

Risk Assessment, Information and Communication and Fraud Detection in Commercial Banks in Dar es Salaam City, Tanzania

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Abstract

Fraud remains a threat to banks in Tanzania, with insider involvement accounting for cases. Under the COSO Internal Control Framework, risk assessment and information and communication are components that strengthen fraud detection. This study examined their effects on fraud detection in licensed commercial banks in Dar es Salaam City, Tanzania, guided by COSO and Agency Theory. A cross-sectional design was adopted, and questionnaires were administered to 66 accounting, auditing, and compliance departments, representing a 90.4% response rate. Data were analysed using Pearson correlation and regression in SPSS v28. Risk assessment showed a positive correlation with fraud detection ($r = .763$, $p < .01$) and was the strongest predictor ($\beta = .482$, $p < .001$). Information and communication correlated positively ($r = .415$, $p < .01$), but its effect was insignificant ($\beta = .051$, $p = .472$). Banks should therefore align communication channels with risk-assessment findings to support timely fraud detection.

1.0 Introduction

Fraud continues to erode the stability and public trust of commercial banks worldwide, with the banking sector consistently identified among the industries most exposed to occupational fraud (Association of Certified Fraud Examiners [ACFE], 2024). In Tanzania, the Bank of Tanzania has reported a marked rise in fraud cases, a significant share involving insider collusion and unauthorised transactions, driven partly by the rapid expansion of digital and mobile banking channels (Bank of Tanzania, 2024; Ally, 2024). Dar es Salaam City, as the country's commercial capital, hosts the headquarters and busiest branches of most commercial banks, and its high transaction volumes and operational complexity heighten exposure to fraud risk (Mniwasa, 2025).

The COSO Internal Control Framework identifies risk assessment and information and communication as two of five interrelated components of internal control (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2013). Risk assessment enables institutions to anticipate where fraud is likely to occur and which controls should be designed to address identified vulnerabilities, while information and communication ensures that risk exposures, once identified, are documented, escalated and acted upon by the relevant personnel. Conceptually, the two components are expected to function together: risk assessment generates the intelligence that communication channels are then responsible for transmitting to decision-makers. Yet much of the existing literature examines these components in isolation or as part of an undifferentiated composite construct, leaving their joint and relative contributions to fraud detection empirically underexplored, particularly within Tanzanian commercial banks (Jeleel-Ojuade, 2024; Maulidi et al., 2024).

This study therefore examined the effects of risk assessment and information and communication on fraud detection in commercial banks in Dar es Salaam City, Tanzania, guided by the following hypotheses:

H1: Risk assessment has a positive and significant effect on fraud detection in commercial banks in Dar es Salaam City, Tanzania.

H2: Information and communication have a positive and significant effect on fraud detection in commercial banks in Dar es Salaam City, Tanzania.

2.0 Literature Review

2.1 Conceptual Definitions

Risk assessment refers to the process through which an organisation identifies, analyses and prioritises risks, including fraud risk, that may hinder the achievement of its objectives (COSO, 2013). Information and communication refer to the processes through which relevant, accurate and timely information is generated, shared and used across an organisation to support control and accountability responsibilities (COSO, 2013). Fraud detection, the dependent variable, refers to the systematic process by which commercial banks identify, investigate and verify actual or suspected fraudulent activities (ACFE, 2024).

2.2 Theoretical Framework

This study is anchored on the COSO Internal Control Framework and Agency Theory (Jensen & Meckling, 1976). COSO (2013) presents risk assessment and information and communication as sequentially linked: risk assessment identifies and characterises exposure, while information and communication ensures that this intelligence reaches the individuals responsible for responding to it. Agency Theory explains why both matter: risk assessment narrows the information asymmetry between principals and agents by proactively exposing areas vulnerable to manipulation, while effective communication channels ensure that observations from front-line staff, auditors and compliance officers are transmitted to those able to act on them, further constraining opportunistic behaviour by agents (Talla et al., 2025).

2.3 Empirical Review: Risk Assessment

Scholars consistently argue that fraud is less likely to remain undetected in institutions that regularly conduct structured fraud risk assessments. Tümmeler and Quick (2026) note that fraud risk assessment helps organisations identify exposure points and establish targeted detection mechanisms, while Imam and Hasan (2024) observe that organisations with strong risk-management practices are better able to detect irregularities because risk identification encourages preventive and detective controls before losses escalate. Mayegun (2025), in a banking-related study, found that periodic risk evaluation strengthens institutions' ability to identify and address fraudulent transactions. However, Meyer and Reniers (2025) caution that risk assessment adds value only when identified risks are explicitly linked to decision-making and control responses, implying that superficial or infrequent assessments yield limited detection benefit.

2.4 Empirical Review: Information and Communication

The literature indicates that high-quality information systems and clear communication channels improve fraud detection by ensuring that fraud indicators reach the right people at the right time. Duhova et al. (2026) argue that accounting and management information systems play a central role in identifying anomalies and supporting investigative follow-up, while ACFE (2024) reports consistently show that fraud is frequently detected through tips, underscoring the importance of internal communication and whistleblowing channels. Jeleel-Ojuade (2024) notes that organisational silos often weaken fraud detection, as suspicious activity may appear insignificant within one unit but highly material when viewed across departments. Nonetheless, Semwayo (2026) cautions that information systems alone do not guarantee detection: technology-based controls are effective only when users interpret and act on the information produced, a nuance that is particularly relevant when communication is examined alongside the risk-assessment processes that generate the information being communicated.

Collectively, the literature suggests that risk assessment and information and communication are conceptually interdependent, with the former generating fraud-relevant intelligence and the latter determining how effectively that intelligence circulates within the organisation. However, empirical work rarely tests the two constructs jointly against fraud-detection outcomes, leaving open the question of whether they contribute independently or whether one component's effect is substantially channelled through the other (Onyenahazi, 2025).

3.0 Methodology

The study adopted a positivist research philosophy and a quantitative, descriptive-analytical cross-sectional design (Creswell & Creswell, 2018; Dattalo, 2013). The unit of observation comprised heads of department in the accounting, auditing and compliance departments of licensed commercial banks in Dar es Salaam City. Census sampling was applied to all licensed commercial banks headquartered in the city, while simple random sampling was used to select individual respondents. The sample size was determined using the Yamane (1967) formula, yielding a required sample of 73 from a population of 90 heads of department at a 95% confidence level and 5% margin of error. Of 73 questionnaires administered, 66 were correctly completed and usable, a response rate of 90.4%.

Data were collected using a structured, close-ended questionnaire with items measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Content validity was established through expert review. Internal consistency, assessed via Cronbach's Alpha, was satisfactory for both constructs: risk assessment ($\alpha = .822$) and information and communication ($\alpha = .746$), both exceeding the recommended .70 threshold (Hair et al., 2022). Data were analysed using descriptive statistics, Pearson correlation and multiple linear regression in SPSS v28. Because both constructs were estimated within a joint model together with monitoring activities, standard regression diagnostics were assessed and satisfied: tolerance values ranged from .656 to .813 and VIF values from 1.230 to 1.524, both within acceptable limits, indicating no problematic multicollinearity, while the Durbin-Watson statistic (1.91) indicated no meaningful autocorrelation among residuals. The sample provided approximately 22 observations per

predictor, exceeding the recommended minimum of 15 (Field, 2018). Ethical clearance was obtained from the College of Business and Economics, University of Dodoma, and permission was granted by the Bank of Tanzania; participation was voluntary and informed, and respondent anonymity was strictly maintained (Faulkner et al., 2025).

4.0 Results

4.1 Descriptive Statistics

Risk assessment recorded an overall mean of 3.72 (SD = 0.71), with the highest-rated item (mean = 3.94) relating to the use of risk-assessment findings to design or improve control measures. Information and communication recorded a comparatively lower overall mean of 3.62 (SD = 0.73), with the lowest-rated item (mean = 3.50) concerning whether the communication system supports timely and accurate reporting of suspected fraud. Table 1 presents the item-level results.

Statement	Mean	SD
Risk Assessment		
The bank conducts formal fraud risk assessments on a regular basis.	3.64	0.87
Fraud risk assessments cover both internal and external fraud risks.	3.70	0.88
Fraud risk assessments are conducted for all key business processes and products.	3.67	0.90
Results of fraud risk assessments are documented and shared with relevant departments.	3.70	0.84
The bank updates risk assessments when new products, channels, or systems are introduced.	3.67	0.95
Findings from risk assessments are used to design or improve internal control measures.	3.94	0.82
High-risk areas identified receive priority attention from management.	3.73	0.89
Internal audit planning is guided by results of fraud risk assessments.	3.80	0.86
Staff are aware of key fraud risks identified by the bank.	3.73	0.89
Fraud risk assessments are thorough and lead to concrete actions.	3.65	0.90
Overall Mean (Risk Assessment)	3.72	0.71
Statement	Mean	SD
Information and Communication		
Policies on fraud detection and reporting are clearly documented.	3.58	0.90
Fraud-related policies and procedures are easily accessible to all staff.	3.56	0.86
Staff receive regular training on fraud indicators and reporting procedures.	3.64	0.85
A confidential/anonymous mechanism exists for reporting suspected fraud.	3.76	0.91
Employees feel safe to report suspicious activities without fear of retaliation.	3.67	0.85
Information on control weaknesses is communicated promptly to relevant staff.	3.55	0.91
Management communicates lessons learned from past fraud incidents to staff.	3.71	0.87
The bank uses electronic systems to communicate suspicious or unusual activities.	3.67	0.90
Communication between departments supports effective fraud detection.	3.59	0.86
The communication system supports timely and accurate reporting of suspected fraud.	3.50	0.95
Overall Mean (Info. & Comm.)	3.62	0.73

4.2 Correlation Analysis

Variable	Fraud Detection	Risk Assessment	Info. & Comm.
Fraud detection	1.000		
Risk assessment	0.763**	1.000	
Information and communication	0.415**	0.379**	1.000
Note. ** Correlation is significant at the 0.01 level.			

Risk assessment exhibited a strong, positive and statistically significant correlation with fraud detection ($r = .763$, $p < .01$), while information and communication recorded a positive, statistically significant, though comparatively moderate, correlation ($r = .415$, $p < .01$). The two predictors were themselves moderately correlated ($r = .379$), consistent with their status as related components of the same COSO framework, though not high enough to indicate problematic overlap.

4.3 Regression Analysis

Multiple linear regression analysis was conducted with risk assessment, information and communication, and monitoring activities entered simultaneously as predictors of fraud detection.

Model	R	R ²	Adj. R ²	Std. Error
1	0.863	0.745	0.733	0.3546

The model was statistically significant, $F(3, 62) = 60.435$, $p < .001$, explaining 73.3% of the variance in fraud detection (Adjusted $R^2 = .733$).

Predictor	B	SE	β	t	p
(Constant)	0.124	0.288	–	0.429	.669
Risk assessment	0.464	0.076	0.482	6.100	< .001
Information & communication	0.048	0.067	0.051	0.724	.472
Monitoring activities	0.440	0.074	0.470	5.942	< .001

Risk assessment was the strongest predictor of fraud detection in the model ($\beta = .482$, $p < .001$): holding the other predictors constant, a one-unit increase in risk-assessment practice is associated with a 0.464-unit increase in fraud detection. Accordingly, H1 is accepted. Information and communication recorded a positive but statistically insignificant coefficient ($\beta = .051$, $p = .472$), indicating that its unique contribution becomes negligible once risk assessment and monitoring activities are held constant. Accordingly, H2 is rejected.

5.0 Discussion

The finding that risk assessment significantly and positively predicts fraud detection ($\beta = .482, p < .001$), while information and communication does not retain a statistically significant independent effect ($\beta = .051, p = .472$), offers an important empirical refinement to the COSO framework's treatment of these two components as conceptually parallel. This pattern is consistent with Hadi et al. (2025), who found risk assessment among the most influential internal-control components in enhancing financial risk-management efficiency in banks, and with the broader theoretical expectation that risk assessment functions as the generative source of fraud-relevant intelligence, while information and communication functions as the conduit through which that intelligence is transmitted (Jejeel-Ojuade, 2024).

From an Agency Theory perspective (Jensen & Meckling, 1976), this asymmetry is coherent: risk assessment directly narrows information asymmetry between principals and agents by proactively identifying vulnerable areas, whereas communication, though necessary, cannot generate detection value on its own if there is no underlying risk intelligence to transmit. The moderate correlation between the two constructs ($r = .379$) supports this interpretation, suggesting meaningful conceptual overlap without redundancy. The descriptive results reinforce this reading: information and communication's lowest-rated item concerned the timeliness and accuracy of fraud-related reporting (mean = 3.50), a weakness that plausibly reflects gaps in what is being communicated, namely the outputs of risk assessment, rather than a failure of communication infrastructure per se. This suggests that, in the surveyed banks, strengthening risk assessment may be a more direct lever for improving fraud detection than investing in communication channels in isolation, though the two remain conceptually complementary and communication investments are likely to yield greater returns when explicitly designed to carry risk-assessment outputs.

6.0 Conclusion and Recommendations

This study concludes that risk assessment exerts a robust, statistically significant and practically meaningful positive effect on fraud detection in commercial banks operating in Dar es Salaam City, Tanzania, while information and communication, though positively associated with fraud detection at a general level, does not independently and significantly drive detection outcomes once risk assessment and monitoring activities are accounted for. The two components are conceptually complementary but empirically asymmetric, with risk assessment functioning as the more direct driver of detection and communication functioning as the transmission mechanism for its outputs.

Commercial banks are encouraged to institutionalise regular, comprehensive fraud risk assessments and to explicitly design communication channels, including reporting formats, dashboards and escalation protocols, around the dissemination of risk-assessment findings, rather than treating communication infrastructure as an independent fraud-detection investment. Regulators, including the Bank of Tanzania, should consider requiring banks to demonstrate not only that risk assessments are conducted but that their outputs are actively communicated to relevant departments within defined timeframes. Academic researchers are encouraged to test formally whether information and communication mediates the relationship between risk assessment and fraud detection, an

interpretation this study's findings suggest but which its cross-sectional regression design was not configured to test directly.

This study is limited by its reliance on self-reported perceptual data collected from a single professional category within one city, and by its cross-sectional design, which cannot establish causality with the confidence of a longitudinal or mediation-tested design. Because both constructs were estimated jointly with monitoring activities within a shared regression model, the reported coefficients reflect each construct's unique contribution net of monitoring, rather than isolated bivariate effects.

Declarations

Conflict of Interest

The authors declare that they have no conflict of interest regarding the research, authorship, or publication of this article.

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