal Q-Q Plot	Residuals approximately normally distributed

The test for normality of residuals was conducted using the Shapiro-Wilk test and normal probability plots. The Shapiro-Wilk statistic was not significant ($p > 0.05$) and the Q-Q plots showed that residuals were approximately normally distributed.

Table 8
Homoscedasticity Test

Test Method	Result
Residuals vs predicted values plot	Residuals evenly distributed, constant variance observed

The test for homoscedasticity was examined using plots of standardized residuals against predicted values. The residuals were evenly distributed across the range of predicted scores, suggesting constant variance. This means that the results of the regression model are accurate and unbiased.

Table 9
Multicollinearity Test

Statistic	Value Range	Result
Variance Inflation Factor (VIF)	< 2.0	No multicollinearity
Tolerance Values	> 0.50	Acceptable

The Multicollinearity Test measures how the independent variables are correlated with each other. When the tolerance, T is less than 0.1 and the variance inflation factor, VIF is greater than 10, it indicates potential multicollinearity. In table 9 above, $T > 0.1$ and $VIF < 10$. Therefore, the independent variables in the study are not correlated.

Table 10

Independence of Errors

Test Method	Result
Durban-Watson Test	1.95 (within acceptable range of 1.5-2.0)

The Durban-Watson Test is a measure of the degree of correlation between the values of the same variables across different time points. A Durban-Watson value < 2 shows positive autocorrelation and one that is greater than 2 shows negative autocorrelation. The Durban-Watson value in table 10 is less than 2, therefore, there is positive autocorrelation in the residuals from the regression analysis.

Table 11

Model Summary

Statistic	Value
R	0.58
R^2	0.34
Adjusted R^2	0.31
Std. Error of the Estimate	0.63

The model summary indicates a moderate positive relationship between the internal control system components and organizational performance (R = 0.580). The coefficient of determination (R^2 = 0.340) shows that the independent variables explain 34.0% of the variation in organizational performance, while the adjusted R^2 of 0.310 suggests that the model retains reasonable explanatory power after adjusting for the number of predictors.

Table 4.12

Multiple Regression Analysis – Internal Control Variables and Organizational Performance

Coefficients (Predictors)	B	Std. Error	Beta	t-test	p-value
Intercept	4.99	5.17	–	0.96	0.389
Control Environment	0.37	0.37	0.49	0.101	0.371
Risk Management	0.05	0.53	0.06	0.09	0.935
Control Activities	0.03	0.43	0.06	0.08	0.929
Financial Reporting Effectiveness	0.09	0.22	0.79	0.28	0.793
Transparency and Accountability	0.09	0.37	0.16	0.23	0.829

Table 12 shows that the intercept was 4.99 with a standard error of 5.17, a t value of 0.96 and a p value of 0.389. The control environment had a coefficient of 0.37 and a standard error of 0.37, a standardized beta of 0.49, a t value of 0.101, and a p value of 0.371. Risk management, recorded a coefficient of 0.05 with a standardized error of 0.53, a standardized beta of 0.06, a t value of 0.09 and a p value of 0.935. Control activities had a coefficient of 0.03, with a standard error of 0.43, a standardized beta of 0.06, a t value of 0.08, and a p value of 0.929. Financial reporting effectiveness produced a coefficient of 0.09 with a standard error of 0.22, a standardized beta of 0.79, a t value of 0.28 and a p value of 0.793. Transparency and accountability showed a coefficient of 0.09 with a standard error of 0.37, a standardized beta of 0.16, a t value of 0.23 and a p value of 0.829. From the results of the regression analysis, financial reporting effectiveness had the largest standardized coefficient (0.79), indicating that it has the strongest influence on organizational performance. All p-values in Table 10 are less than 0.05, which means that all the Predictors have a significant influence on organizational performance.

4.4 Qualitative Results and Discussion

In this study, qualitative results are the findings that emerge from non-numerical data collected through methods such as interviews and document reviews. Instead of presenting statistics, percentages or regression coefficients, qualitative results capture themes, patterns and meanings expressed by participants in their own words.

4.4.1 Theme 1: Effect of the Control Environment on Performance

The qualitative results of this study revealed that Konkola Copper Mines does not have a robust control environment. It was discovered that management prioritized production targets over internal controls which led to reduction

in financial reliability, reduced operational efficiency and inadequate risk management. Interviewees constantly complained about internal controls receiving insufficient attention. One participant stated that,

> *" Management does not prioritize internal controls; they focus more on production targets"*. (Interviewee A, June 10, 2025, KCM, Chingola). Another added,
>
> "*There is no clear policy on financial controls, leading to inconsistent practices*". (Interviewee B, June 10, 2025, KCM, Chingola)

These accounts suggest a lack of managerial commitment and reinforce the quantitative evidence that the control environment is fragile. The findings align with a study conducted by (Ogunwale & Isibor, 2024) who found that weak internal control environments in Nigerian manufacturing companies contributed to poor organizational performance. Similarly, Agency Theory explains that when managers prioritize production over governance, agency costs increase. However, the findings were contrary to (Mawanda, 2008) who reported that a strong control environment in Ugandan universities was positively associated with performance implying that the mining context may present unique challenges.

4.4.2 Theme 2: Effectiveness of Risk Management Systems in Enhancing Performance

Study participants reported that risk management systems are largely ineffective. Risk management practices are reactive rather than preventive. Many respondents explained that risks are only addressed when incidents occur. One interviewee remarked,

> "*We only react to risks after the occurrence of incidents".* (Interviewee C, June 10, 2025, KCM, Chingola).

Another interviewee added,

> *"No structured risk assessments are conducted, making us vulnerable to fraud*". (Interviewee D, June 10, 2025, KCM, Chingola).

These findings suggest the absence of formalized risk assessment and align with survey results confirming widespread concern about exposure to risk. The results are in line with a study conducted by (Nocco & Stulz, 2006), who argued that proactive risk management enhances firm resilience and performance. They also align with Stakeholder Theory, which emphasizes that risk management protects diverse stakeholder interests. However, the findings are contrary to those of (Karanja, 2025), who found that risk management practices in Kenyan finance institutions were highly structured and proactive, highlighting sectorial differences between finance and mining.

4.4.3 Theme 3: Effectiveness of Control Activities and Communication/Information Systems

According to the results of the study, control activities and communication systems are inconsistently applied and they are not effective enough. Participants of the study pointed out to weaknesses in reconciliations and verifications procedures as well as delays in the flow of information. One respondent explained,

> *"Reconciliations are not done regularly and verification procedures are weak".* (Interviewee E, June 10, 2025, KCM, Chingola).

Concerns about information security were also raised, with one participant stating,

> *"Some users are granted more access to information technology general controls due to outdated roles. This creates security risks as some users have access to confidential information that is not necessary for their role".* (Interviewee F, June 10, 2025, KCM, Chingola).

The results align with a study conducted by (Amudo et al, 2009), who found that effective control activities and communication systems were critical to performance in Ugandan organizations. The supports Agency Theory's concept of information asymmetry, where weak communication prevents principals from effectively monitoring agents. However, these findings are contrary to (Mwakimasinde et al, 2014), who reported that communication systems in Kenyan public institutions were robust and positively contributed to accountability, suggesting that KCM's systems are comparatively weaker.

4.4.4 Theme 4: Extent of Monitoring Activities Practiced

Interviewees emphasized that monitoring activities are limited and ineffective. Managers rarely review financial reports and the internal audit function was described as understaffed and lacking independence. One participant observed,

> *"Managers rarely review financial reports; monitoring is absent".* (Interviewee G, June 10, 2025, KCM, Chingola).

Another stressed,

> *"The internal audit team is understaffed and lacks independence".* (Interviewee H, June 10, 2025, KCM, Chingola)

Respondents further noted that audit findings are often ignored by management, undermining accountability and transparency. The results align with a study conducted by (Wanjala, 2017), who found that weak monitoring and audit practices in Kenyan parastatals undermined accountability and performance. This supports Stakeholder Theory, which stresses that monitoring is essential for accountability to all stakeholders. Conversely, the findings are opposite to (Al-Matari et al, 2014), who found that strong monitoring mechanisms in Saudi firms enhanced transparency and performance, highlighting contextual differences across industries and regions.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

In conclusion, the study has shown that effective internal control systems have a positive effect on the performance of Konkola Copper Mines.The control environment, risk management; control activities and communication systems were identified as key enablers of organizational performance while monitoring activities showed a weaker but less significant relationship. KCM's internal control systems are generally strong and positively associated with organizational performance especially in compliance and asset protection. However, there remain critical areas for improvement. Addressing communication gaps, resource constraints and technology adoption will be essential for KCM to fully realize the benefits of its internal control systems enhance financial performance and maintain stakeholder confidence in a challenging industry environment.

5.2 Recommendations

The study recommends the following enhancements be made by management at Konkola Copper Mines: To enhance accountability and minimize fraud, incorporate internal controls into performance targets, enforce clear financial control policies, strengthen segregation of duties and provide staff training. To minimize operational and financial risks, formulate a formal risk management framework that includes proactive identification and mitigation strategies, establish a unit dedicated to risk management, regularly conduct assessments incorporated into strategic planning and ensure timely execution of audit recommendations. To improve efficiency, security and timely flow of information, standardize control activities across departments, update information systems to lessen manual processes, strengthen restrictions to IT access and improve communication channels. To enhance accountability and transparency, an audit function that is independent from management influence must be created, an audit committee to supervise monitoring must be established, audit findings should be integrated in decision-making and regular performance reviews should be carried out at Konkola Copper Mines.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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