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EFFECT OF ACCOUNTANTS' SKILLS REQUIREMENT ON FRAUD RISK ASSESSMENT IN NIGERIAN PUBLIC SECTOR: MODERATED BY PROFESSIONAL ETHICS

Agnes Ibenre Nyor[1], Samuel Eniola Agbi[2], Samuel Gambo Joshua[3], Mohammed Nma Ahmed[4], Lateef Olumide Mustapha[5]

[1]Department of Technical and Vocational Education, Abdulkadir Kure University, Minna

[2,3,4,5]Department of Accounting, Nigerian Defence Academy, Kaduna, Nigeria

Corresponding Author(s) email/mobile: agnesibenre.nyor@akum.edu.ng /+234 (0)8053404012

Abstract

This study discussed the moderating effect of professional ethics on skills requirement of accountants and fraud risk assessment in the Nigeria. The research was carried out using quantitative approach, cross-sectional research design, a survey method of data collection and convenience sampling technique. Primary data was collected through questionnaire. The population of the study comprised of the 10,196 Nigerian public sector accountants from the Accountant General's Office out of which a sample size of 404 was scientifically selected. Descriptive statistics and Partial Least Square Structural Equation, reflective measurement model was used while Stata version 17.0 was the research technique. The result of the study revealed that Professional Skills Requirement has positive significant effect on fraud risk assessment while Professional Ethics was shown to have significantly moderated professional skills requirement and fraud risk assessment. The study recommended that, priority should be given to the development of relevant professional skills requirement among accountants involved in fraud risk assessment and that accountants should seek for means of improving their skills through regular training, certification and continuous professional education to effectively discharge their responsibilities. Similarly, there should be conscious efforts at exposing accountants to the basic codes of ethics relevant to the accounting profession as issued by the various accounting bodies both locally and internationally.

Keywords: accountants, fraud risk assessment, professional ethics, skills requirement

1. Introduction

Fraud in public institutions is not a new phenomenon; however, its persistence in emerging economies such as Nigeria continues to destabilize financial management, public trust, and socioeconomic development. In the Nigerian public sector, characterized by complex administrative processes, limited resources, and evolving regulatory requirements, the risk of fraudulent activities has necessitated renewed examination over prevention and detection mechanisms.

Fraud risk assessment is a systematic process by which organizations identify, measure, and mitigate risks related to fraudulent activities. It encompasses the

procedures and internal controls that public institutions employ to identify potential fraud, evaluate its likelihood and impact, and implement mechanisms to prevent or detect fraudulent behaviour. For decades, robust fraud risk assessment has been recognized as central to sound public financial management and economic sustainability (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2020). However, in Nigeria's public sector, challenges such as outdated control systems, limited technical expertise, and pervasive corruption have brought the effectiveness of these assessments into question.

Accountants in the public sector occupy a crucial frontline role in fraud detection and prevention. Their technical competencies and in particular, the specific skills required to navigate complex audits, forensic investigations, and predictive risk analyses, are pivotal to the accuracy and thoroughness of fraud risk assessments. Thus, skills such as critical thinking, investigative flexibility, data analysis, oral communication, written communication, and legal knowledge represent a dynamic set of competencies that can transform routine financial reviews into proactive fraud risk detection interventions. Study has shown that when accountants possess enhanced technical and analytical skills, organizations are better positioned to pinpoint internal vulnerabilities and pre-empt fraudulent activities (Popoola et al., 2017).

Technical proficiency alone may not however, guarantee effective fraud risk assessment. The quality of the decisions made by accounting professionals is equally influenced by their adherence to professional ethics. In contexts where pressures to compromise ethical standards exist, even highly skilled professionals may be prone to biased or incomplete evaluations. Therefore, this study introduces professional ethics as a moderating variable.

Professional ethics, encompassing integrity, objectivity, accountability, and a commitment to transparency, serve to reinforce the positive impact of enhanced skills on fraud risk evaluation processes. When a strict ethical framework is embedded in the work culture, it can amplify the efficacy of even the most sophisticated risk assessment techniques, ensuring that outcomes are not only technically sound but also morally robust (Nwanyanwu, 2018). Hence, this research examines how the skills requirements of accounting professionals directly affect fraud risk assessment practices in Nigerian public organizations, with a particular focus on the moderating influence of professional ethics.

Despite global advancements in fraud detection and risk management, Nigerian public sector organizations continue to struggle with the effective assessment of fraud risk. The overarching problem is twofold. First, there is an observable gap between the competencies accountants are expected to possess and the reality of their skill sets within many public institutions. This mismatch leaves organizations vulnerable to fraud through lapses in internal audit processes and risk evaluations.

Second, the moderating role of professional ethics remains underexplored in the context of fraud risk assessment. Although Popoola et al. (2017) has documented the direct influence of technical skills on fraud detection, there is a dearth of empirical research on how ethical standards shape or moderate these outcomes. In environments where public trust is fragile and corruption prevails; the ethical comportment of professionals can serve as both a safeguard and an enhancer of fraud risk assessment efficacy in the public sector.

Public sector can be referred to as all organizations which are not privately owned and operated, but are created, managed and financed by the government on

behalf of the public (Sejidi., et al 2023). Similarly, the public sector comprises organizations which are under the control of the public, as against private ownership whose objective involves the provision of services, where profit is not the main motive.

Nonetheless, it is not possible to realistically measure the utilization of resources performance in the public sector because of its objectives which are linked to the non-profit reason and the existence of intangible services whose benefits cannot be easily measured or quantified (Institute of Chartered Accountants of Nigeria [ICAN], 2019).

The loss of revenue due to fraud in the Nigerian Public sector is higher than all sectors of the economy put together (Association of Certified Fraud Examiners [ACFE], 2022). There is rarely a week that passes without the report of fraud or other fraudulent activities being reported in the Nigeria. Although, statistical data are not readily available to find out the level of fraud in the Nigerian public sector, but studies have argued that fraud has become prevalent and a cankerworm that has resisted all treatments.

There is need for study in Nigeria on the moderating effect of accountants' skills requirements and fraud risk assessment in Nigerian public sector. It is in view of this, that this study has considered professional ethics as a moderator on skills requirement of accountants and fraud risk assessment in Nigerian public sector.

In light of the aforementioned, this study raised and found answers to the following research questions:

i. What is the effect of Professional Skills Requirement (PSR) of Accountants on Fraud Risk Assessment in Nigerian public sector?
ii. Does Professional Ethics (PES) moderate the effect of PSR and Fraud Risk Assessment in Nigerian public sector?

The objective of this study is to evaluate the moderating effect of professional ethics on skills requirements of accountants and fraud risk assessment in Nigerian public sector. The specific objectives are to:

i. Investigate the effect of Professional skills requirement of accountants and fraud risk assessment in Nigerian public sector.
ii. Examine the moderating effect of professional ethics on skills requirement of accountants and fraud risk assessment in Nigerian public sector.

In accordance with the specific objectives of this work, the following research hypotheses are formulated and tested in the study:

H_{01}: Professional Skills requirement of accountants has no effect on fraud risk assessment in Nigerian public sector.

H_{02}: There is no moderating effect of professional ethics on skills requirement of accountants and fraud risk assessment in Nigerian public sector.

The significance of this research is multifaceted, spanning academic, professional, and policy dimensions. Academically, it contributes to the growing literature on fraud prevention by elucidating the synergistic effects of technical skills and professional ethics on fraud risk assessment. For practitioners and accounting educators, the findings underscore the necessity of revising curricular and professional training programs. By emphasizing both advanced technical skill development and ethical training, educational institutions and professional bodies can help produce a workforce that is better equipped to address the complex fraud challenges faced by Nigerian public institutions.

From a policy perspective, the study offers evidence-based recommendations to improve internal controls and financial oversight in the Nigerian public sector. In a

context where corruption and fraud can have far-reaching economic and social ramifications, implementing a dual emphasis on skills enhancement and ethical rigor could restore public confidence and significantly reduce financial vulnerabilities. The research is also expected to inform regulatory bodies and governmental agencies tasked with developing frameworks for fraud detection and prevention, thereby fostering a more transparent and accountable public administration.

This research covered the public sector accountants under the office of the accountant general of the federation in Nigeria, from where accountants are posted to government ministries, departments, and agencies who are engage in enforcement, regulation and investigation rely on for professional assistance in the areas of fraud and financial crimes detection and prosecution.

2. Literature Review

Conceptual Framework

The study proposed that FRA is the function of accountant's professional skills requirement and the effect is moderated by professional ethics. The conceptual framework of the work is presented in figure 1.

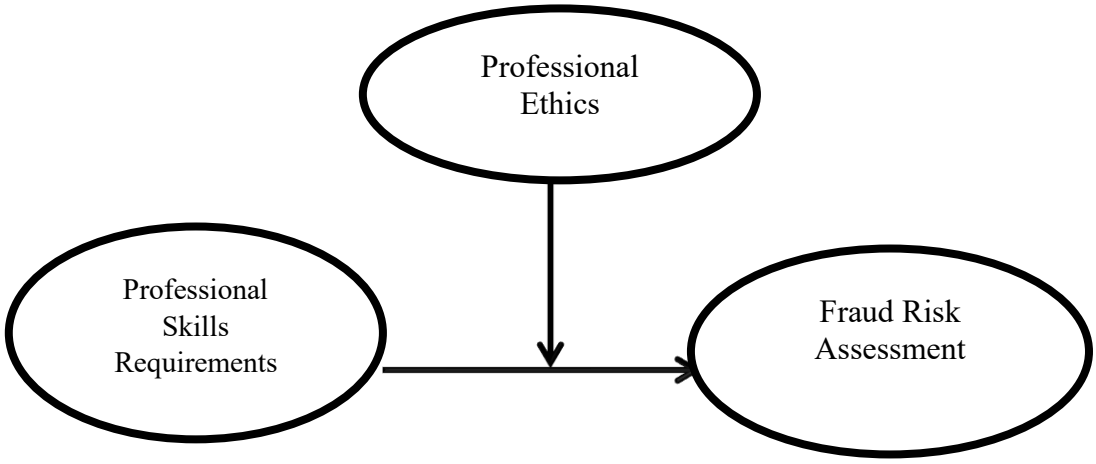


Figure 1: Fraud Risk Assessment (FRA)
Source: Author's Compilation (2025)

According to the Chartered Institute of Public Finance and Accountancy (CIPFA, 2020) explained fraud as any intentional false representation, including failure to declare information or abuse of position that is carried out to make gains, cause loss or expose another to the risk of loss. Fraud likewise includes false representation, theft, forgery, embezzlement, deception, misappropriation, concealment of material facts, and also cover omission, deception or manipulation of facts and intentional misrepresentation.

The Black's Law Dictionary (1997) describes fraud (also sometimes referred to as the fraudulent act), as an intentional perversion of truth for the purpose of inducing another in reliance upon it to part with some valuable thing or to surrender a legal right, a false representation of a matter of fact. Fraud is trickery and is classified into two, namely: internal fraud is most often committed by employees and officers of organisations, while external fraud is usually committed by organisations against individuals, individuals against organisations, and organisations against organisations.

The Association of Certified Fraud Examiners [ACFE] (2020) defined fraud as the usage of one's occupation for individual enrichment through the thoughtful misuse

or misapplication of the employing organization's resources or assets. Therefore, fraud can be said to be a complex crime incorporating multiple offences and behaviourial traits.

Fraud risk assessment is hence, a systematic evaluation that determines how vulnerable an organization is to fraudulent activities and lays out strategies to prevent financial loss, reputational harm, or legal repercussions. By pinpointing areas of potential weakness, organizations can implement tailored safeguards that support their strategic goals while proactively countering the rise of fraudulent activities (Vicente, 2024). FRA denotes competences that are an anti-dote to multiple internal and external sources of risks faced by organization (Odukoya & Samsudin, 2021).

As noted by Chui (2010) FRA does not only indicate the direction of the audit but also supports auditors ascertain the organization's environment and scope of audit procedures which are planned purposely to identify the possibility and consequence of fraud occurring in any organization. It involves an iterative process stage which are firstly, developing FRA framework; secondly, populate fraud risk; thirdly, rate likelihood and significance; fourthly, identify controls and assess alignment; fifthly, identify gaps; and lastly, remediation.

Millichamp and Taylor (2022) describe fraud-risk assessment as "the auditor's systematic identification and evaluation of factors that may give rise to material misstatement due to fraud" (p. 157). FRA is the accountant's ability to assess the risk-of-fraud to a defined standard in the real working environment. For this study, FRA is defined as accountant's skills and capacity for checking the vulnerability or the chances that fraud may occur within the public sectors' operating sphere. It is to be measured using 5-point Likert scale ranging from 5 (strongly agree to 1 (strongly disagree) of 4 items as adapted from Odukoya and Samsudin (2020) and ACFE (2020).

Professional Skills

Professional skills specifically required of a professional accountant is the application of investigative and analytical skills in the areas of accounting records, gathering and evaluating financial statement evidence, interviewing all parties related to an alleged fraud situation, and serving as an expert witness in a fraud case (ACFE, 2022).

Skills can be defined as a quality of the accountant which can be compared with competence as regards ability and other qualities required for activities in relation to fraud stoppage and detection. It is the ability to obtain sound understanding around how managers influence financial statement variables, and how to help in improving fraud detection skills (Ademola, 2021). Accountant skills are vital in fraud detection process. The skills requirements of accountants are "intellectual skills, technical and functional skills, personal skills, interpersonal and communication skills, and organisational and business management skills".

Accountants require exclusive skills to look at the evidence placed before them from different standpoints, having recognised different possible interpretations and the implications of the matter in hand (Mansour., et al 2020). According to Davis et al. (2010) and Ozili (2015), the skills an accountant/investigator should possess is classified into two distinct classifications. They are; core skills and enhanced skills.

Core skills are the fundamental skills needed to become a sound investigator. Different authors have identified varying core skills needed by an accountant among who are; Bhasin (2013) identified strong analytical abilities, written and verbal communication skills, creative mind-set and business acumen. Davis et al. (2010) identified the following as the top five core skills; critical and strategic thinking;

effective written communication; effective oral communication; and investigative ability/intuitiveness.

Enhanced skills are acquired through years of involvement in the profession in academia or industry. Grippo and Ibex as cited in Popoola et al. (2018) argued that the utmost skills of accountants come from experience in accounting, auditing, taxation, business operations, management, internal controls, interpersonal relationships, and communication. In Davis et al. (2010) the top enhanced skills for the forensic practitioner include: fraud detection, interviewing skills, analysis and interpretation of financial statements, electronic discovery, general knowledge of rules of evidence and civil procedure and information, testifying, knowledge of relevant professional standards, etc.

This study defined the skills of accountants as critical thinking, investigative flexibility, analytical proficiency, oral and written communication, and legal knowledge relevant to demonstrate competence in fraud risk assessment. This study adapts Davies et al. (2010) measurement of skills using a 5-point Likert scale ranging from 1 (strongly disagree to 5 (strongly agree) of 9 items.

Professional Ethics

Ethics are the moral values that an individual practises in governing his or her behaviour (Ezeagba & Abiahu, 2018). As opined by Enofe et al. (2015) key qualities that frequently appear in the codes of ethics of most professional bodies include; independence, integrity, objectivity, competence and judgment.

Accounting as a profession has developed its codes of professional ethics. The essence of the codes, is to provide professional accountants with guiding principle for conducting themselves in a fashion consistent with the tasks of the profession, predominantly when the accountant carries out professional judgment.

A professional accountant is indebted with certain ethical obligations to his profession, clients, and the society as a whole, even if at different times such obligations may conflict with his personal interest. In the exercise of professional judgment, an accountant must not let; management pressure, his greed, selfish interest or over-rule his professional and societal requirements. The accounting professional codes of ethics in practice include; competence, confidentiality, independence, integrity and objectivity (Akenbor & Onuoha, 2013).

Ethics can be defined as accountant's compliance with the basic five principles of: objectivity, professional competence and due care, confidentiality, integrity, and professional behaviour in the discharge of their duties within the work environment. Accountants, with skills who acts unethically cannot be relayed upon to effectually and efficiently discover and prevent-fraud in the Nigerian public domain. Ethics is also seen as a collective agreement between the FA and the public.

Ethics is likewise seen as an accountant's attempt to provide a guide to assist in formulating correct decisions under the circumstances (Ademola, 2018; Ademola et al., 2017). The code of ethics is intended as a guideline for the behaviour expected of an accountant in order to protect shareholders interests, in addition to providing excellent quality services and that the reputation of the accountant's work is not compromised.

This study explains professional ethics as, the accountant's exhibition of the essential principles of integrity, confidentiality, objectivity, professional competence and due care, and professional behaviour in the discharge of assigned responsibilities in the Nigerian public sector.

Theoretical Review

This subsection is concerned with the review of theory that is relevant to accountant skills and fraud risk assessment, the theory of Planned Behaviour as it serves as a useful guide, for predicting dishonest actions.

Theory of Planned Behaviour (ToPB)

The ToPB is an offshoot of the Theory of Reasoned Action (ToRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) that includes only the first two constituents of the model via; attitude and subjective norms. According to Cohen et al. (2010), the ToPB is a parsimonious model but has substantial power to explain disparities in intentions. The straightforwardness of the model makes it a veritable tool for understanding and clarifying the numerous studies conducted on ethical behaviour in organisations. The ToPB is very useful to predict dishonest actions (Beck & Ajzen, 1991).

As prominent by Al-Qeisi (2009), the ToPB does not recognise a person's volitional control before it addresses the issue of behaviours that happen and it contrasts from the ToRA owing to the inclusion of perceived behavioural control. This element accounts for circumstances where a person has less than absolute control over the behaviour. This can vary across circumstances and actions (Ajzen, 1991). As noted by Ajzen (2006) the ToPB deals with the backgrounds of attitude, subjective norms and perceived behavioural control, and hence, it assumes that behaviour is a role of salient beliefs applied to that behaviour.

The beliefs include; behavioural beliefs, normative beliefs, and control beliefs. As confirmed in a survey analysis by Carpenter and Reimers (2005) the ToPB can assist to shed more lights on unethical and fraudulent financial reporting as well as behaviours that are deliberate and planned. Ajzen notes that strong subjective norms can override weak attitudes or control, or augment them when they are already favourable (Ajzen, 1991).

An accountant who is moderately skilled may still perform diligent FRA if the ethics climate screams this is what good accountants do. Conversely, when ethical cues are muted, only exceptionally skilled professionals feel both willing and able to act. Professional ethics therefore moderates the indirect effect of skills on intention and ultimately on behaviour by intensifying or muting the subjective norm pathway.

Review of Empirical Studies

The accountants require excellent skills to look at the evidence before them from different standpoints to recognize different possible interpretations of that evidence and the implications of those interpretations for the matter in hand. Thus, a review of empirical works done on the effect of PSR of FAs and FRA in Nigeria as this provided the author with reasons for the findings of earlier researchers and the reasons for their results.

Popoola et al. (2016b) This study investigates the capability requirements for fraud prevention and detection in the Nigerian public sector. In this research, the level of fraud risk assessment (FRA) is treated as the dependent variable, while the skills requirements (SR) for forensic accountants and auditors serve as the independent variable.

The study employed a positivist paradigm, the research follows a cross-sectional survey design with a sample of 400 respondents. Quantitative methods, notably via PLS-SEM and SPSS, were used to analyze the data. The research establishes a significant positive relationship between forensic accounting skills and fraud risk assessment. Furthermore, it reveals that forensic accountants possess notably

higher levels of both skills and FRA capabilities compared to auditors. This suggests that as FAs improve their skills in fraud detection, prevention, and response, their effectiveness in mitigating fraud increases.

The study's results offer potential for an overall reduction in corruption while strengthening institutional and regulatory frameworks. However, the review notes gaps specifically, a temporal gap relative to more current research and the absence of a theoretical framework. These limitations pave the way for further exploration, including the integration of additional factors like attitude requirements and ethics as moderating variables.

Ademola et al. (2017) investigation centres on the impact of forensic accountants' skills (combined with ethics) on fraud prevention in Nigeria's public sector. In this study, fraud prevention is the dependent variable, while skills requirement acts as the independent variable. Utilizing a cross-sectional survey design, the study sampled 300 respondents. Data collection was achieved through self-administered questionnaires and later analyzed using PLS-SEM. The study confirms that a higher level of skills is a significant predictor of successful fraud prevention. In essence, enhanced forensic accounting capability correlates with more effective fraud prevention strategies. The findings suggest that increasing awareness and formalizing forensic accounting services potentially even making them statutory, could significantly curb fraudulent activities in the public sector. However, like the previous study, this work is criticized for lacking a solid theoretical underpinning. Additionally, the research was limited by its exclusive focus on public sector bodies (such as the accountant-general and auditor-general offices), thereby restricting the generalizability of its results to the private sector.

Fadilah et al. (2019) extends the discussion to an international context by examining how the forensic accounting skills of external auditors in Indonesia affect their ability to detect fraud. Here, fraud detection is the dependent variable, and forensic accounting skills constitute the independent variable. The research involves a sample drawn from Indonesia's "Big Four" accounting firms, with 370 auditors selected out of a population of 4,800 through random sampling (aided by Slovin's formula). A survey approach was combined with additional methods like interviews, document analysis, and rigorous statistical techniques, including validity and reliability tests (with criteria such as a minimum correlation coefficient threshold) and multiple regression analysis. The study finds that, skills such as auditing, communication, psychological, criminological, and ICT-related skills significantly impact fraud detection.

Conversely, other skills including investigative, legal, and traditional accounting skills, did not exhibit the same level of influence. Notably, external auditors' reviewing skills also play an important role in detecting fraud. While the study robustly demonstrates the specific skill sets that enhance fraud detection, its limitations include the narrow sample scope (exclusive to Big-4 firms) and the lack of disclosure regarding the study's timeframe as well as a theoretical foundation. These constraints limit how broadly the findings can be generalized.

Sumartono et al. (2020) This study investigates the skills of forensic accountants in the Indonesian public sector with a focus on how various skill sets influence their ability to expose fraud. In this research, the dependent variable is the overall skills of forensic accountants, while financial accounting skills serve as one of the independent variables. The study employs a survey research design, gathering quantitative data through questionnaires administered to 45 randomly selected auditors who have

relevant investigative experience from the Audit Board of the Republic of Indonesia. Data were analyzed using multiple regression analysis via SPSS.

The findings reveal a nuanced relationship between specific skills and the effectiveness of fraud exposure. Notably, investigative skills and business valuation skills show a significant positive effect on forensic accounting capabilities, suggesting that these skills enhance the ability to detect fraud.

Conversely, business skills (as defined in the study) appear to have a significant negative effect, and surprisingly, financial accounting skills had no discernible influence on improving fraud detection effectiveness. These insights imply that, for recruitment and training purposes in the public sector, the emphasis should be on strengthening investigative and business valuation skills among forensic accountants. However, the study's limitations is a relatively small sample size and potential biases stemming from self-reported perceptions, which could affect the generalizability of the findings.

Campos and Cruz (2021) examine the critical skills of expert accountants working within state public ministries and among Brazilian accountants. Recognizing that expert accountants are key to unveiling accounting fraud and ensuring that organizations use their resources appropriately, the researchers deployed a survey-based approach to identify which skills are most significant from two different viewpoints. The survey reached a large and diverse sample of 900 accountants and 300 prosecutors (a total of 1,200 respondents), selected using the national register of expert professional accountants. Data were collected using a well-structured, self-administered questionnaire based on a five-point Likert scale, sent electronically via institutional email. To examine the data, descriptive statistics provided an overview of the importance of each skill, while Pearson correlation analysis assessed the strength and direction of the observed relationships. The study's findings differ depending on the perspective considered. From the justice or prosecutor viewpoint, the influential skills were identified as technical flexibility, written communication, and investigative ability.

In contrast, expert accountants themselves rated deductive analysis, investigative ability, unstructured problem solving, and interviewing as paramount. The overlap in the importance of investigative ability across both groups underlines its critical role in effectively detecting fraud and managing related issues. Nonetheless, the study is not without its shortcomings, it is limited by its theoretical framework, geographical focus, and the number of variables considered, suggesting room for future research to broaden and deepen the analysis.

Collectively, the reviewed studies underscore a crucial insight; enhanced forensic accounting skills are directly linked to better outcomes in fraud prevention, detection, and response. While each study brings its own methodological strengths; such as rigorous quantitative analyses and clear variable delineations, they also share common weaknesses. Predominant among these are: lack of theoretical underpinning: None of the studies fully anchor their findings in a comprehensive theoretical framework, which the current research intends to address by incorporating variables like ethical considerations and attitude requirements.

Sample and Scope Limitations

The heavy reliance on data from the public sector (or even from a subset within external auditors) limits the ability to generalize results. Expanding these studies to include private-sector data, or diversifying the auditor pool beyond the Big-4, could provide broader insights. temporal gaps: An acknowledged period gap between earlier

studies and current research invites updates, suggesting that contemporary issues and changes in the regulatory environment must be factored in going forward.

The review makes it clear that advancing forensic accounting skills is not merely a technical or procedural improvement, it has the potential to drive systemic changes in how fraud is deterred and detected. Future studies could benefit from a more integrated approach that includes ethical frameworks and broader organizational contexts to further enhance the reliability and applicability of the findings.

The Moderating Role of Professional Ethics

On professional ethical requirement nationally, Ademola et al. (2017) investigate how the ethical requirement (ER) of forensic accountants serves as a capability factor in fraud prevention in the Nigerian public sector. With the dependent Variable as fraud prevention. Independent Variable Ethical requirement (ER) of forensic accountants. The study adopted a cross-sectional survey design. Primary data were collected using a structured questionnaire based on a 5-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree). A simple random sampling method was used to distribute 300 questionnaires to professional accountants working in the offices of the Accountant General (AGF) and Auditor General of the Federation (AuGF) in Nigeria. The quantitative data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Ethical requirements were found to be a significant predictor of fraud prevention. The results imply a direct relationship: the stronger the ethical values and conduct among forensic accountants, the more effectively they prevent fraud. The study was limited to the Nigerian public sector, excluding private establishments; this restricts the generalizability of the findings. However, only two variables (skills and ethics) were considered, and no underlying theoretical framework was explicitly stated.

Cohen et al. (2010) examine the impact of managers' attitudes serving as a proxy for ethics on corporate fraud in the United States. The research utilized a case analysis approach grounded in the theory of planned behavior. Data were collected by evaluating documented fraud cases from the corporate scandal fact sheet, which comprised 61 short vignettes and 39 detailed cases of corporate fraud. Press articles, sourced from the Factiva database, provided the evidential basis; the media was chosen due to its influential role in pressuring management. The study found that ethics, understood here as managerial morals or attitudes, emerged as a major fraud risk factor. The study suggests that the ethical (or moral) component in current auditing standards is not emphasized enough, often relegated merely under the term "attitude."

There is a need to enrich audit standards (like SAS 99) by defining and emphasizing ethical values more comprehensively. Strengthening the moral framework within auditing could enhance fraud detection and prevention measures. The study's domain is confined to the USA, and details on sample selection or data analysis techniques were not clearly delineated. It is not clear how transferable these findings are across different sectors or international contexts, inviting replication studies outside the United States.

Rehman and Hashim (2020) explore the impact of fraud risk assessment (FRA) on achieving good corporate governance in companies listed on the Muscat Stock Market in Oman, with professional ethics serving as an essential variable. Dependent variable was FRA while the independent variable professional ethics. A descriptive, cross-sectional survey approach was employed. Data were gathered using a five-point Likert scale questionnaire from all 115 Omani public listed firms (utilizing census

sampling). The analysis was conducted using PLS-SEM. Findings revealed that, there is a direct and significant relationship between FRA and professional ethics. The implementation and approval of robust FRA practices are linked to improved corporate governance, as they enforce ethical behaviour and effective fraud controls.

Organizations are encouraged to integrate FRA into their corporate governance guidelines. Embedding FRA as a control mechanism not only aids in fraud detection but also fosters good professional ethics organization-wide. However, the study focuses solely on publicly listed firms, excluding private companies, which limits the scope of its generalizability. No explicit theoretical framework is presented, and differences in domain or period coverage compared to similar studies are noted.

Across these studies, professional ethics emerges as a crucial element influencing both fraud prevention and corporate governance. Strong ethical values among forensic accountants and corporate managers lead to better fraud prevention outcomes. In Nigeria, ethical requirements directly translate to improved fraud prevention capabilities, while in the USA, ethics (through managerial attitude) is a pivotal risk factor in corporate fraud.

In the role of auditing standards, Cohen et al. (2010) highlight that current auditing standards may underplay the importance of ethics, suggesting a need for an explicit focus on moral values in fraud detection guidelines. This recommendation resonates with the Nigerian findings advocating for regular ethics training and ethical culture reinforcement.

Rehman and Hashim (2020) show that effective fraud risk assessment, bolstered by strong ethical foundations, can lead to better corporate governance outcomes. This establishes a link between ethical practices and sustainable governance structures. Common limitations include narrow sector focuses (often public sector only), small or region-specific samples, and the absence of comprehensive theoretical frameworks.

Future research may widen the scope by incorporating private-sector data, integrating additional variables such as attitude, knowledge, and skills together, and employing robust theoretical models to anchor the findings. These studies collectively emphasize that embedding ethical requirements into professional practice is not only vital for fraud prevention but also essential for broader corporate governance. Enhancing ethical awareness through effective training and revising auditing standards to more strongly emphasize ethics are recommended strategies that could lead to significant improvements in fraud detection and overall organizational integrity.

3. Methodology

This research was undertaken using quantitative approach and cross-sectional research design. The study embraced positivist paradigm, adopted cross-sectional research design and a survey method for data collection. Questionnaire was employed by means of Google Form. Participants were recruited via a public WhatsApp post containing a Google Forms link. Participation was entirely voluntary; therefore, the study employed a self-selection (convenience) sampling technique.

The population of the study consist of all the 10,196 public sector accountants in Nigeria as obtained from the service-wide Staff position as at December 31, 2009 who are knowledgeable due to their experience having worked as accountants for years, and as a result, should have response on what they feel should be the required capability of a FA in order to reduce the prevalence of fraud. The sample size was determined using Cohen et al. (2003) method for computing power for regression coefficients, the formula is as follows:

$$n = \frac{L}{f^{2.}} + k + 1 \qquad .. \qquad (1)$$

Where: n is the sample size; k is the number of predictors in the regression equation; f is an effect size measure for ordinary least squares regression (that is, 0.14, 0.26, 0.39, and 0.59); L is a tabled value corresponding to a specific power value. For predictor ordinary least squares regression with a Type I error of .05 and power of 0.80, L is equal to 7.85. Using the formula in equation (1), the sample size for this study will be arrived at as follows:

$$n = \frac{7.85}{(0.14)^2} + 3 + 1$$
$$= 400 + 3 + 1$$
$$= 404$$

This research used descriptive statistics and Partial Least Square Structural Equation Modeling (PLS-SEM) for data analysis while Stata version 17.0 was employed as data analysis technique. Independent variable is Professional Skills Requirement (PSR) measured by the use of 5-point Likert scales of 5 to 1 (strongly agree, agree, neutral, disagree and strongly disagree) with 4 being a positive response. Dependent variable is Fraud Risk Assessment (FRA) measured using 5-point Likert scales with 4 being positive responses ranging from 5 to 1 (strongly agree, agree, neutral, disagree and strongly disagree) with the moderator as Professional Ethics (PES) measured by means of 5-point Likert scales of 1 to 5 (not at all, rarely, sometimes, often and very often) with 4 being a positive response.

Questionnaires were adapted from different sources such as; Ademola et al. (2017); Dzomira (2014); Odukoya and Samsudin (2021); Popoola et al. (2015); etc., because developing a new questionnaire need to be validated through a reliability test to confirm the reliability of the measures (Findley et al., 2021; Straub et al., 2004). The questionnaire comprised of demographic information, close ended questions to get a response from all levels of accountants in the public sector accountants in Nigeria out of which 20 questionnaires were first administered for validity, reliability, and sensitivity tests for comments for a pilot study. Subsequently, the final questionnaire was drawn and administered to all the respondents.

Pilot Study

The instrument for this work was subjected to pilot test for validity and reliability. Validity is an indication of the degree to which the research tool measured the constructs being investigated Nyangori and Ndede (2018). Validity tests are of three types, which include content, criterion and related construct validity. This study focused on content validity which measures the degree to which the sample of the items represents the content that the test is intended to measure.

A pilot study was carried out by taking some of the questionnaires to some of the staff at the headquarter office of the Accountant General of the Federation in Abuja to be filled by the respondents at random. From the pilot study, the researcher was able to detect questions that need to be edited and those that were ambiguous. The final questionnaire was then distributed as a Google-form and used to collect the data for analysis after it was edited to ensure its completeness and consistency.

Model Specification

The model for this as presented below;

$$FRA_i = \beta_0 + \beta_1 PSR_I + PES + e_i \quad \text{.....(i)}$$

$$FRA_{it} = \beta_0 + \beta_1 PSR_i + \beta_2 PES + (PSR_i * PES_i) + e_i \quad \text{.....(ii)}$$

Equation 2: The effect of the moderator on the variables

Where: FRA = Fraud Risk assessment; PSR=Professional Skills Requirements; $\beta 0$=is the intercept; $\beta 1$= is the parameter to be estimated in the equation; $\beta 2$= Moderated variable; PES = Professional Ethics (the moderating variable); i= Number of samples; and e= error term.

4. Results and Discussion

This survey was undertaken between; October, 2023 to February, 2024. Electronic form of the questionnaire was sent out to WhatsApp platforms of the accountants and 216 responses were returned yielding a response rate of 53.5% (216/404). The responses can be said to be very high as Osma et al. (2022) in their research reported that, response rates normally range between 5-21%. Table 1 reports the demographic data on staff profile including sex, age, level of education (qualification) and professional affiliation.

Table 1

Respondent's Profile

Variable	Obs	Mean	Std. Dev.	Min	Max
Sex	216	0.713	0.453	0	1
Age	216	2.028	0.801	1	4
Education	216	2.472	0.909	1	4
Profession	216	1.685	0.557	1	3
Percentage analysis of Qualifications				**Total**	**Percentage**
HND				37	17.5%
BSc				60	27.6%
MSc/MA				91	41.9%
PhD				24	11.1%
ICAN				58	27.2%
ANAN				110	51.2%
CIMA				45	17.1%

Source: Stata 17.0 result output (2024)

Table 1 showed that, the respondents are about 71.3% male and 28.7% female, hence, it is assumed that there is gender in-balance in the views of the respondents on the subject matter since the male have more dominance.

The average age of the staff is in the range of 40-49 years old. About 41.9% of the respondents have MSc or MA as their highest academic qualification. Another 27.6% of the respondents are BSc holders while 51.2% are professional members of ANAN and another 27.2% are ICAN members. This shows that the respondents are well educated with the required knowledge of the answers they gave in the questionnaire.

Descriptive Statistics

The descriptive analysis for the moderating effect of professional ethics and professional knowledge requirement is shown in Table 2.

Table 2

Summary statistics for indicator variables

Indicator	Mean	sd	Median	min	Max	N
Q26	4.366	0.813	5	1	5	216
Q27	4.157	0.922	4	1	5	216
Q28	4.231	0.825	4	1	5	216
Q29	4.241	0.839	4	1	5	216
Q30	4.421	0.786	5	1	5	216
Q31	4.167	0.824	4	1	5	216
Q5	4.380	0.798	5	1	5	216
Q6	4.366	0.889	5	1	5	216
Q7	2.495	1.450	2	1	5	216
Q8	3.806	1.091	4	1	5	216
Q9	3.764	1.328	4	1	5	216
Q10	4.366	0.974	5	1	5	216
Q11	4.111	1.111	4	1	5	216
Q12	4.120	1.072	4	1	5	216
Q13	3.926	1.155	4	1	5	216
Q14	4.046	1.238	5	1	5	216
Q15	3.852	1.098	4	1	5	216
Q16	4.282	0.904	4	1	5	216
Q17	3.417	1.330	4	1	5	216
Q18	4.074	0.971	4	1	5	216
Q1	4.394	0.788	5	1	5	216
Q2	4.347	0.685	4	1	5	216
Q3	4.296	0.844	4	1	5	216
Q4	4.097	0.907	4	1	5	216

Source: Stata 17.0 result output (2024)

Table 2, from the three constructs of this study, PSR, PES and FRA, PSR construct, Q30 showed the peak mean value of 4.421 and a S.D of 0.786 (Q26 = 4.366; Q27 = 4.157; Q28 = 4.231; Q29 = 4.241; Q31 = 4.167) whereas the FRA construct disclosed the lowest mean value of 4.097 (Q1 = 4.394; Q2 = 4.347; Q3 = 4.296; Q4 = 4.097). Also, as can be seen in Table 4, the construct of PES indicated mean value of (Q5=4.380; Q6=4.366; Q7=2.495; Q8=3.806; Q9=3.764; Q10=4.366; Q11=4.111; Q12=4.120; Q13=3.926; Q14=4.046; Q15=3.852; Q16=4.282; Q17=3.417; Q18=4.074).

Table 3
Measurement model - Standardized loadings

Reflective:	**PSR**	**Reflective: PES**	**Reflective: FRA**
Q26	0.812		
Q27	0.660		
Q28	0.743		
Q29	0.685		
Q30	0.758		
Q31	0.704		
Q5		0.498	
Q6		0.633	
Q7		0.009	
Q8		0.437	
Q9		0.607	
Q10		0.732	
Q11		0.717	
Q12		0.722	
Q13		0.668	
Q14		0.699	
Q15		0.492	
Q16		0.661	
Q17		0.312	
Q18		0.595	
Q1			0.729
Q2			0.795
Q3			0.755
Q4			0.715
Cronbach	0.823	0.836	0.739
DG	0.871	0.869	0.836
Rho_A	0.836	0.865	0.742

Source: Stata 17.0 result output (2024)

From Table 3, the research examined the PLS-SEM measurement model, focusing on Professional Skills Requirement (PSR), Professional Ethics (PES) and Task Performance Fraud Risk Assessment (FRA). The reflective construct for PSR and PES is a tool used to measure the relationship between the latent variables. It comprises of multiple indicators with standardized loadings, indicating the strength and direction of the relationship between the variables.

The PSR construct includes indicators Q26, Q27, Q28, Q29, Q30 and Q31 with Q26 showing a significant positive loading. For PES, the reflective construct comprises indicators Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q17 and Q18. A positive significant relationship with FRA is observed with a loading of 0.852. The measures of reliability are critical for assessing the model's regularity. For PSR, Q26-Q31 has a strong positive relationship ranging from 0.685 to 0.812, whereas, PES, Q5-

Q18 has a strong positive relationship ranging from 0.717 to 0.732 and for FRA Q1, Q2, Q3, and Q4 have similar loadings that ranges between 0.715to 0.795.

Reliability measures for PSR, PES and FRA are Cronbach's alpha (0.863, 0.823 and 0.739) respectively, Dillon-Goldstein's (DG) are 0.871, 0.869 and 0.836 respectively, and while rho_A is 0.836, 0.865 and 0.742 for PSR, PES and FRA. Higher values for these measures indicate that, the indicators reliably measure their latent constructs. These reliability measures, help measure the robustness and consistency of the measurement model.

PSR's Cronbach alpha is 0.823, indicating good internal consistency. PSR is high at 0.871, indicating robust reliability. Rho_A is 0.836, highlighting the reliability of PSR. PES is reliable with Cronbach alpha of 0.836, higher at 0.869, and rho_A of 0.865 while FRA is also reliable, with Cronbach alpha of 0.739, DG of 0.836, and rho_A of 0.742, indicating the proportion of true score variance in the total score for FRA. The findings support the relevance and reliability of the chosen indicators for PSR, PES and FRA in the context of the study.

Table 4

Discriminant validity - Squared interfactor correlation vs. Average variance extracted (AVE)

	PSR	PES	FRA
PSR	1	0.235	0.298
PES	0.325	1	0.346
FRA	0.298	0.346	1
AVE	0.531	0.346	0.561

Source: Stata 17.0 result output (2024)

Table 4, is focused on discriminant validity, it presents squared inter-factor correlations and Average Variance Extracted (AVE) for the variables PSR, PES and FRA. The squared inter-factor correlation amongst PSR, PES and FRA is 0.298, and with all the variables having an AVE of 0.531, 0.346 and 0.561 respectively. These values are presented in the lower triangle of the matrix, indicating the correlations between the latent constructs.

It is essential to note that, the squared inter-factor correlation is lower than the AVE values for PSR, PES and FRA, signifying satisfactory discriminant validity. This indicates that, the latent constructs are distinct and not excessively correlated, supporting the idea that they measure different underlying concepts.

Table 5

*Structural model - Standardized path coefficie**nts (Bootstrap)***

Variable	FRA
PSR	0.312
p-value	(0.000)
PES	0.410
p-value	(0.000)
r^2_a	0.406

Source: Stata 17.0 result output (2024)

Table 5 is a presentation of the result of the structural model using standardized path coefficients which was gotten through bootstrap analysis for model 1. The variable in focus is PSR, with a coefficient value of 0.312 representing a positive significant

effect of PSR on the dependent variable (FRA). The p-value of 0.000 suggest a highly significant relationship between PSR and the associated construct (FRA) in the structural model. This is in agreement with the findings of Popoola et al. (2016).

Whereas, the moderator PES has the coefficient of 0.410 and the p-value of 0.000 signifying that PES positively and significantly moderates the relationship between PSR and FRA. The R-squared adjusted (R^2_a) value of 0.406 provides an insight into the proportion of variance in the dependent variable that can be explained by the independent variable and other variables in the model. This indicates that approximately 40.6% of the variability in the dependent variable is accounted for by the variables in the model, with PSR being a significant contributor.

These findings emphasize the robustness of the relationship between PSR and the dependent variable, as evidenced by both the high coefficient and the statistical significance indicated by the low p-value. This finding is in accordance with Ademola et al. (2017); Rehman and Hashim (2020).

Table 6

Correlation of latent variables

	PSR	PES	FRA	PSRPES
PSR	1.000			
PES	0.570	1.000		
FRA	0.546	0.588	1.000	
PSRPES	0.843	0.892	0.597	1.000

Source: Stata 17.0 result output (2024)

Table 6 represents the correlation of latent variables, PSR, PES and FRA. The correlation between PSR and FRA is 0.546 while that of the moderator PES, is 0.588. This strong positive correlation suggests a significant and positive relationship between the latent variable and the moderator, indicating that as PSR increases, there is a corresponding increase in FRA.

5. Conclusion and Recommendations

From the study, PSR has a coefficient of 0.312 indicating a positive significant effect of PSR on the dependent variable (FRA) with a p-value of 0.000 suggesting a highly significant effect on PSR and the associated construct (FRA) in the structural model. The positive statistical results affirm that robust skills in accountants are essential for enhancing fraud risk assessment in Nigeria's public sector.

The moderator PES also has the coefficient of 0.410 and the p-value of 0.000 signifying that PES positively and significantly moderates the effect of PSR and FRA. The moderating effect of professional ethics reinforces that ethical practices are vital for maximizing the impact of forensic skills. These findings emphasize the robustness of the relationship between PSR and the dependent variable, as evidenced by both the high coefficient and the statistical significance indicated by the low p-value.

It will therefore, be concluded on the basis of the findings of the research that, professional skills of FA is a significant capability requirement in the workplace for the Nigerian public sector accountant to be effective and efficient in carrying out fraud investigation. Hence, it is strongly recommended that Nigerian public sector accountants should continuously upgrade their accounting skills. Likewise, there should be deliberate and consistent efforts to integrate ethics training into the professional development programs of forensic accountants. Such measures would ensure a higher degree of accountability and better fraud detection outcomes.

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