

Exploring the effect of internal audit quality on fraud management: the mediating role of ethical behaviour in public sector institutions

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Abstract

Purpose – To investigate the mediating role of ethical behaviour in the relationship between internal audit quality and fraud management in the Ugandan public sector institutions.

Design/methodology/approach – This is a quantitative study. Data were collected using a questionnaire from 168 public sector institutions in Uganda. Partial Least Squares Structural Equation Modelling technique was used to analyse the hypotheses, which were developed in line with the Foucauldian governmentality and ethical notions.

Findings – Fraud management is significantly influenced by both internal audit quality and ethical behaviour. Importantly, internal audit quality also affects fraud management indirectly through ethical behaviour, revealing a mediating mechanism.

Practical implications – There is a need for the government to foster collaboration between the Directorate of Ethics and Integrity (DEI) and internal audit functions. Such collaboration would strengthen the enforcement of national ethical standards among public servants and improve fraud management. Furthermore, the Public Finance Management Act (2015) and the Local Government Act (1997) should be amended to explicitly designate ethical reviews as a core responsibility of the internal audit function.

Originality/value – This study applies the Foucauldian theoretical notions of governmentality – which involve shaping individuals to govern themselves – and ethics to enhance the understanding of fraud management. It demonstrates that ethical behaviours among public servants, crucial for effective fraud management, are shaped both through self-transformation and by a high-quality internal audit function, a governmentality technique. The findings extend existing literature and reaffirm that ethics serves as a central policy instrument within governance systems.

Keywords Fraud management, Ethical behaviour, Internal audit quality, Public sector, Foucault

Paper type Research article



1. Introduction

Fraud management is increasingly becoming a key governance responsibility given the disruptive nature of fraud in organisational processes (Power, 2013; Lassou, Sorola, Senkl, Lauwo, & Masse, 2024). Processes like procurement and bidding in the Public Sector Institutions (PSIs) are now highly susceptible to fraud, which is significantly undermining service delivery and the livelihoods of citizens (Sargiacomo, Everett, Ianni, & D'Andreamatteo, 2024; Lassou *et al.*, 2024). Accordingly, citizens and civil society organisations like Transparency International have intensified advocacy for effective fraud management in the PSIs to avert the adverse effects of fraud on the populace. Advocacy for fraud management is also imperative, given the heightened exposure of most countries to the different forms of fraud. For instance, Transparency International (2024) and Association of Certified Fraud Examiners (2024) indicate that 64% of countries across the world are presently severely exposed to public sector fraud like corruption, billing, payroll, cash larceny, cheque and payment tampering, expense reimbursements, financial statement fraud, skimming, register disbursements and noncash fraud. More sadly, these frauds are severely affecting emerging economies since out of the estimated annual global public sector fraud of about US \$ 3.6tn trillion, 53% is happening in these countries (Association of Certified Fraud Examiners, 2024; United Nations, 2018; World Economic Forum, 2018; World Bank, 2020). Conspicuously, socio-economic development in emerging economies is increasingly being affected by fraud, which has become profoundly institutionalized (Power, 2013; Lassou *et al.*, 2024). Therefore, this study explores the integration of internal and individual-level mechanisms which can be implemented to substantially enhance fraud management in the PSIs by 2030 in line with the United Nations Sustainable Development Goal (SDG) 16.

Available studies frame internal audit as a crucial internal fraud management technique due to the regulatory positioning as an independent control function permanently operating within the organization. The aspects of internal audit which are emphasized by these studies include its status and competence (Kabuye, Nkundabanyanga, Opiso, & Nakabuye, 2017), its roles (Bonrath & Eulerich, 2024; Zeng, Yang, & Shi, 2021), reporting (Gullkvist & Jokipii, 2013) and its quality (Sihaan *et al.*, 2024; Ege, 2015; Prawitt, Smith, & Wood, 2009). Explicitly, it is now known that companies with a high-quality internal audit function exhibit low levels of financial reporting fraud (Prawitt *et al.*, 2009), which makes it central to an institution's fraud management agenda. Nonetheless, the centrality of internal audit quality in the PSIs is yet to be expounded towards influencing an individual's self-forming factors, like ethical behaviour, and over fraud management. Yet, in contemporary settings, the individual's ethical behaviour is increasingly viewed by strategists as the first line of defence against fraud (Suh & Shim, 2020). Therefore, enhancement of ethical behaviour and internal audit quality is likely to provide substantial contributions towards fraud management, which continues to become more sophisticated.

To develop a multifaceted model for explaining fraud management in the PSIs, this study adopts a Foucauldian theoretical framework. Specifically, we draw on the theoretical notion of governmentality (Foucault, 1991) and Foucault's later work on ethics (Foucault, 1984) to explain the influence of internal audit quality and ethical behaviour on fraud management, respectively. From a Governmentality perspective, prior scholars such as Mihret and Grant (2017) suggest that internal audit is not merely a monitoring tool of agents, but a disciplinary mechanism that can shape how individuals govern themselves (conduct of conduct) within contemporary institutional settings. But the direct influence of internal audit quality as a localised technique of governmentality (how to govern) on fraud management (inferred here as good conduct) remains an open empirical and conceptual question. While Mihret and Grant (2017) advocate for recognizing internal audit as a socially embedded tool of exercising power, rather than a neutral technical procedure, the extent to which this localized governmentality [1] can influence the individual's behavior in overcoming complex counter-conducts like fraud is empirically debatable. This limits knowledge of an integrated model of localized and individual level mechanisms for effective fraud management in the PSIs. We

address this limitation by drawing on [Foucault's \(1984\)](#) theoretical notion of ethics which advocates for the individual's capacity for ethical self-formation [\[2\]](#). In this regard, ethical self-forming practices in terms of normative and juridical ethical behaviors are posited to generate better ethical subjects capable of achieving ethical ends like fraud management. However, we claim that in the contemporary public sector setting where fraud is highly institutionalized, individuals may not completely maintain ethical behaviors by themselves (ethical self-transformation) towards fraud management. Hence, a need to examine the influence of localized governmentality power dynamics like internal audit quality on the ethical behavior of government officers. This forms the basis for the following research question (RQ).

RQ1. Does internal audit quality influence fraud management through ethical behaviour?

This research question is addressed using a case of Uganda. Uganda's Gross Domestic Product (GDP) is expected to grow by an average of 6.2% annually, more than thirty-nine sub-Saharan African countries ([World Bank, 2025](#)), which requires strong fraud management mechanisms in its public sector (key sector) for this growth to be realised. Effective public sector fraud management is also needed in anticipation of an average revenue of US\$2.8 billion per year for the next 30 years from its 2.5 billion barrels of oil reserves, which ranks 31st in the world and 7th in Africa [\[3\]](#) ([Worldometer, 2016](#)). Indeed, if successfully guarded against fraud, revenue from these oil and gas resources can substantially transform Uganda's economy and livelihoods, like in the United Arab Emirates (UAE) and Norway ([Aheebwa, 2022](#)). For these reasons, Uganda is presently one of the few African countries which has established an elaborate anti-public sector fraud legal and institutional framework. As of August 2025, the country had at least eight major anti-public sector fraud laws [\[4\]](#) and over twenty-three (23) anti-fraud agencies [\[5\]](#) which are coordinated by the Directorate of ethics and integrity ([Inspectorate of Government, 2024](#)). Also, Uganda is among the leading seven African countries which have made significant strides in adopting and implementing the International Public Sector Accounting Standards ([International Public Sector Accounting Standards Board, 2015](#)) as a crucial anti-fraud regulation ([Ben Slama & Jandoubi, 2024](#)). Consequently, the country's elaborate anti-fraud regulatory and institutional frameworks provide a strong upstream governance and accountability architecture ideal for fraud management compared to other African countries ([Bukonya & Muhumuza, 2017](#)).

Nonetheless, despite its elaborate anti-fraud legal and institutional framework, particularly the Inspectorate of Government, the Directorate of Ethics and Integrity, and the Office of the Internal Auditor General, its fraud management scores have remained low. According to the [Inspectorate of Government \(2024\)](#), Uganda loses nearly US \$ 3.1 billion annually to public sector fraud like asset misappropriation and corruption. Moreover, between 2013 to 2025, its corruption perceptions index remained below the score of 29/100 with a high rank of 144/180 compared to other emerging economies like Seychelles, Uruguay, Barbados, Cabo Verde, Botswana, Costa Rica, Rwanda, Mauritius, Namibia, Ghana and Tanzania ([Transparency International, 2024](#)). The low levels of public sector fraud management are insofar attributed to sophisticated syndicates within government, inadequate implementation of audit recommendations, insufficient investigations, poor deterrent and punitive frameworks, side stepping of regulations, limited implementation of the national ethical values policy, inadequate performance-based audits and impunity ([Directorate for Ethics & Integrity, 2023](#); [Bukonya & Muhumuza, 2017](#); [Inspectorate of Government, 2024](#); [Office of the Auditor General, 2024](#)). Observably, these aspects point to weak localised governance mechanisms like internal audit and the inadequate ethical self-forming among the government officers. Consequently, several research and media organisations continue to report the heightening levels of public sector fraud in Uganda, which continue to impair the country's reputation.

We used partial least squares structural equation modelling (PLS-SEM) to test the study hypotheses using data collected from a sample of 168 PSIs in Uganda. The findings show that ethical behaviour mediates the relationship between internal audit quality and fraud management. This means that institutions which maintain a high-quality internal audit

function in terms of independence, competence, compliance with professional standards and perceived usefulness are able to influence fraud management directly and indirectly through ethical behaviour. Directly, a high-quality internal audit function helps in enhancing policies and procedures over fraud management, as well as identifying, investigating, and reporting fraud to the board audit committee and the regulators like the Internal Auditor General and Auditor General. They also help management in effectively responding to fraud through generating and implementing effective action plans against fraud factors in the institutional processes. Indirectly, the results suggest that a high-quality internal audit function influences individuals to behave ethically by adhering to ethical policies and procedures (juridical ethical behaviour) and acting according to moral values like honesty, fairness, and integrity (normative ethical behaviour). Generally, this is an integral model which addresses fraud management by streamlining organisational processes through a quality internal audit function and enhancing the ability of individuals to ethically self-transform towards ethical ends.

This study extends existing knowledge by suggesting that internal audit quality and ethical behaviour are not isolated fraud management factors. We provide an integrated model where enhanced internal audit quality is a great contributor in building strong ethical behaviour among government officers, which in turn increases their fortitude to embrace fraud management through prevention, detection and response mechanisms. Practically, this study suggests that the office of the Internal Auditor General ought to enhance the quality of the internal audit departments through ensuring independence, competence, compliance with professional standards and perceived usefulness towards informed decisions in the institution. Also, the government should allocate more resources to the Directorate of Ethics and Integrity to enhance the implementation of the national ethical values strategy through constant training, creation of awareness, enforcement, and monitoring. Indeed, we confirm that strengthening these mechanisms offers renewed hope for increased fraud management in the public sector.

Theoretically, this study provides an integration of Foucault's theoretical notions of governmentality (Foucault, 1991) and ethics (Foucault, 1984). Specifically, the results suggest that in complex settings like the public sector, where fraud is institutionalised, individuals are unable to fully shape their own conduct towards over fraud management, which necessitates a localised technique of exercising governmentality power (internal audit quality) to enhance their ability to ethically self-transform. This adds to the emerging conversation of the need to recognise the social context of internal auditing (A Foucauldian theoretical underpinning) beyond the traditional structure of a technical neutral function in the agency relations (Mihret & Grant, 2017). Indeed, internal audit quality has been established as a crucial determinant of the ethical behaviours (which entail complex social norms) of auditees, management and the board members towards fraud management in the PSIs. Generally, this proves the theoretical notion that the role of internal audit quality towards fraud management is also significantly achieved through contextual factors, that is, the ability of individuals to ethically self-transform, which is important in contemporary complex settings.

Empirically, the study extends the works of Prawitt *et al.* (2009) by suggesting that internal audit quality influences fraud management in its entirety and not only financial statement fraud. We also provide support to Roussy and Brivot's (2016) internal audit quality model, which encompasses the input (independence and competence of internal auditors), throughput (compliance with professional standards), and output (perceived usefulness of the internal audit function) components. Specifically, our study indicates that a combination of these internal audit quality components has a dual effect on fraud management, that is, directly and indirectly through ethical behaviour. This confirms that internal audit quality, as framed by Roussy and Brivot (2016), is a crucial localised technique of exercising governmentality power (shaping individuals for good conduct) (Mihret & Grant, 2017) towards fraud management. Additionally, our study adds to extant studies (Krummeck, 2000; Law, 2011; Hess & Cottrell, 2016; Peltier-Rivest, 2018; Makanga *et al.*, 2025) by indicating that ethical behaviour is important for the entire fraud management framework beyond fraud prevention and detection. Moreover, this role is enhanced by Internal audit quality. Hence, we provide an

integration of two crucial internal governance factors for fraud management in the contemporary complex settings where fraud is institutionalised and deeply rooted in the misconduct of individuals at all levels of government and institutions.

The subsequent sections of the paper proceed as follows: study context, theoretical foundation and hypothesis development, methods, results, discussion, and summary and conclusion.

2. Literature review and hypotheses development

2.1 Theoretical underpinning

This study is anchored in the Foucauldian theoretical notions of governmentality and ethics. The basic assumption under the governmentality (conduct of conduct) theoretical notion is that power can be indirectly exercised through ordered techniques to influence the conduct of individuals (Foucault, 1991). Mihret and Grant (2017) suggest that internal auditing is a crucial technique of exercising governmentality power in contemporary institutions. The cruciality of internal auditing in ensuring the conduct of conduct is rooted in its framing as an ex-post assurance service and ex-ante advisory service. Similarly, as a governmentality technique, internal auditing is conceived beyond being a neutral technical monitoring tool between the Principal and the Agents. It is rather considered a key technique of exercising power that affects and can affect the complex societal setting (Mihret & Grant, 2017). Consequently, we deployed internal audit quality as a technique to exercise power over government officers, thereby shaping their conduct in fraud management. Nonetheless, since governmentality assumes that individuals' conduct is largely shaped through certain techniques, it is unknown whether these techniques can fully enable individuals to self-regulate. To address this conundrum and strengthen the idea of self-regulation of individuals, Foucault's ethics is invoked.

Foucault's Ethics establishes the relationship that an individual ought to have with him/herself (Foucault, 1984). The basic assumption underlying this theory is that individuals can change themselves into ethical subjects through ethical self-forming practices to achieve the established ethical ends, such as being good citizens (Foucault, 1984, 1997; Cooper & Blair, 2002). In this study, Fraud management is construed as an ethical end which can be achieved through an array of both normative and juridical ethical behaviours. Notably, such ethical practices are expected to induce shamefulness among individuals, isolation from unacceptable endeavours, and religious engagement. These are crucial modes of subjection in settings like the public sector, where fraud is currently institutionalised and deeply embedded in the conduct of individuals. Consequently, this study examines the extent to which ethical behaviour directly influences fraud management and if its contribution is enhanced by internal audit quality as a form of localised governmentality.

2.2 Hypothesis development

From the Foucauldian concept of governmentality, internal audit is a crucial localised technique of exercising power which can influence the complex social settings (Mihret & Grant, 2017). In this respect, it is important for the internal audit to maintain high quality. The quality of the Internal audit function resonates with the competence of its employees, the functional structures to allow total independence, the compliance with professional standards, and the perceived usefulness of the function in influencing informed decisions in the institution (Roussy & Brivot, 2016). Empirically, what is so far known is that internal audit quality can significantly reduce financial statements fraud (Prawitt *et al.*, 2009; Johl, Johl, Subramaniam, & Cooper, 2013; Gros, Koch, & Wallek, 2017). Also, its components, like status and competences, are reported to significantly influence fraud management in the financial services sector (Kabuye *et al.*, 2017). Moreover, internal audit quality is strongly associated with the effective identification of strategic and operational deficiencies, thereby

reinforcing institutional governance (Abdullah, Ismail, & Smith, 2018) and internal controls (Chang, Chen, Cheng, & Chi, 2019) as core pillars for fraud management. However, when it comes to the implementation of the overall risk management framework, the influence of internal audit quality is inconsequential (Mat Ludin, Mohamed, & Mohd-Saleh, 2017), which ultimately underplays its contribution to fraud management. Another stream of literature highlights that high-quality internal audit departments play a central role in fraud prevention (Novatiani, Kusumah, Yadiati, Abdul Halim Rachmat, & Arifian Rachman, 2024). However, it remains uncertain whether these departments can deliver equivalent value across the prevention, detection, and response dimensions, which together constitute a comprehensive fraud management framework (Crain, Hopwood, Pacini, & Young, 2019). Motivated by these empirical limitations, the need to reduce the internal audit's role ambiguity over fraud prevention and detection (Bonrath & Eulerich, 2024), and the theoretical imperative to extend the influence of internal audit to complex societal settings, this study examines the direct and indirect influence of internal audit quality (through ethical behaviour) on fraud management in the public sector. We claim that its effect extends beyond financial statement fraud to the entire fraud management framework in public sector institutions. Besides, it is time to know the contribution of the combined components of internal audit quality since they are interconnected as input, throughput and output processes (Roussy & Brivot, 2016). Ultimately, these aspects are essential for establishing an agile and proactive internal audit function capable of creating, protecting, and sustaining fraud management efforts, even in critical processes such as budgeting, where fraud is being orchestrated in Ugandan public sector institutions (Kisakye, 2024). Accordingly, we hypothesise that.

- H1.* Internal audit quality significantly influences fraud management in the public sector institutions.

It is possible to infer internal audit quality as a significant factor for fraud management, as already claimed. However, since fraud is now institutionalised (Lassou *et al.*, 2024; Power, 2013) and multifaceted (Xu, Gupta, Xue, Mortal, & Chen, 2025), fraud management actors are increasingly advocating for sophisticated fraud management frameworks (Sargiacomo *et al.*, 2024; Abdallah, Maarof, & Zainal, 2016) in contemporary institutions. Consequently, scholars ought not to rely on only a single factor for fraud management but rather on multipronged factors. To address this empirical and practical concern, we extend the direct influence of internal audit quality on fraud management in *H1* by examining its indirect influence on fraud management through ethical behaviour. This account is primarily based on the suggestion that internal audit substantially improves ethical conduct in contemporary institutions (Sahla & Ardianto, 2023). More directly, ethical behaviours are known to influence the individual aspects of fraud management like prevention and detection (Krummeck, 2000; Hess & Cottrell, 2016; Law, 2011; Peltier-Rivest, 2018; Sahla & Ardianto, 2023; Said, Alam, Ramli, & Rafidi, 2017; Suh, Shim, & Button, 2018; Suh & Shim, 2020; Zuberi & Mzenzi, 2019). Nonetheless, evidence from Malaysian banks indicates that Islamic professional ethics alone does not effectively deter financial reporting fraud (Awang, 2019). This limitation highlights a persistent challenge in fraud management, prompting current literature to demand for mechanisms that specifically address such ethical collapses within institutional systems (Hermanson, Hermanson, Hermanson, & Parlier, 2025). One potential mechanism is the internal audit function, which is increasingly recognized as a strategic partner and trusted advisor; however, little is known about how the quality of this function influences employees' ethical behaviour. Examining this relationship is therefore critical, as a high-quality internal audit function is expected to promote ethical behaviour and, in turn, strengthen fraud management. This perspective aligns with Foucault's (1991) theoretical notion of ethics as a central policy force in governance systems. However, because not all individuals can self-transform into ethical subjects (Foucault, 1984), internal audit quality may serve as an essential mechanism that influences ethical self-transformation in the context of fraud management. In Uganda, the Directorate of Ethics and Integrity (DEI) is mandated to promote

national ethical values and to coordinate public sector anti-fraud initiatives. Given their perceived anti-fraud role, high quality internal audit departments are therefore uniquely positioned to complement DEI's mandate by reinforcing ethical behaviour within public sector institutions. Accordingly, the following hypotheses are advanced.

- H2. Ethical behaviour and fraud management have a significantly positive relationship.
- H3. Internal Audit quality significantly influences ethical behaviour.
- H4. Ethical behaviour mediates the relationship between internal audit quality and fraud management.

To mitigate omitted variable bias and endogeneity concerns (Hair, Hult, Ringle, & Sarstedt, 2022), this study controlled for institution size, age, category, and the gender of accounting officers. First, Wijayanti, Senjani, and Farah (2024) demonstrate that institution size influences financial statement fraud among Indonesian listed firms. Accordingly, larger public sector institutions (PSIs) in Uganda are expected to possess greater resources that can be leveraged for more effective fraud management. Second, evidence from Chinese listed firms indicates that firm age does not necessarily reduce the likelihood of corporate fraud, even in mature markets (Xu, Xie, Jiang, & Yang, 2024). This finding challenges the conventional assumption that older institutions are more likely to have developed robust structures and accumulated experience in fraud management; hence, the effect of institution age on fraud management is empirically examined. Third, the International Monetary Fund (2014) classifies PSIs as either general government entities or public corporations. These categories differ in governance structures, regulatory frameworks, and resource allocations, which may have differential implications for fraud management. Finally, prior research shows that Chinese listed firms with gender-diverse boards or female chief financial officers experience lower levels of accounting fraud than firms with male-only boards (Liao, Smith, & Liu, 2019). Consequently, the gender of accounting officers was controlled for to account for its potential influence on fraud management.

3. Methodology

3.1 Design, population and sample

This study employed a quantitative research design to collect and analyse data from the Ugandan context. It aimed to assess how internal audit quality and ethical behaviour, informed by Foucauldian theory, contribute to fraud management. Given that fraud management is a global challenge, this statistical approach was adopted to enhance the generalisability of the study's findings to other contexts (Saunders, Lewis, & Thornhill, 2023). The study population comprised 334 Public Sector Institutions (PSIs) in Uganda, including general government institutions and public corporations (Ministry of Finance, Planning and Economic Development, 2024; Table 1). Using the Taro Yamane formula (Yamane, 1973) in conjunction with stratified random sampling, a sample of 182 PSIs was selected. Data were collected from 445 respondents across 168 institutions, yielding a 92.3% response rate. Respondents included senior-level accountants, internal auditors, and members of local government public accounts or audit committees—key actors in public accountability and fraud management. Since the analysis was conducted at the firm level, individual responses were aggregated accordingly.

3.2 Questionnaire and variable measurements

A structured survey questionnaire was used to collect data from July to November 2024. For measurement of constructs, fraud management entailed indicators of fraud prevention, detection and response (Crain et al., 2019; Kabuye et al., 2017). Internal audit quality was operationalised by indicators of the internal audit function's independence, competence,

Table 1. Population and sample

PSIs	Category	Institutional unit	Population	Sample	Response
General Government	Central Government	Ministries	23	13	11
		Agencies	80	43	36
		Referral Hospitals	22	12	12
	Local Government	Districts	135	72	69
		Municipal Councils	31	17	17
		Cities	10	6	6
Public Corporations	Public Financial Corporations (PFCs)	PFCs	10	6	6
	Public Non-financial Corporations (PNFCs)	PNFCs	23	13	11
	Total		334	182	168

Source(s): Primary data

compliance with professional standards and usefulness of the internal audit function (Roussy & Brivot, 2016; Kaawaase, Nairuba, Akankunda, & Bananuka, 2021; Nalukenge, Kaawaase, Bananuka, & Ogwal, 2022). Lastly, Ethical behaviour was measured by examining an individual's Normative and Juridical ethical behaviour (Al Halbusi, Williams, Ramayah, Aldieri, & Vinci, 2021; Lu & Lin, 2014). These continuous variables were anchored on a 4-point scale (ranging from 1 = strongly disagree to 4 = strongly agree), to allow respondents to be more thoughtful and precise and reduce answer bias (Saunders *et al.*, 2023).

Control variables were measured and coded as follows. Institution Size was measured by the actual annual audited expenditure of the institution (Office of the Auditor General Uganda, 2023). The code for institution size was 1 for institutions with expenditures above Shs 100 billion (Large) and zero otherwise. Uganda Shillings 100 billion is a 1% materiality level of the average Shs 10 trillion amount lost to fraud annually in Uganda. Institution age was coded as "0" for institutions established by 2008; otherwise, it was "1". The selection of 2008 was because of the establishment of the National Audit Act in 2008 and the 2007–2008 global financial crisis, which resulted in the promulgation of several anti-fraud policies. For the institution category, code "1" was for institutions with politically elected leaders and zero otherwise (Ministry of Finance Planning and Economic Development, 2023). Gender of Accounting Officers entailed Institutions with Male Accounting officers as "1" and "0" otherwise.

3.3 Validation of the questionnaire

A pilot test was conducted to validate the questionnaire items adapted from existing literature. Initially, content validity was assessed using the Content Validity Index (CVI), which was evaluated by nine practitioners, policymakers, and academics. The CVI values for all study variables exceeded the recommended threshold of 0.70 (Field, 2018): fraud management = 0.900, internal audit quality = 0.932, and ethical behaviour = 0.816. Subsequently, a pilot study involving 199 respondents (comprising senior-level accountants, internal auditors, and members of the audit committee/public accounts committee) from 70 public sector institutions was undertaken. The results indicated that most questionnaire items were both reliable and valid. Exploratory Factor Analysis [7] (EFA) revealed that 69% ($n = 24$), 56% ($n = 22$), and 73% ($n = 16$) of the items measuring fraud management, internal audit quality, and ethical behaviour, respectively, were retained. All retained items loaded onto their respective components [8] with factor loadings of 0.50 and above, confirming that the items measured their intended constructs

(convergent validity). Moreover, the total variance explained for each global variable exceeded the acceptable 50% threshold (fraud management = 54.361%, internal audit quality = 61.497%, and ethical behaviour = 52.797%). In addition, the correlations among the constructs were below 0.80, indicating that the study variables were empirically distinct and thus demonstrating discriminant validity (Bloomberg, Cooper, & Schindler, 2014). Besides, all retained items had a Cronbach's alpha coefficient of more than 0.70, indicating acceptable reliability (Nunnally, 1978; Field, 2018).

Given that 65% ($n = 62$) of the total items in the instrument were retained during pilot testing, the refined questionnaire was used to collect data for the analyses in this study.

3.4 Data collection and data screening tests for non-response bias, outliers, normality, common method bias, and collinearity

Data were collected using both an online questionnaire and hard-copy questionnaires, which were later entered into the online form. The online questionnaire, designed using Google Forms, was primarily used to mitigate item non-response bias arising from incomplete responses, as respondents were required to answer all questions before submission. Additionally, to address unit non-response bias, respondents were assured of the utmost confidentiality of their responses through an introductory letter attached to the questionnaire. The letter bore the logo of Makerere University Business School and was stamped and signed by the Dean of the Faculty of Graduate Studies, thereby enhancing the credibility of the study. Furthermore, the questionnaire items were kept concise, practical, and engaging to sustain respondents' interest. For initially hesitant respondents, up to three follow-up reminders were issued via email, telephone calls, and WhatsApp messages.

Nonetheless, for data collected using hard-copy questionnaires, four questionnaires with more than 15% missing values were discarded in accordance with Hair *et al.* (2022), resulting in a dataset with no missing values or spurious outliers. Non-spurious outliers, defined as observations with z-scores outside the ± 1.96 range, were replaced with the nearest non-outlier values following Field (2018). In addition, sixteen questionnaires exhibiting standard deviations below 0.25 were removed due to suspected straight-line or diagonal response patterns (Hair *et al.*, 2022). Skewness and kurtosis values within the ± 1 range confirmed the normal distribution of the data (Table 6). Furthermore, common method bias (CMB) was mitigated through the use of clearly worded, literature-based measurement items and explicit instructions to respondents. The results of the exploratory factor analysis (EFA) indicated that thirty-nine factors emerged from the study variables, with the first factor accounting for only 25.739% of the total variance, thereby confirming the absence of CMB (Kock, 2017). Tables 3–5 show that the variance inflation factors (VIFs) for all items were below 3.3, indicating the absence of collinearity and confirming satisfactory data quality (Kock, 2017).

3.5 Respondent profile

The study's respondents were profiled as follows (Table 2). First, the males constituted the highest number of respondents (64.9%). With this, males dominate people in positions of managing fraud from the huge domination of Uganda's population by females (Uganda Bureau of Statistics, 2023). Second, most respondents were above 28 years (88.8%). These individuals have lived for a reasonable period and have experienced different aspects of the study variables. Third, in terms of education and professional qualification, 95.5% of the respondents held at least a Bachelor's degree, and 60.4% held an accountancy-related professional certification. Hence, the respondents had the requisite knowledge to answer the questions. Fourth, 49.7% of the respondents had accumulated over 10 years in the public service. These individuals had a reasonable comprehension of the affairs of government. Fifth, 59.8% of the respondents were either senior-level internal auditors or members of the local government public accounts committee (LGPAAC)/Audit Committee (AC), and the rest were senior-level Accountants.

Table 2. Respondent profile

Item	Measure	n	%
Gender	Male	289	64.9%
	Female	156	35.1%
Age	18 to 28 years	50	11.2%
	Above 28 years	395	88.8%
Highest level of education	Diploma	20	4.5%
	Bachelor's Degree	218	49.0%
	Postgraduate diploma certificate	73	16.4%
	Master's degree	129	29.0%
	PhD	4	0.9%
	Certificate	1	0.2%
Professional qualification(s) held	CPA	216	48.5%
	CIA	6	1.3%
	ACCA	28	6.3%
	None	176	39.6%
	CPA and ACCA	15	3.4%
	CPA and CIA	1	0.2%
	CFA	1	0.2%
	CPA, ACCA and CIA	1	0.2%
	CPA and CFE	1	0.2%
Working experience in the public sector	Less than 5 years	125	28.1%
	5–10 years	99	22.2%
	Above 10 years	221	49.7%
Position in the organisation	Senior accountant	179	40.2%
	Senior internal auditor	149	33.5%
	Member of the audit committee/local government public accounts committee (LGPAC)	117	26.3%

Source(s): Primary data

3.6 Validity, reliability, and multicollinearity

The content validity of the indicators was established using the content validity index (CVI). A panel of 9 subject experts from practice and academia were contacted to rank the relevance of each item in the draft questionnaire. Each expert ranked the items using a scale of 1 to 2, with 2 being “valid” and 1 being “not valid.” The CVI was computed by dividing the proportion of valid items by the total number of items for each construct. The resulting CVI for each construct was above 0.7, which showed the soundness of the indicators (Field, 2018), as reported in Section 3.3.

Construct validity and reliability were established through measurement model assessment in SmartPLS. Construct validity entailed both convergent and discriminant validity. Tables 3–5 shows that the item loadings of the constructs were within the acceptable range of 0.6 to 0.708. Additionally, each construct's Average Variance Explained (AVE) was above 0.5. Hence, the different items connected to measure the respective construct (Hair et al., 2022). For discriminant validity, Tables 3–5 shows that the HTMT values are less than 0.85. This indicated the absence of overlapping indicators between constructs (Henseler et al., 2014). Thus, the study constructs were distinct, and the believability of further analyses was tenable.

For construct reliability, the composite and Cronbach alpha results for the study constructs were above 0.7 (Tables 3–5). Hence, the measures had the ability to produce similar results under the similar conditions (Field, 2018).

The VIFs in Tables 3–5 (for the outer models) were below 5. Meaning that the indicators were not highly correlated. Therefore, the individual influence of indicators towards the constructs was tenable. Likewise, the standard errors were minimised, and higher model interpretability was achieved (Hair et al., 2022).

Table 3. Factor structure for fraud management

	Outer loadings		VIF	α	CR	AVE
FP	Regular fraud awareness training is conducted	0.828	1.632	0.700	0.813	0.525
	Orientation of new employees on the anti-fraud policy is regularly conducted	0.783	1.449			
	Anti-fraud behaviour is constantly promoted by the top management	0.683	1.271			
	Employee support programs like our SACCO always help staff members financially	0.577	1.179			
FD	Fraud risk assessments are conducted regularly	0.745	1.387	0.700	0.804	0.506
	Confidential channels for reporting fraud are in place	0.742	1.318			
	Staff are always encouraged to report fraudulent activities	0.710	1.337			
	Employees in high-risk departments are always monitored	0.645	1.232			
FR	Investigation of suspected fraud cases is always conducted immediately	0.770	2.279	0.892	0.912	0.509
	Recording of evidence on suspected fraud activity is always done instantly	0.765	2.255			
	Due protection is given to employees who reveal fraudulent activities	0.761	2.218			
	Management is always evaluated on the degree to which they control fraud	0.739	1.908			
	Factors that allowed fraud to occur are always instantly assessed	0.718	1.901			
	Instant legal action is always taken against individuals involved in fraud	0.681	1.762			
	Confidentiality of fraud cases under investigation is kept	0.683	1.795			
	Employees who report fraud are normally rewarded	0.611	1.455			
	Communication of fraud investigation outcomes is always done	0.725	1.851			
	Suspected fraudulent cases are always reported to the police	0.664	1.752			

Note(s): HTMT Ratio: FP < - > FD = 0.852; FR < - > FD = 0.599; FR < - > FP = 0.543
CR = Composite Reliability; FP = Fraud prevention, FD = Fraud detection, and FR = Fraud response
Source(s): Primary data

3.7 Model specification

From the theoretical and conceptual analyses, the following model was examined.

$$\begin{aligned} \text{Fraud Management} = & \beta_0 + \beta_1(\text{Internal Audit Quality}) + \beta_2(\text{Ethical Behaviour}) \\ & + \beta_3(\text{Institution Size}) + \beta_4(\text{Institution age age_2008}) \\ & + \beta_5(\text{Institution Category}) + \beta_6(\text{Gender of Accounting Officer}) + \epsilon \end{aligned}$$

Where: B_1 represents the effect of Internal Audit Quality (IAQ); B_2 represents the effect of Ethical behaviour (EB); B_3 represents the effect of institution size; B_4 represents the effect of institution age; B_5 represents the effect of the institution category; B_6 represents the effect of the gender of Accounting Officer; and ϵ is the error term.

4. Results

4.1 Descriptive statistics

The characteristics of the study constructs are presented in Table 6. On average, the mean of 2.861 suggests a moderate implementation of fraud management activities in the PSIs. However, fraud detection is slightly higher than prevention and response. This is an

Table 4. Factor structure for internal audit quality

Outer loadings		VIF	α	CR	AVE	
ID	The board/council approve the internal audit work plans	0.746	1.343	0.700	0.81	0.517
	Internal auditors have the strength to say no to instances that lead to fraud	0.744	1.341			
	The internal auditor general of the government reviews the internal audit reports	0.728	1.416			
	The board/council always approves the internal audit budget	0.654	1.198			
IC	Always exhibit wide knowledge of the international standards for the professional performance of internal audit	0.761	1.696	0.808	0.862	0.510
	Adequately document their findings	0.720	1.543			
	Always advise the board on anti-fraud measures	0.709	1.526			
	Are able to analyse complex information	0.700	1.493			
	Regularly exhibit good interpersonal interactions	0.700	1.551			
CPS	Regularly report suspected fraud cases	0.695	1.419	0.700	0.819	0.601
	Internal audit work plans are adequately executed	0.819	1.459			
	Quality assurance is conducted on the internal audit activities	0.773	1.405			
	The head of internal audit periodically inform the board/ council of issues regarding the internal audit independence	0.731	1.184			
	Adherence to the ethical code is emphasized in the internal audit reports	0.753	1.542			
UIF	Risks of fraud have been reduced due to regular internal audits	0.748	1.822	0.773	0.846	0.524
	Compliance with entity policies is emphasised in internal audit reports	0.722	1.458			
	Productivity has improved due to internal audit recommendations	0.708	1.649			
	Strict accountability is emphasised by internal auditors	0.689	1.411			

Note(s): HTMT Ratio: IC <-> CPS = 0.646; ID <-> CPS = 0.467; ID <-> IC = 0.591; PU <-> 0.531; PU <-> 0.510; PU <-> 0.432

CR = Composite Reliability; ID = Internal Audit Independence; IC = Internal Audit Competence; CPS = Compliance with Professional Standards; UIF = Usefulness of Internal Audit Function

Source(s): Primary data

improvement from the preceding studies, which largely examined fraud detection (Sargiacomo *et al.*, 2024; Siahaan, Suharman, Fitrijanti, & Umar, 2024). Equally, respondents agreed on the presence of constructs for internal audit quality and ethical behaviour. Noticeably, the means of all constructs were around 3 (agree) but not close to the maximum value of 4 (strongly agree). This means that although the PSIs are doing some things right, there are areas that need improvement to further strengthen fraud management, internal audit quality, and ethical behaviour.

For the control variables, an average of 18.5% of the PSIs are large, with budgets of Shs 100 billion and above. This means that most PSIs operate with meagre budgets, which may not allow the implementation of modern anti-fraud technologies. On average, 21.4% of the PSIs were established after 2008. Meaning that most of the PSIs in Uganda have been in existence for more than 16 years. Such institutions ought to have built significant anti-fraud capabilities. On average, 61.3% of the PSIs have politically elected leaders. These are mostly local government districts, municipal councils, city councils and ministries. Political headships are expected to play a crucial role in influencing fraud management efforts to serve the interests of the electorate. Conversely, PSIs with technical leadership are expected to operate professionally to achieve better fraud management. Furthermore, an average of 80.4% of

Table 5. Factor structure for ethical behaviour

Outer loadings		VIF	α	CR	AVE	
NEB	Staff use entity property for official use only	0.766	1.952	0.838	0.879	0.509
	Leaders always maintain ethical standards	0.730	1.716			
	Staff always influence each other to conduct themselves in an ethical manner	0.724	1.657			
	Staff always conform to the organisational values	0.723	1.655			
	Staff always refrain from giving favours in exchange for preferential treatment	0.714	1.651			
	Employees normally complete activities within the allocated timeframe	0.707	1.794			
	Staff use entity services in the best way possible	0.624	1.340			
JEB	Employees normally abstain from undue influence	0.779	1.965	0.829	0.875	0.540
	Staff normally disclose conflicts of interest	0.743	1.792			
	Staff rarely accept gifts that are offered for preferential treatment	0.73	1.632			
	Employees always give an honest report about their performance	0.723	1.641			
	Employees always take the allotted personal time for health breaks	0.715	1.535			
	Staff demonstrate ethical conduct towards each other	0.715	1.555			

Note(s): HTMT Ratio: NEB <-> JEB = 0.771
CR = Composite Reliability; NEB = Normative Ethical Behaviour; JEB = Juridical Ethical Behaviour
Source(s): Authors' compilation from the collected data

Table 6. Descriptive statistics

Constructs	Min	Max	Mean	Std deviation	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Fraud management	2.13	3.56	2.8605	0.30615	-0.202	0.187	-0.673	0.373
Fraud prevention	2.00	3.63	2.8267	0.41480	-0.162	0.187	-0.581	0.373
Fraud detection	2.33	3.67	2.9920	0.35272	-0.200	0.187	-0.692	0.373
Fraud response	2.07	3.43	2.7628	0.35807	-0.163	0.187	-0.670	0.373
Internal audit quality	2.87	3.80	3.3399	0.19901	0.019	0.187	-0.177	0.373
Independence	2.83	3.92	3.4038	0.28872	-0.208	0.187	-0.518	0.373
Competence	2.83	3.84	3.3202	0.26021	0.070	0.187	-0.734	0.373
Compliance with professional standards	2.67	3.78	3.2211	0.29099	0.083	0.187	-0.672	0.373
Perceived usefulness of the internal audit function	2.93	3.90	3.4169	0.24546	-0.186	0.187	-0.629	0.373
Ethical behaviour	2.46	3.80	3.0688	0.31773	0.089	0.187	-0.615	0.373
Normative ethical behaviour	2.43	3.81	3.1004	0.35267	-0.093	0.187	-0.598	0.373
Juridical ethical behaviour	2.50	3.79	3.0373	0.35307	0.403	0.187	-0.670	0.373
Institution size	0.00	1.00	0.1845	0.38907	1.641	0.187	0.702	0.373
Institution age	0.00	1.00	0.2143	0.41155	1.405	0.187	-0.026	0.373
Institution category	0.00	1.00	0.6131	0.48850	-0.469	0.187	-1.802	0.373
Gender of accounting officer	0.00	1.00	0.8036	0.39848	-1.542	0.187	0.382	0.373

Note(s): $n = 168$, Min = Minimum, Max = Maximum, SD = Standard Deviation
Source(s): Primary data

PSIs have male accounting officers. This implies that a limited number of females are directly holding positions responsible for managing fraud.

4.2 Structural model assessment results

The results of the structural model assessment which were generated using SmartPLS-SEM bootstrapping are shown in Table 7. Table 7 shows that internal audit quality significantly and positively influences fraud management. A unit change in internal audit quality significantly changes fraud management by 0.200 *ceteris paribus*. Thus, H1 was supported. The results further reveal that ethical behaviour and fraud management are significantly and positively related. Implying that a unit variation in ethical behaviour influences fraud management by 0.469. So, H2 was upheld. It was also found that internal audit quality positively and significantly relates to ethical behaviour. A unit change in internal audit quality influenced ethical behaviour by 0.277. Hence, H3 is supported. More still, the results returned a significant and positive indirect effect, which confirmed the existence of the mediation. Hence, H4 was upheld. Since the direct path was significant (H1), the mediation was partial. Further analysis of the direction of the product of the direct and indirect path showed a positive result. Henceforth, this was a complementary partial mediation. This mediation result indicates a dual predictive role of internal audit quality. First, internal audit quality enhances ethical behaviour, which in turn influences fraud management. Second, even in the presence of ethical behaviour, internal audit quality remains a significant predictor of fraud management. Overall, the model explained 37.7% of the variance in fraud management ($R^2 = 0.377$), showed predictive relevance ($Q^2 = 0.164$), and achieved good fit ($SRMR = 0.058 < 0.08$) (Hair *et al.*, 2022).

Table 7. Structural model results

Paths	β	Std deviation	<i>t</i> -values	<i>p</i> -values	Percentile bootstrap 95% confidence interval	
					Lower	Upper
<i>Direct effects</i>						
IAQ → FMT	0.200	0.069	2.910	0.002	0.083	0.310
IAQ → EB	0.277	0.080	3.454	0.000	0.141	0.405
EB → FMT	0.469	0.061	7.719	0.000	0.369	0.568
Institution size → FMT	0.157	0.193	0.816	0.207	−0.163	0.474
Institution age → FMT	0.150	0.164	0.912	0.181	−0.118	0.422
Institution category → FMT	−0.419	0.135	3.112	0.001	−0.644	−0.197
Gender of accounting officer → FMT	0.067	0.159	0.423	0.336	−0.201	0.324
<i>Indirect effects</i>						
IAQ → EB → FMT	0.130	0.043	2.993	0.001	0.062	0.204
<i>Total effects</i>						
IAQ → FMT	0.330	0.073	4.508	0.000	0.208	0.447
IAQ → EB	0.277	0.080	3.454	0.000	0.141	0.405
EB → FMT	0.469	0.061	7.719	0.000	0.369	0.568
Institution size → FMT	0.157	0.193	0.816	0.207	−0.163	0.474
Institution category → FMT	−0.419	0.135	3.112	0.001	−0.644	−0.197
Institution age → FMT	0.150	0.164	0.912	0.181	−0.118	0.422
Gender of accounting officer → FMT	0.067	0.159	0.423	0.336	−0.201	0.324

Note(s): $R^2 = 0.377$; $Q^2 = 0.167$; $SRMR = 0.058$; $NFI = 0.749$. VIFs: IAQ → FMT = 1.129; IAQ → EB = 1.000; EB → FMT = 1.152; Institution size → FMT = 1.169; Institution age → FMT = 1.117; Institution Category → FMT = 1.199; Gender of Accounting Officer → FMT = 1.018
FMT = Fraud Management; IAQ = Internal Audit Quality; EB = Ethical Behaviour

Source(s): Primary data

4.3 Robustness tests

Robustness tests were performed before and after model estimation to establish the statistical rigour and validity of the results generated using PLS-SEM, a nonparametric technique. Specifically, nonnormality, endogeneity, unobserved heterogeneity, nonlinearity, and heteroskedasticity tests were performed (Vaithilingam, Ong, Moisescu, & Nair, 2024). First, the findings in Table 6 show no concerns of nonnormality for all the constructs due to the closeness of the skewness and kurtosis values to zero. Also, the standard errors are close to the skewness and kurtosis values (Hair et al., 2022). Second, endogeneity was initially addressed by including control variables in the model. These variables explained a given portion of the variance in fraud management (Table 7). Subsequently, the results in Table 8 returned insignificant Gaussian copula results for all the possible relationships (p -value> 0.05), which further validated the absence of endogeneity in the estimated model. Hence, the robustness of the estimated model was substantiated (Hult et al., 2018). Third, Table 9 shows insignificant quadratic effects (QE) for all possible relationships. Therefore, the assumption of linear relationships was not violated (Hair et al., 2022).

Fourth, to account for unobserved heterogeneity (that is, the potential influence of omitted variables beyond those explicitly controlled for) the Finite Mixture Partial Least Squares (FIMIX-PLS) approach was employed. A G*Power sample size of forty-three emerged from the 168 PSIs which responded to the questionnaire. From this, the minimum number of anticipated segments was 4, derived by dividing the study's sample by the G*Power sample size (168/43). FIMIX-PLS models were run for the 4 segments, each at a time. Table 10

Table 8. Gaussian copula test of endogeneity

	Variable relationships	Beta coefficient	p-values
Model 1	GC (IAQ → EB) → EB	−0.66	0.171
Model 2	GC (EB → FMT) → FMT	0.237	0.3
Model 3	GC (IAQ → FMT) → FMT	−0.067	0.407
Model 4	GC (IAQ → EB) → EB	−0.66	0.171
	GC (EB → FMT) → FMT	0.667	0.081
Model 5	GC (IAQ → EB) → EB	−0.66	0.171
	GC (IAQ → FMT) → FMT	−0.067	0.407
Model 6	GC (EB → FMT) → FMT	−0.643	0.204
	GC (IAQ → FMT) → FMT	−0.692	0.06
Model 7	GC (IAQ → EB) → EB	−0.66	0.342
	GC (EB → FMT) → FMT	−0.085	0.854
	GC (IAQ → FMT) → FMT	−0.754	0.086

Note(s): GC=Gaussian copula

Source(s): Primary data

Table 9. Quadratic effects of the study relationships

	β	Standard deviation	t-statistics	p-values
QE (EB) → FMT	0.003	0.054	0.059	0.953
QE (IAQ) → EB	−0.086	0.057	1.515	0.130
QE (IAQ) → FMT	−0.097	0.060	2.016	0.054

Note(s): QE = Quadratic effects

Source(s): Primary data

Table 10. Fit indices for the one to three segment solutions

	Segment 1	Segment 2	Segment 3	Segment 4
AIC (Akaike's information criterion)	879.313	879.677	865.26	<i>840.811</i>
AIC3 (modified AIC with Factor 3)	888.313	898.677	894.26	<i>879.811</i>
AIC4 (modified AIC with Factor 4)	<i>897.313</i>	917.677	923.26	918.811
BIC (Bayesian information criterion)	<i>907.429</i>	939.032	955.855	962.646
CAIC (consistent AIC)	<i>916.429</i>	958.032	984.855	1001.646
MDL5 (minimum description length with factor 5)	<i>1091.89</i>	1328.453	1550.235	1761.984
EN (normed entropy statistic)	0	0.345	0.704	0.632

Note(s): The optimal output for each index is italic

Source(s): Primary data

indicates that the fit indices do not indicate a specific segmentation solution. First, AIC3 and CAIC point to dissimilar segments. Second, MDL5 points to the same number of segments as AIC4, BIC and CAIC. Thus, it was presumed that unobserved heterogeneity was not at a critical level. This fact was further substantiated by the small values of EN and the model fit measures, which improved the models insignificantly. Hence, it was prudent to analyse the hypotheses using the entire data set other than the individual segments (Sarstedt, Hair, Nitzl, Ringle, & Howard, 2020).

Lastly, for heteroskedasticity, Table 11 revealed insignificant Levene's scores ($P > 0.05$) for the constructs against the different categorisations of the institutions. This meant that there were no huge variations in the magnitude of observations from the different sample groups. That is, the variances of the sample groups were constant across all levels of the constructs. Therefore, the assumption of homogeneity of variance was not violated (Field, 2018).

5. Discussion

Fraud management is substantially shaped by both internal audit quality and ethical behaviour. Although each exerts a significant direct influence, the effect of internal audit quality on fraud management also operates significantly through ethical behaviour, indicating a mediating mechanism rather than a simple integration of effects. Accordingly, public sector institutions can achieve enhanced fraud management (across prevention, detection, and response) by

Table 11. Levene's test scores for institution category and the global constructs

		Levene statistic	df1	df2	Sig.
Fraud management	Based on mean	1.687	1	166	0.196
	Based on median	1.864	1	166	0.174
	Based on median and with adjusted df	1.864	1	162.515	0.174
	Based on trimmed mean	1.774	1	166	0.185
Internal audit quality	Based on mean	1.856	1	166	0.175
	Based on median	1.832	1	166	0.178
	Based on median and with adjusted df	1.832	1	164.789	0.178
	Based on trimmed mean	1.844	1	166	0.176
Ethical behaviour	Based on mean	1.098	1	166	0.296
	Based on median	1.034	1	166	0.311
	Based on median and with adjusted df	1.034	1	163.291	0.311
	Based on trimmed mean	1.073	1	166	0.302

Source(s): Primary data

maintaining a high-quality internal audit function that fosters ethical behaviour, which in turn strengthens fraud management outcomes. This evidence supports [Sahla and Ardianto's \(2023\)](#) proposition that a modern internal audit function should actively shape ethical conduct, including honesty, fairness, integrity, and respect for others, all of which are critical for effective fraud management. Consistent with this view, prior studies demonstrate that ethical individuals are more likely to exercise greater caution in fraud prevention and detection than their non-ethical counterparts ([Krummeck, 2000](#); [Hess & Cottrell, 2016](#); [Law, 2011](#); [Peltier-Rivest, 2018](#); [Sahla & Ardianto, 2023](#); [Said et al., 2017](#); [Suh et al., 2018](#); [Suh & Shim, 2020](#); [Zuberi & Mzenzi, 2019](#)). These findings therefore underscore the need to embed robust mechanisms for upholding ethical behaviour within public sector fraud management agendas. Our results suggest that this is significantly achieved by a quality internal audit function. Most importantly, when the Internal audit function is independent, professionally competent, complies with professional standards, and is perceived as useful by management and the board, it is better positioned to deter, identify and remediate ethical lapses which creates an ethical environment within the institution. More specifically, an internal audit function that can resist undue pressure, analyse complex information, adhere to quality assurance processes, and comply with ethical codes is more likely to foster ethical conduct among staff. This, in turn is likely to improve fraud management by strengthening fraud prevention, detection, and response mechanisms.

Further evidence of this study suggests that a high-quality internal audit function enhances both normative ethical behaviour (derived from moral principles, personal conscience, and societal norms) and juridical ethical behaviour (derived from laws, statutes, and regulations). That is, through quality internal audits, individuals are more likely to use public resources strictly for official purposes, demonstrate ethical leadership, influence peers toward ethical conduct, adhere to institutional values, and refrain from exchanging favours for preferential treatment. Similarly, a high-quality internal audit function can promote resistance to undue influence, disclosure of conflicts of interest, refusal of gifts offered for preferential treatment, honest performance reporting, and consistent demonstration of ethical conduct. Collectively, these ethical behaviours are essential for effective fraud prevention, detection, and response.

Taken together, the results indicate that although the internal audit function is not formally designated as an ethics enforcement or anti-fraud function, its quality plays a critical role in shaping ethical behaviour, which subsequently translates into improved fraud management. However, to sustain internal audit quality in the public sector, several legal, regulatory, policy and institutional measures are necessary. For instance, in the Ugandan context, the Public Accounts Committees/Audit Committees of PSIs should prioritise approving adequate resourcing of internal audit functions, including continuous professional development with a strong focus on ethical competence, as well as the adoption of advanced, technology-enabled audit tools capable of detecting patterns of ethical breakdown among the public servants. More importantly, the Government of Uganda, through Parliament, should amend the [Public Finance Management Act \(2015\)](#) and the [Local Government Act \(1997\)](#) to explicitly recognise ethical reviews as a core mandate of the internal audit function. Also, heads of internal audit should be legally mandated to hold quarterly private meetings with the chairperson of the Public Accounts Committee or Audit Committee, without the presence of management, to facilitate open and candid deliberation on sensitive matters such as ethics and fraud. The appointment, rotation and deployment of internal auditors should also be centralised under the Internal Auditor General in collaboration with the LGPAC/audit committees to safeguard functional independence, with such provisions embedded in law. Universities and professional bodies, including the Association of Chartered Certified Accountants (ACCA), the Institute of Certified Public Accountants of Uganda (ICPAU), and the Institute of Internal Auditors (IIA), should institutionalise public sector ethics as a standalone component of internal audit education and professional training. This will enable internal auditors to acquire adequate and context-specific ethics training tailored to the public sector. Accordingly, all heads of internal audit in public sector institutions should be Certified Internal Auditors, and their appointment

should be subject to approval by the Internal Auditor General to ensure the recruitment of credible and professionally competent individuals.

The significance of internal audit quality also underscores the pressing need for the Internal Auditor General of Government to strengthen policy frameworks mandating that all government internal auditors possess professional competence in performance auditing. This would enhance the internal auditors' capacity to provide informed guidance on addressing gaps in the economical, efficient, effective, and equitable use of government resources. Inefficiencies in these value-for-money (performance) parameters often create opportunities for fraud and signal ethical lapses. Equipping internal auditors with such competencies will therefore enable them to effectively advise on closing avenues through which fraud is planned and perpetrated within government programmes. Furthermore, the central role of ethical behaviour in transmitting the effect of internal audit quality to fraud management highlights the strategic necessity of establishing a policy framework that fosters collaboration between the Directorate of Ethics and Integrity (DEI) and the Office of the Internal Auditor General (OIAG). Such collaboration would enable DEI to promote and enforce adherence to national ethical values [6] among public servants through internal auditors.

Theoretically, the findings of this study confirm that a high-quality internal audit function constitutes a critical technique for exercising governmentality power (that is, a mechanism through which individuals are influenced to govern themselves). In this sense, internal audit quality can be understood as both a disciplinary mechanism and a localised governmentality technique (Mihret & Grant, 2017) that supports fraud management in contemporary public sector institutions. By shaping conduct and reinforcing ethical behaviour, a high-quality internal audit function helps mitigate ethical collapses, including susceptibility to pressure to engage in fraudulent behaviour. Moreover, the prominent role of ethical behaviour in transmitting the effect of internal audit quality to fraud management vindicates Foucauldian assertions that ethics functions as a vital policy instrument within governance systems and that individuals are capable of ethically self-transforming into ethical subjects (Foucault, 1984). However, in the specific context of fraud management, the findings further indicate that ethical subjects are not formed solely through self-transformation but are also actively constituted through high-quality internal audit practices. Consequently, this study integrates Foucauldian notions of governmentality and ethics by demonstrating that enhanced fraud management can be achieved through the exercise of governmentality power that cultivates ethical subjects capable of effectively preventing, detecting, and responding to fraud. In doing so, the study extends prior research that has largely emphasised the direct role of internal audit quality in fraud prevention and related quasi-fraud outcomes, such as earnings management (Prawitt *et al.*, 2009; Johl *et al.*, 2013; Gros *et al.*, 2017).

6. Conclusion

In conclusion, the findings of this study offer optimism for strengthening fraud management in Uganda's public sector institutions (PSIs) by clearly identifying where strategic emphasis should be placed. Specifically, the results show that internal audit quality and ethical behaviour each explain significant variation in fraud management. More importantly, their influence is maximised when a high-quality internal audit function actively fosters ethical behaviour among public servants. Accordingly, PSIs require both robust internal audit quality and appropriate ethical behaviour to enhance all dimensions of fraud management (prevention, detection, and response). Despite these contributions, the study is limited to Uganda's public sector and relies on survey data. Although the sample size supports generalisation within this context, future research could adopt comparative cross-country designs, utilise secondary data, and incorporate qualitative approaches to deepen understanding of the mechanisms linking internal audit quality, ethical behaviour, and fraud management.

Notes

1. Governmentality (how to govern) means conduct of conduct which entails shaping how people govern themselves.
2. The ability of an individual to shape his/her conduct within or against the prevailing power relations.
3. As of August 3, 2025, Uganda had three oil and gas projects. These included the upstream (Tilenga and Kingfisher) and midstream (EACOP and Refinery) projects.
4. The Inspectorate of government act 2002, the Leadership code act 2002 as amended, the PPDA Act 2003 as amended, the access to information act 2005, the audit act 2008, the anti-corruption act 2009 as amended, the whistleblowers protection act 2010, the anti-money laundering act 2013, ([Public Finance Management Act, 2015](#)) and other many laws.
5. Inspectorate of Government, Office of the Auditor General, Public Procurement and Disposal of Public Assets Authority, Anti-Corruption Court, Directorate of Ethics And Integrity, Uganda Police Force – Criminal Investigations Directorate, Office of the Director of Public Prosecutions, Financial Intelligence Authority, Accountant General’s Office, Office of the Internal Auditor General, Uganda Revenue Authority, Anti-Corruption Division of the High Court, State House Anti-Corruption Unit, State House Health Monitoring Unit, State House Investors Protection Unit, Internal Security Organization, Leadership Code Tribunal, Ministry of Public Service – Inspectorate and Quality Assurance Unit, Ministry of Local Government – Inspectorate Unit, Public Service Commission, Health Service Commission, Education Service Commission, Government and the Security Programme Secretariat.
6. Respect for humanity and environment, honest, justice and fairness, hard work, integrity, creativity and innovativeness, social responsibility, social harmony, national unity, and national consciousness and patriotism.
7. Exploratory factor analysis was conducted using Principal Component Analysis and Varimax with Kaiser Normalization.
8. The extracted components of the global variables after EFA were as follows: Fraud management (fraud prevention, detection and response), Internal audit quality (Independent, competence, compliance with professional standards and perceive usefulness of the internal audit function) and Ethical behaviour (Normative ethical behaviour and Juridical ethical behaviour).

References

- Abdallah, A., Maarof, M. A., & Zainal, A. (2016). Fraud detection system: A survey. *Journal of Network and Computer Applications*, 68, 90–113. doi: [10.1016/J.JNCA.2016.04.007](#).
- Abdullah, R., Ismail, Z., & Smith, M. (2018). Audit committees’ involvement and the effects of quality in the internal audit function on corporate governance. *International Journal of Auditing*, 22(3), 385–403. doi: [10.1111/ijau.12124](#).
- Aheebwa, P. (2022). Uganda’s oil and gas projects: The value at stake. Available from: [https://www.pau.go.ug/ugandas-oil-and-gas-projects-the-value-at-stake/#:~:text=Using%20the%20prevailing%20assumptions%2C%20government,US\\$%20400%20million%20per%20year](https://www.pau.go.ug/ugandas-oil-and-gas-projects-the-value-at-stake/#:~:text=Using%20the%20prevailing%20assumptions%2C%20government,US$%20400%20million%20per%20year) (accessed 3 August 2025).
- Al Halbusi, H., Williams, K. A., Ramayah, T., Aldieri, L., & Vinci, C. P. (2021). Linking ethical leadership and ethical climate to employees’ ethical behavior: The moderating role of person–organization fit. *Personnel Review*, 50(1), 159–185. doi: [10.1108/PR-09-2019-0522](#).
- Association of Certified Fraud Examiners (2024), Occupational fraud 2024: A report to the Nations, 716 west ave | Austin, TX 78701-2727 | USA.
- Awang, Y., Abdul Rahman, A. R., & Ismail, S. (2019). The influences of attitude, subjective norm and adherence to Islamic professional ethics on fraud intention in financial reporting. *Journal of Islamic Accounting and Business Research*, 10(5), 710–725. doi: [10.1108/JIABR-07-2016-0085](#).
- Ben Slama, F., & Jandoubi, M. (2024). IPSAS adoption, public governance and corruption perception in MENA and sub-Saharan Africa countries. *Journal of Financial Reporting & Accounting*, ahead-of-print(ahead-of-print). doi: [10.1108/JFRA-12-2023-0773](#).

- Bloomberg, B., Cooper, D. R., & Schindler, P. S. (2014). *Business research methods* (4th ed.). Boston, MA: McGraw-Hill.
- Bonrath, A., & Eulerich, M. (2024). Internal auditing's role in preventing and detecting fraud: An empirical analysis. *International Journal of Auditing*, 28(4), 615–631. doi: [10.1111/ijau.12342](https://doi.org/10.1111/ijau.12342).
- Bukenya, B. and Muhumuza, W. (2017), The politics of core public sector reform in Uganda: Behind the façade.
- Chang, Y. T., Chen, H., Cheng, R. K., & Chi, W. (2019). The impact of internal audit attributes on the effectiveness of internal control over operations and compliance. *Journal of Contemporary Accounting and Economics*, 15(1), 1–19. doi: [10.1016/j.jcae.2018.11.002](https://doi.org/10.1016/j.jcae.2018.11.002).
- Cooper, M. and Blair, C. (2002), Foucault's ethics.
- Crain, M. A., Hopwood, W. S., Pacini, C. and Young, G. R. (2019), Essentials of forensic accounting.
- Directorate for Ethics & Integrity (2023). Prevalence of corruption in Uganda 2022/2023 report november 2023.
- Ege, M. S. (2015). Does internal audit function quality deter management misconduct?. *The Accounting Review*, 90(2), 495–527. doi: [10.2308/accr-50871](https://doi.org/10.2308/accr-50871).
- Field, A. (2018), Discovering statistics using IBM SPSS statistics.
- Foucault, M. (1984). On the genealogy of ethics: An overview of work in progress. In P. Rabinow (Ed.), *The Foucault reader* (pp. 340–372). New York: Pantheon.
- Foucault, M. (1991). The Foucault effect: Studies in governmentality, edited by Burchell, G., Gordon, C. and Miller, P., The University of Chicago Press, Chicago 60637, Chicago. Available from: <https://press.uchicago.edu/ucp/books/book/chicago/F/bo3684463.html>
- Foucault, M. (1997). The ethics of the concern for self as a practice of freedom. In P. Rabinow (Ed.), *Ethics: Subjectivity and Truth* (Vol. 1). New York: The New Press. Available from: https://monoskop.org/images/0/00/Foucault_Michel_Ethics_Subjectivity_and_Truth.pdf
- Gros, M., Koch, S., & Wallek, C. (2017). Internal audit function quality and financial reporting: Results of a survey on German listed companies. *Journal of Management & Governance*, 21(2), 291–329. doi: [10.1007/s10997-016-9342-8](https://doi.org/10.1007/s10997-016-9342-8).
- Gullkvist, B., & Jokipii, A. (2013). Perceived importance of red flags across fraud types. *Critical Perspectives on Accounting*, 24(1), 44–61. doi: [10.1016/j.cpa.2012.01.004](https://doi.org/10.1016/j.cpa.2012.01.004).
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (Third.). SAGE Publications. Available from: <https://uk.sagepub.com/en-gb/afr/a-primer-on-partial-least-squares-structural-equation-modeling-pls-sem/book270548>
- Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., ... Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on rönkkö and Evermann (2013). *Organizational Research Methods*, 17(2), 182–209. doi: [10.1177/1094428114526928](https://doi.org/10.1177/1094428114526928).
- Hermanson, D. R., Hermanson, H. M., Hermanson, S. D., & Parlier, J. (2025). Fundamentals of governance, accounting, and fraud: Insights for current and future financial professionals. *Journal of Forensic and Investigative Accounting*, 17(2), 369–379.
- Hess, M. F., & Cottrell, J. H. (2016). Fraud risk management: A small business perspective. *Business Horizons*, 59, 13–18. doi: [10.1016/j.bushor.2015.09.005](https://doi.org/10.1016/j.bushor.2015.09.005). 1 January.
- Hult, G. T. M., Hair, J. F. Jr, Proksch, D., Sarstedt, M., Pinkwart, A., & Ringle, C. M. (2018). Addressing endogeneity in international marketing applications of partial least squares structural equation modeling. *Journal of International Marketing*, 26(3), 1–21. doi: [10.1509/jim.17.0151](https://doi.org/10.1509/jim.17.0151).
- Inspectorate of Government (2024). Annual abstract FY 2022|2023, Kampala. Available from: <https://igg.go.ug/updates/news/ig-releases-its-annual-abstract-for-the-fy-202223/>
- International Monetary Fund (2014). Government finance statistics manual 2014. Available from: <https://www.imf.org/external/pubs/ft/gfs/manual/2014/gfsfinal.pdf> (accessed 27 November 2025).

- International Public Sector Accounting Standards Board (IPSASB) (2015). Application of the international public sector accounting standards. Available from: <https://www.ipsasb.org/news-events/2015-06/application-international-public-sector-accounting-standards> (accessed 25 February 2025).
- Johl, S. K., Johl, S. K., Subramaniam, N., & Cooper, B. (2013). Internal audit function, board quality and financial reporting quality: Evidence from Malaysia. *Managerial Auditing Journal*, 28(9), 780–814. doi: [10.1108/MAJ-06-2013-0886](https://doi.org/10.1108/MAJ-06-2013-0886).
- Kaawaase, T. K., Nairuba, C., Akankunda, B., & Bananuka, J. (2021). Corporate governance, internal audit quality and financial reporting quality of financial institutions. *Asian Journal of Accounting Research, Emerald Group Holdings Ltd.*, 6(3), 348–366. doi: [10.1108/AJAR-11-2020-0117](https://doi.org/10.1108/AJAR-11-2020-0117).
- Kabuye, F., Nkundabanyanga, S. K., Opiso, J., & Nakabuye, Z. (2017). Internal audit organisational status, competencies, activities and fraud management in the financial services sector. *Managerial Auditing Journal, Emerald Group Holdings Ltd.*, 32(9), 924–944. doi: [10.1108/MAJ-09-2016-1452](https://doi.org/10.1108/MAJ-09-2016-1452).
- Kisakye, F. (2024). Corruption now gets official endorsement, The Observer, 26 June. Available from: <https://observer.ug/news/corruption-now-gets-official-endorsement/> (accessed 11 December 2025).
- Kock, N. (2017). Common method bias: A full collinearity assessment method for PLS-SEM. In *Partial Least Squares Path Modeling: Basic Concepts, Methodological Issues and Applications* (pp. 245–257). Springer International Publishing. doi: [10.1007/978-3-319-64069-3_11](https://doi.org/10.1007/978-3-319-64069-3_11).
- Krummeck, S. (2000). The role of ethics in fraud prevention: A practitioner’s perspective. *Business Ethics: A European Review*, 9(4), 268–272. doi: [10.1111/1467-8608.00200](https://doi.org/10.1111/1467-8608.00200), Wiley.
- Lassou, P. J. C., Sorola, M., Senkl, D., Lauwo, S. G., & Masse, C. (2024). Monetization of politics and public procurement in Ghana. *Accounting, Auditing & Accountability Journal*, 37(1), 85–118. doi: [10.1108/AAAJ-07-2021-5341](https://doi.org/10.1108/AAAJ-07-2021-5341).
- Law, P. (2011). Corporate governance and no fraud occurrence in organizations: Hong Kong evidence. *Journal of Business and Industrial Marketing*, 26(6), 501–518. doi: [10.1108/02686901111142558](https://doi.org/10.1108/02686901111142558).
- Liao, J., Smith, D., & Liu, X. (2019). Female CFOs and accounting fraud: Evidence from China. *Pacific-Basin Finance Journal*, 53, 449–463. doi: [10.1016/j.pacfin.2019.01.003](https://doi.org/10.1016/j.pacfin.2019.01.003).
- Local Government Act (1997). Uganda. Available from: <https://www.example.gov.ug/path-to-act.pdf>
- Lu, C. S., & Lin, C. C. (2014). The effects of ethical leadership and ethical climate on employee ethical behavior in the international port context. *Journal of Business Ethics*, 124(2), 209–223. doi: [10.1007/s10551-013-1868-y](https://doi.org/10.1007/s10551-013-1868-y).
- Makanga, C. N., Orobia, L. A., Kaawaase, T. K., Nabeta, I. N., Mindra, R. K., & Munene, J. C. (2025). Accountability in public sector organizations: Does ethical work climate matter?. *IIM Ranchi Journal of Management Studies*, 5, 1–16. doi: [10.1108/irjms-03-2025-0037](https://doi.org/10.1108/irjms-03-2025-0037).
- Mat Ludin, K. R., Mohamed, Z. M., & Mohd-Saleh, N. (2017). The association between CEO characteristics, internal audit quality and risk-management implementation in the public sector. *Risk Management*, 19(4), 281–300. doi: [10.1057/s41283-017-0022-z](https://doi.org/10.1057/s41283-017-0022-z).
- Mihret, D. G., & Grant, B. (2017). The role of internal auditing in corporate governance: A foucauldian analysis. *Accounting, Auditing & Accountability Journal*, 30(3), 699–719. doi: [10.1108/AAAJ-10-2012-1134](https://doi.org/10.1108/AAAJ-10-2012-1134).
- Ministry of Finance Planning and Economic Development (2023). The budget execution circular for FY 2023-2024, Kampala. Available from: <https://budget.finance.go.ug/sites/default/files/THE%20BUDGET%20EXECUTION%20CIRCULAR%20%28BEC%29%20FOR%20FY%202023-2024.pdf>
- Ministry of Finance Planning and Economic Development (2024). Budget execution circular for financial year 2024/25, Kampala.
- Nalukenge, I., Kaawaase, T. K., Bananuka, J., & Ogwal, P. F. (2022). Internal audit quality, punitive measures and accountability in Ugandan statutory corporations. *Journal of Economic and Administrative Sciences*, 38(3), 417–443. doi: [10.1108/JEAS-05-2020-0084](https://doi.org/10.1108/JEAS-05-2020-0084).

- Novatiani, R. A., Kusumah, R. W. R., Yadiati, W., Abdul Halim Rachmat, R., & Arifian Rachman, A. (2024). Internal auditor competence and internal control: Improving internal audit quality to prevent fraudulent financial statements. *Cogent Business & Management*, 11(1), 2409339. doi: [10.1080/23311975.2024.2409339](https://doi.org/10.1080/23311975.2024.2409339).
- Nunnally, J. C. (1978). An overview of psychological measurement. In *Clinical Diagnosis of Mental Disorders: A Handbook* (pp. 97–146).
- Office of the Auditor General (2024). Report of the auditor general to parliament for the financial year ended 30th June 2024. Available from: <https://www.oag.go.ug/viewmegareport/40>
- Office of the Auditor General Uganda (2023). Report of the auditor general to parliament for the financial year ended 30th June 2023. Kampala. Available from: <https://www.oag.go.ug/viewmegareport/33>
- Peltier-Rivest, D. (2018). The battle against fraud: Do reporting mechanisms work?. *Journal of Financial Crime*, 25(3), 784–794. doi: [10.1108/JFC-05-2017-0048](https://doi.org/10.1108/JFC-05-2017-0048).
- Power, M. (2013). The apparatus of fraud risk. *Accounting, Organizations and Society*, 38(6-7), 525–543. doi: [10.1016/j.aos.2012.07.004](https://doi.org/10.1016/j.aos.2012.07.004).
- Prawitt, D. F., Smith, J. L., & Wood, D. A. (2009). Internal audit quality and earnings management. *The Accounting Review*, 84(4), 1255–1280. doi: [10.2308/accr.2009.84.4.1255](https://doi.org/10.2308/accr.2009.84.4.1255).
- Public Finance Management Act (2015). Uganda. Available from: <https://www.finance.go.ug/sites/default/files/2023-10/Uganda%20Public%20Finance%20Management%20Act%202015.pdf>
- Roussy, M., & Brivot, M. (2016). Internal audit quality: A polysemous notion?. *Accounting, Auditing & Accountability Journal*, 29(5), 714–738. doi: [10.1108/AAAJ-10-2014-1843](https://doi.org/10.1108/AAAJ-10-2014-1843).
- Sahla, W. A., & Ardianto, A. (2023). Ethical values and auditors fraud tendency perception: Testing of fraud pentagon theory. *Journal of Financial Crime*, 30(4), 966–982. doi: [10.1108/JFC-04-2022-0086](https://doi.org/10.1108/JFC-04-2022-0086).
- Said, J., Alam, M. M., Ramli, M., & Rafidi, M. (2017). Integrating ethical values into fraud triangle theory in assessing employee fraud: Evidence from the Malaysian banking industry. *Journal of International Studies, Centre of Sociological Research*, 10(2), 170–184. doi: [10.14254/2071-8330.2017/10-2/13](https://doi.org/10.14254/2071-8330.2017/10-2/13).
- Sargiacomo, M., Everett, J., Ianni, L., & D'Andreamatteo, A. (2024). Auditing for fraud and corruption: A public-interest-based definition and analysis. *The British Accounting Review*, 56(2), 101355. doi: [10.1016/j.bar.2024.101355](https://doi.org/10.1016/j.bar.2024.101355).
- Sarstedt, M., Hair, J. F. Jr, Nitzl, C., Ringle, C. M., & Howard, M. C. (2020). Beyond a tandem analysis of SEM and PROCESS: Use of PLS-SEM for mediation analyses. *International Journal of Market Research*, 62(3), 288–299. doi: [10.1177/1470785320915686](https://doi.org/10.1177/1470785320915686).
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (9th ed.). Harlow: Pearson.
- Siahaan, M., Suharman, H., Fitrijanti, T., & Umar, H. (2024). When internal organizational factors improve detecting corruption in state-owned companies. *Journal of Financial Crime*, 31(2), 376–407. doi: [10.1108/JFC-11-2022-0292](https://doi.org/10.1108/JFC-11-2022-0292).
- Suh, J. B., & Shim, H. S. (2020). The effect of ethical corporate culture on anti-fraud strategies in South Korean financial companies: Mediation of whistleblowing and a sectoral comparison approach in depository institutions. *International Journal of Law, Crime and Justice*, 60, 100361. doi: [10.1016/j.ijlcrj.2019.100361](https://doi.org/10.1016/j.ijlcrj.2019.100361).
- Suh, J. B., Shim, H. S., & Button, M. (2018). Exploring the impact of organizational investment on occupational fraud: Mediating effects of ethical culture and monitoring control. *International Journal of Law, Crime and Justice*, 53, 46–55. doi: [10.1016/j.ijlcrj.2018.02.003](https://doi.org/10.1016/j.ijlcrj.2018.02.003).
- Transparency International (2024). Corruption perceptions index 2023. Available from: https://images.transparencycdn.org/images/Report_CPI2023_Eng.pdf
- Uganda Bureau of Statistics (2023). 2023 statistical abstract. Available from: <https://www.ubos.org/wp-content/uploads/publications/2023-Statistical-Abstract.pdf>

- United Nations (2018). The costs of corruption: Values, economic development under assault, trillions lost, says guterres. Available from: <https://news.un.org/en/story/2018/12/1027971>
- Vaithilingam, S., Ong, C. S., Moisescu, O. I., & Nair, M. S. (2024). Robustness checks in PLS-SEM: A review of recent practices and recommendations for future applications in business research. *Journal of Business Research*, 173, 114465. doi: [10.1016/j.jbusres.2023.114465](https://doi.org/10.1016/j.jbusres.2023.114465).
- Wijayanti, D. M., Senjani, Y. P., & Farah, W. (2024). The role of Machiavellian personality, altruistic personality, religiosity, whistleblowing system, and accounting firm size in mitigating fraud intention. *Journal of Financial Crime*, 31(1), 119–134. doi: [10.1108/JFC-02-2023-0034](https://doi.org/10.1108/JFC-02-2023-0034).
- World Bank (2020). Early detection of fraud and corruption in public procurement through technology. Available from: <https://www.worldbank.org/en/events/2020/10/06/early-detection-of-fraud-and-corruption-in-public-procurement-through-technology#:~:text=Together%2C%20this%20sum%20represents%205,the%20overall%20Official%20Development%20Assistance>
- World Bank (2025). GDP growth (annual %) - sub-Saharan Africa. Available from: <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=ZG> (accessed 3 August 2025).
- World Economic Forum (2018). Corruption is costing the global economy \$3.6 trillion dollars every year. Available from: <https://www.weforum.org/stories/2018/12/the-global-economy-loses-3-6-trillion-to-corruption-each-year-says-u-n/>
- Worldometer (2016). Oil reserves by country. Available from: <https://www.worldometers.info/oil/oil-reserves-by-country/> (accessed 3 August 2025).
- Xu, Q., Xie, N., Jiang, C., & Yang, S. (2024). Social media Q&A text semantic similarity and corporate fraud: Evidence from the shanghai stock exchange E-interaction platform in China. *Asia-Pacific Journal of Accounting and Economics*, 31(6), 1093–1122.
- Xu, Y., Gupta, V. K., Xue, S., Mortal, S., & Chen, H. (2025). Female management representation and corporate financial fraud: Do local gender norms play a role. *Journal of Business Ethics*, 202(4), 781–802.
- Yamane, T. (1973). *Statistics: An introductory analysis* (3rd ed.). New York: Harper & Row.
- Zeng, H., Yang, L., & Shi, J. (2021). Does the supervisory ability of internal audit executives affect the occurrence of corporate fraud? Evidence from small and medium-sized listed enterprises in China. *International Journal of Accounting and Information Management*, 29(1), 1–26. doi: [10.1108/IJAIM-02-2020-0020](https://doi.org/10.1108/IJAIM-02-2020-0020).
- Zuberi, O., & Mzenzi, S. I. (2019). Analysis of employee and management fraud in Tanzania. *Journal of Financial Crime*, 26(2), 412–431. doi: [10.1108/JFC-01-2018-0012](https://doi.org/10.1108/JFC-01-2018-0012).

Further reading

- Asiedu, K. F., & Deffor, E. W. (2017). Fighting corruption by means of effective internal audit function: Evidence from the Ghanaian public sector. *International Journal of Auditing*, 21(1), 82–99. doi: [10.1111/ijau.12082](https://doi.org/10.1111/ijau.12082).
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second Edition). Hillsdale, NJ: Lawrence Erlbaum Associates.
- World Bank (2023). GDP (current US\$) – Uganda. World Bank National Accounts Data, and OECD National Accounts Data Files. License: CC BY-4.0.

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