

Effect of Forensic Accounting Techniques on Transparency (A Study of Plateau State Internal Revenue Service)

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ABSTRACT

This study investigated the effect of forensic accounting techniques on transparency (A study of Plateau State Internal Revenue Service). A survey design was adopted for the study. The service has a total population of 376 staff. The population constitutes of Accountants, Tax Officers, Auditors and Legal staff involved in forensic accounting activities and transparency. Using Taro Yamane, the sample size was determined to be 194. The study employed primary data. Data was analyzed using the multiple linear regression analysis with the help of Statistical Packages for Social Sciences (SPSS 26). Findings revealed that ratio analysis technique has a statistically significant negative effect on transparency in Plateau State Internal Revenue Service. It also revealed that reviewing financial statement technique has positive and no significant effect on transparency in Plateau State Internal Revenue Service. It was recommended that Plateau State Internal Revenue Service (PSIRS) should routinely apply ratio analysis in audits and internal reviews due to detect manipulation, underreporting, and financial misstatement early, improving overall transparency in revenue reporting. It was also recommended that Plateau State Internal Revenue Service (PSIRS) should educate staff members on the importance of forensic accounting techniques and should invest in regular training programs on digital forensics, fraud detection tools, and investigative accounting methods.

Keywords: Forensics accounting techniques, transparency, ratio analysis technique, accountability

INTRODUCTION

At a global level, financial fraud and corruption pose major threats to public governance and economic stability. High-profile scandals such as the collapse of major financial institutions and corrupt practices within multinational organizations have highlighted the limitations of traditional financial oversight and the critical need for forensic accounting (Jofre & Gerlach, 2018). Forensic accounting frameworks are increasingly integrated into public sector financial systems across Europe, North America, and Asia, where governments seek to enhance transparency and accountability by embedding forensic practices into audit and compliance structures. Academic research indicates that the application of forensic accounting techniques, including forensic data analytics, digital forensics, and risk assessment methodologies, significantly improves the detection of financial fraud. Advanced analytical tools such as machine learning, data mining, and pattern recognition are leveraged to process large volumes of financial data, enabling forensic accountants to uncover irregular patterns that conventional audits might miss (Jofre & Gerlach, 2018). These innovations contribute to transparent financial reporting by exposing hidden anomalies and strengthening stakeholders' confidence in government financial systems.

Despite global advancements, forensic accounting adoption in Africa lags behind, largely due to structural, educational, and capacity-related constraints (Herbert et al., 2017). African public sectors face complex challenges, including pervasive corruption, weak internal controls, and limited forensic expertise. Several studies highlight that the density of fraud and financial crimes tends to be elevated in Sub-Saharan Africa due to systemic governance weaknesses (Herbert et al., 2017). However, there is growing recognition of the importance of forensic accounting techniques across the continent as a tool for combating corruption and improving transparency in public financial systems. In Zimbabwe, for example, research demonstrates that forensic accounting strengthens public sector accountability and constrains corrupt practices by providing evidence-based

investigations and supporting anti-corruption frameworks (Moyo & Ndlovu, 2025). Similarly, in South Africa and other jurisdictions, integrating forensic accounting techniques into government financial processes has shown promise in improving oversight and reducing financial irregularities. Nevertheless, challenges such as lack of trained personnel, inadequate technology, and institutional resistance limit the effectiveness of these mechanisms in many African contexts (Ubi, Ariyo & Chimezie, 2025).

Nigeria, Africa's largest economy by population and one of the continent's most resource-rich states, has longstanding issues with financial mismanagement and corruption in both federal and state public sectors. Public sector fraud, including embezzlement of funds, misreporting in government financial statements, and corruption in revenue agencies, has undermined public confidence and slowed economic development. Literature suggests that traditional statutory auditing in Nigeria has often been ineffective in detecting and deterring fraud, leading to an increased demand for forensic accounting techniques in public sector financial oversight (Akpootu & Yusuf, 2025; Dada & Jimoh, 2020).

Transparency is fundamental to the effective functioning of public financial management systems worldwide. Governments and public sector agencies generate and manage vast amounts of financial resources, and the integrity of these resources largely depends on transparent reporting, ethical compliance, and robust mechanisms for detecting and preventing financial irregularities. A major challenge in both developed and developing economies is financial fraud, corruption, and misappropriation of public funds, which undermine governance and erode public trust (Hajjat et al., 2024). Forensic accounting has emerged as a specialized field designed to address these challenges by combining accounting, auditing, and investigative techniques to uncover and prevent financial misconduct. Broadly, forensic accounting examines financial records, identifies irregularities, and supports legal or disciplinary actions where fraud is detected, thereby enhancing transparency and accountability in organizations. In the context of internal revenue services and tax agencies, which are critical for revenue mobilization and public service delivery, forensic accounting plays a pivotal role in strengthening governance frameworks, discouraging fraud, and improving compliance with statutory obligations (Hajjat et al., 2024).

In Nigeria's public sector, forensic accounting has been examined in a variety of contexts - from anti-graft agencies to internal revenue services. For example, research on Lagos State Government demonstrates that the limited use of forensic accounting contributed to minimal fraud detection and prevention, calling for institutional reforms and broader adoption of forensic practices (Aliu et al., 2024). Empirical studies in southwestern Nigeria also show that forensic accounting techniques significantly affect corruption control and quality of governance, reaffirming that integrating forensic practices enhances public sector transparency (Alao et al., 2023). Furthermore, research on North Central states' internal revenue service's highlights that forensic liability analysis improves tax fraud detection, suggesting positive implications for tax administration systems, including state revenue services like the Plateau State Internal Revenue Service (Wunyi & Uyagu, 2025). Related studies emphasize the benefits of forensic accounting for fraud prevention within the Nigerian public sector, including fraud risk assessment, data analysis, document examination, and digital forensic techniques all contributing to stronger internal controls and governance (Alkali et al., 2025). Despite this evidence, practical implementation remains inconsistent due to factors like inadequate training, limited technological tools, and bureaucratic resistance. Many public agencies lack dedicated forensic accounting units, and professional capacity is often underdeveloped, limiting the full realization of forensic accounting's potential in enhancing transparency and accountability within Nigeria's revenue systems (Aremu & Olayinka, 2020; Dada & Jimoh, 2020).

Plateau State Internal Revenue Service (PSIRS) is mandated to assess, collect, and account for internally-generated revenue for Plateau State, Nigeria. One recurring issue of transparency is insufficient public access to detailed revenue data. Although aggregate figures (e.g., total IGR) are announced like the state surpassing ₦31 billion in 2024, breakdowns of how revenue is collected, allocated, or spent are not consistently published. Similarly, Officials have also highlighted difficulty tracking revenue from sectors like mining, where significant capital flows occur but the state receives relatively little revenue. The government cannot accurately monitor taxable activity (Oliver, 2025).

Despite policy reforms, including automation of revenue systems and periodic audits, PSIRS continues to face challenges related to revenue under-reporting, suspected fraudulent activities, and weak enforcement of compliance (Isuwa & Aminu, 2022). These challenges not only undermine the integrity of financial reporting

but also constrain the state's capacity to fund essential services and development initiatives. While forensic accounting techniques offer promise as a mechanism to enhance detection and prevention of financial irregularities, there is limited empirical evidence on their actual effect on transparency within PSIRS. Existing studies in the Nigerian context have largely focused on private sector application of forensic accounting or on generalized anti-corruption strategies without in-depth assessment of internal revenue institutions (Bello & Abdullah, 2019). Despite global acknowledgment of forensic accounting as integral to enhancing transparency in financial operations, its adoption and effectiveness in Nigerian state revenue agencies especially PSIRS remain under-explored and poorly documented. In addition, without empirical evidence on how forensic accounting techniques influence transparency outcomes in PSIRS, policymakers and stakeholders lack the necessary insights to design interventions that can effectively reduce fraud, strengthen accountability, and improve revenue performance. This study seeks to fill this empirical gap by investigating the effect of forensic accounting techniques on transparency within Plateau State Internal Revenue Service. The specific objectives include:

1. To examine the effect of ratio analysis technique on transparency in Plateau State Internal Revenue Service
2. To examine the effect of reviewing financial statement technique on transparency in Plateau State Internal Revenue Service

The following research hypotheses shall be tested. They include;

1. H_{01} : There is no significant effect of ratio analysis technique on transparency in Plateau State Internal Revenue Service
2. H_{02} : There is no significant effect of reviewing financial statement technique on transparency in Plateau State Internal Revenue Service

LITERATURE REVIEW

Concept of Transparency

Transparency as an ethical guideline involves fulfilling moral duties Gbegi, Duenya, & Ipevnor (2019). It pertains to the openness of government towards its citizens, implying the provision of timely and reliable information about government decisions and performance to the public. This includes disclosing governmental actions, maintaining accurate records, and ensuring accessibility to information for various sectors of society, such as investors, researchers, communities, the media, and ordinary citizens (Appah, et al, 2021). Castillo and Gabriel (2020) suggest that actualizing transparency allows both internal and external governance stakeholders to scrutinize, access, and influence government operations. Transparency aims to make government and governance more accountable to public scrutiny and encourage increased citizen participation (Castillo, et al, 2020). Mandating transparency ensures the responsible and effective utilization of resources. Regardless of the degree to which transparency and accountability are upheld, adhering to these principles underscores the importance of carefully evaluating potential expenditures and the allocation of government funds, thereby deterring corruption and unethical conduct (Millie, et al, 2022).

Concept of forensic accounting techniques

Forensic accounting is a specialized area of accounting that combines accounting, auditing, and investigative skills to examine financial information suitable for use in legal proceedings. It focuses on uncovering fraud, financial misrepresentation, and economic crimes through systematic analysis and interpretation of financial data. The term "forensic" implies the application of accounting methods in a court of law, meaning that findings must be accurate, objective, and legally defensible (Crumbley et al., 2015). Forensic accounting techniques are the specific methods and procedures applied to detect, investigate, and prevent fraud and financial irregularities. The increasing complexities of business operations, globalization, and advancements in technology have significantly expanded the scope of financial crimes, thereby increasing the demand for forensic accounting.

Organizations and governments now rely heavily on forensic accounting techniques to enhance transparency, strengthen internal controls, and support litigation processes (Rezaee & Riley, 2010).

Forensic accounting techniques refer to the tools and systematic approaches used by forensic accountants to identify, analyze, and document financial irregularities. These techniques integrate accounting analysis, auditing procedures, investigative skills, and technological tools to produce evidence suitable for litigation (Singleton & Singleton, 2010). The ultimate goal is to provide factual and unbiased financial evidence that can be presented in courts or regulatory hearings. These techniques are not limited to fraud detection alone; they also extend to dispute resolution, valuation of damages, money laundering investigations, and bankruptcy analysis. The effectiveness of forensic accounting depends largely on the proper application of appropriate techniques to specific cases. Forensic accounting techniques play a vital role in combating financial crimes and promoting corporate accountability. They assist organizations in detecting fraud early, thereby minimizing financial losses and reputational damage. Governments rely on forensic accounting to investigate corruption, tax evasion, and money laundering activities (Rezaee & Riley, 2010). Forensic accounting techniques are used by investigative accountants to look at financial records, dig into their background and present a clear and concise account of what they mean and how they impact a particular matter that they have been asked to consider (Jaxa, 2023).

Concept of ratio analysis technique

Ratio analysis technique is a technique used by forensic accountants to analyze the financial health and integrity of an organization by comparing its financial ratios to industry benchmarks or historical performance. This method involves evaluating key ratios, such as the profit margin, debt-to-equity ratio, and return on assets, to identify abnormalities that might suggest fraudulent activity. Forensic accountants use ratio analysis to detect inconsistencies in financial records that are indicative of tax evasion, such as the underreporting of income or overstating of expenses. Anomalies in ratios can provide important clues about financial manipulation, prompting further investigation into suspicious transactions or financial practices (Rezaee, 2015).

As a forensic accounting approach, ratio analysis is performed to evaluate data on a historical, industry, or benchmark basis. It detects fraud by studying data patterns to identify potentially deceptive transactions. Ratio analysis is used as a forensic accounting technique to assess data on a historical, sectoral, or benchmark basis. By examining data trends to find possibly fraudulent transactions, it can spot fraud. Finding the connections between different financial statement items and these items and nonfinancial data is done through ratio analysis. While a horizontal analysis examines the ratio of change in several financial statement items over a given period, a vertical analysis compares features of a financial statement to a common base item. Contrarily, vertical analysis transforms financial figures into percentages.

The method is especially useful for detecting fraud because percentages are easily comprehended by all people. When examining changes in the income statement using vertical analysis, gross sales are set to 100% and all other numbers are converted to a percentage of sales. The horizontal analysis looks at alterations throughout time. Horizontal analysis converts changes in quantities from period to period to percentages, whereas ratios and vertical analysis convert statements to numbers that are easier to interpret and compare the data from period to period. This method is used to analyze digital data ratios in order to find signs of fraud operations (Jamil, 2012).

Concept of Reviewing Financial Statement

Tamplin (2022) said that financial statements are key tools businesses use to track and provide insights into a company's overall financial performance and health. These reports provide a snapshot of a business's financial situation, results of operations, and cash flows. While financial statements are used internally to guide management decisions, they are also used by external stakeholders such as investors, creditors, analysts, and regulators. Financial statements aid in making decisions about investing in a company, lending money to a company, or providing other forms of financing. There are three main types of financial statements: balance sheets, income statements, and cash flow statements. Accounting records are all of the documentation and books involved in the preparation of financial statements or records relevant to audits and financial reviews. Accounting records include records of assets and liabilities, monetary transactions, ledgers, journals, and any supporting

documents such as checks and invoices. Accounting records are often reviewed for audits, compliance checks, or other business-related necessities (Kingsley, 2020).

Theoretical Review

Institutional theory

Institutional theory emerged in the late 1970s through the work of John Meyer and Brian Rowan, aiming to delve deeper into how organizations align with, interact with, and are influenced by their societal, state, national, and global contexts. Institutional theory, a perspective in sociology and organizational studies, investigates how institutions mold behavior and structure within organizations by examining factors like rules, norms, and cultural values that govern behavior. Institutional theory, as articulated by Scott and Meyer, posits that its core components include institutions, organizations, and actors. They argue that institutions can shape the behaviors and perspectives of individuals within organizations. Additionally, individuals within these organizations can influence institutions by instigating changes within them, thus reshaping the institution itself Jamaluddin, et al., (2023). This concept is supported by Meyer and Scott (1983), who assert that existing organizations often encounter social pressures, requiring them to align their organizational structures and activities while collaborating with other entities to achieve societal legitimacy, effectiveness, and rationality.

This theory relates to this work in that institutional theory aids in comprehending how formal rules, regulations, and informal norms impact transparency practices. Transparency is essential for good governance, and institutional theory suggests that the effectiveness of forensic accounting techniques helps in promoting transparency and this relies on the institutional environment in which they operate. The theory explains how forensic accounting techniques improve transparency through fraud detection, improved reporting reliability, deterrence effect, or strengthening internal controls.

Empirical Review

Olubisi (2026) study investigated the effect of forensic accounting expertise (specifically forensic investigative skills, legal knowledge, auditing techniques, and financial ratio analysis) on tax fraud detection in Nigeria's FIRS. Anchored on the positivist philosophy and using a quantitative research design, the study targeted a population of 179 FIRS professionals out of which 168 responded. A stratified random sampling technique was adopted, and data were collected via structured questionnaires. Reliability of the instrument was confirmed using Cronbach's Alpha ($\alpha = 0.85$), and data were analysed using descriptive statistics, correlation, and multiple regression with SPSS 17.0. The findings revealed that forensic investigative skills and legal knowledge had positive and significant effects on tax fraud detection. However, auditing techniques and financial ratio showed significant but negative effects. The study concluded that while investigative and legal competencies enhance tax fraud detection, the current application of auditing and ratio analysis may be ineffective or misaligned. It recommends targeted training in forensic investigation and legal procedures, as well as a review and modernization of auditing and ratio analysis techniques to improve the efficacy of fraud detection in Nigeria's tax system.

Wetnwan & Gai (2025) investigated the role of forensic accounting in fraud prevention in the Nigerian public sector. Survey design was adopted, and a 5-point likert scale questionnaire was adapted for data collection. Multiple regression analysis was used to analyse the data with the aid of SPSS version 23, and the results led to the rejection of all five null hypotheses. The findings indicate that Internal control, forensic audit, forensic accounting analysis, litigation advisory and financial evidence all positively predict fraud prevention significantly. The study concludes that forensic accounting plays a crucial role in fraud prevention in the Nigerian public sector. The study recommends the establishment of internal control unit, forensic audit units, used of financial accounting analysis, litigation advisory and the use of financial evidence in fraud prevention in the Nigerian public sector.

Uche, Farouk & Uyagu (2025) investigated the effect of forensic accounting techniques on fraud detection by professional accounting firms in Plateau State. A survey design was adopted for the study. The population of the study consisted of 6 accounting and auditing professional firms in Plateau State. Oral interview was used to

ascertain the total number of staff from these firms totaling 203, whereby a sample size of 135 was determined using Taro Yamane formula. A total of 135 copies of questionnaire were administered on the selected respondents. However, 129 copies were retrieved. The study employed the use of structured questionnaire as method of data collection and the hypotheses were tested using multiple regression as method of data analysis. Findings shows that data mining technique had a positive and significant effect on fraud detection by Professional Accounting Firms in Plateau State; reviewing financial statement technique had a negative and significant effect on fraud detection by Professional Accounting Firms in Plateau State; analyzing accounting records techniques have positive and not significant effect on fraud detection by Professional Accounting Firms in Plateau State and Internal control charts have positive and significant effect on fraud detection by Professional Accounting Firms in Plateau State. The study recommended Professional Accounting Firms and other private organizations should select data mining software that integrates with existing accounting systems; Professional accounting firms should maintain the services of forensic accountants to review their financial statements and transactions at the end of the period of transactions.

Obot & Effiong (2025) examined forensic accounting techniques as tools for Nigerian Practitioners. The study adopts a qualitative approach, involving case studies and document analysis. The case study method provided a deep exploration of specific instances where forensic accounting techniques were successfully employed to uncover financial fraud in Nigeria; while the document analysis method involved a systematic review of existing literature, regulatory frameworks, and policies that govern forensic accounting in Nigeria. The case study examined public sector embezzlement case involving inflated contracts where over NGN 2 billion was misappropriated. The approach considered Data Collection, Data Mining, Benford's Law, Digital Forensics and Comparative Analysis as tool. IDEA (Interactive Data Extraction and Analysis) and ACL (Audit Command Language) was used for data mining and fraud detection. Another case study considered bank mismanagement case which involved a high-profile incident within a commercial bank in Nigeria. In this case the data were collated through analysis of bank statements, internal memos, and loan approval documentation, interviews conducted with whistleblowers, affected customers, and implicated bank employees while System Logs were reviewed base on digital transaction logs to identify unauthorized activities. The results for case 1 and case 2 showed that NGN 1.2 billion and NGN 200 million were recovered respectively and repayment agreements with some beneficiaries. On the whole, the findings underscored the need for enhanced internal controls, continuous monitoring, and capacity building to strengthen the financial sector against similar risks in the future.

Anipiriworima, et al (2025) examined the effect of forensic accounting skills on fraud management of selected federal Ministries, Departments and Agencies (MDAs) in Nigeria. The study used primary sources of data, a cross-sectional research design, a quantitative research approach, and a structured closed-ended questionnaire with five-point Likert scale options. A stratified sampling technique was used for the selection of the four federal ministries, departments, and agencies in Nigeria. The study was underpinned by both profession theory and fraud pentagon theory. The SPSS version 23 software statistical package was used for the coding of the questionnaire and data analysis for running both descriptive statistics, correlation, and multiple regression analysis. The regression results indicated that accounting and auditing skills and forensic investigation skills have a positive and significant effect on the fraud management. This implies that any unit increase in both accounting and auditing skills and forensic investigation skills will also result in a unit increase in the fraud management of federal ministries, departments, and agencies in Nigeria. The study recommended that the government should provide avenues for training forensic accounting experts. Through the effective performance of forensic accountants in the country, the Nigerian government can restore its integrity both locally and internationally.

Uduehe, Okoye & Amahalu (2024) ascertained the relationship between forensic accounting techniques and fraud management of commercial banks in Awka-South Anambra State, Nigeria. Descriptive survey research design was used for the study. The population of this study consisted of seven hundred and fifty eighty (758) staff of the thirteen (13) commercial banks in Awka South, Anambra State Nigeria from which a sample size of 262 was selected. Primary data for the study were collected from the respondents using structured questionnaire. The tools for descriptive analysis were percentage analysis, frequency distribution and mean. Hypotheses were tested using regression analysis. The finding of the study showed that: there is a significant positive relationship between data mining techniques and artificial intelligence biometrics for fraud management in listed commercial banks; computer-assisted audit techniques significantly and positively relate with artificial intelligence biometrics for fraud management; ratio analysis techniques have a significant and positive relationship with

artificial intelligence biometrics for fraud management; public documents review techniques have a significant and positive relationship with artificial intelligence biometrics for fraud management. The study recommends that the Information Technology and data analytics teams of listed commercial banks in Awka-South should enhance their data mining capabilities to better integrate with AI biometrics systems, thereby improving fraud detection effectiveness.

Ogwiji (2023) considered Forensic Accounting and Financial Crimes: An Empirical Evidence from Operatives and Trainers of the Economic and Financial Crimes Commission, Academy, Nigeria. The study employed cross-sectional design and a survey method. of the 110 questionnaires distributed, 53 questionnaires were returned valid and analysed. The study used PLS-SEM (SmartPLS 3.0) and IBM SPSS ver. 20.0 as the primary statistical analysis tools. The results of the study confirm that Knowledge and Expertise and Support Services of a forensic accountant has a significant positive effect on Financial Crime and it shows that investigation of crime and corruption has an insignificant negative effect on financial crime. Thus, the findings revealed that the forensic accountant attributes have significantly higher levels of KE, LSS on FC concerning fraud prevention, detection, management and response. Also, investigation of corruption discourages financial crime though not on high. The implication of this study might result in the overall reduction of fraud and fraudulent acts, promote institutional, regulatory and legal framework, and create awareness amongst the accounting and auditing institutions in the Nigerian public sector.

METHODOLOGY

A survey design was adopted for the study. In this study the population would be the workers of Plateau State Internal Revenue Service (PSIRS). The service has a total population of 376 staff (Field Survey, 2026). The population constitutes staff such as such as Accountant, Tax Officer, Auditor and Legal involved in forensic accounting activities and transparency. These individuals were selected because of their direct involvement in implementing forensic accounting practices and their familiarity with the transparency. Using Taro Yamane, the sample size was determined to be 194. A total of 194 questionnaires were distributed out of which 181 questionnaires were retrieved for the study. The study employed primary data. The data were collected through a structured questionnaire, which was distributed to the respondents. The study used a structured questionnaire, which comprised of close-ended questions to understand the influence of forensic accounting technique on transparency in Plateau State. A stratified random sampling technique was used to ensure that respondents from various departments within Plateau State Board of Internal Revenue Service, such as Accountant, Tax officer, Auditor and Legal, were appropriately represented. Stratification was based on job roles, and respondents were randomly selected from each stratum. Data was analyzed using the multiple linear regression analysis with the help of Statistical Packages for Social Sciences (SPSS 26).

The model for this study thus is stated in its functional form below:

$$T = f(\beta_1 \text{RAT} + \beta_2 \text{RFST})$$

However, in order to take into account the deterministic and stochastic aspects of the model it is therefore stated in an econometric form:

$$T = \beta_0 + \beta_1 \text{RAT} + \beta_2 \text{RFST} + \mu$$

Where:

T = Transparency

RAT = Ratio Analysis techniques

RFST = Reviewing Financial Statement Techniques

β_1, β_2 are the coefficients

β_0 = Constant

μ = error term for the Model that is, the difference between the observed value and the predicted value of transparency in the organization

Validity

Validity is the degree to which an instrument captures what it is supposed to capture. For the purpose of this study, the researcher used construct validity to address validity within the study to measure the significance of the data collection instruments related forensic auditing on fraud prevention and detection. The validity of the measurement instrument would be dissected into content and construct validity. Construct validity would be performed to assess the extent to which test instruments actually measure what theory purports (Nyahas, 2017).

Table 1 Average Variance Extracted (AVE)

Variable	Average Variance Extracted (AVE)
Ratio analysis technique	0.712
Reviewing financial statement	0.683
Transparency	0.730

Source: Spss Output v.26

AVE ranges from 0 to 1, Fornell and Larcker (1981) suggested that adequate convergent validity measure should contain not less than 50% error variance (i.e., AVE should be 0.5 or above). The Average Variance Extracted (AVE) values indicate how well each construct captures the variance of its indicators, with a common benchmark being 0.50 or higher to confirm adequate convergent validity. In this output, all three variables exceed that threshold: Ratio analysis technique (0.712), Reviewing financial statements (0.683), and Transparency (0.730). This suggests that each construct explains a substantial portion of the variance in its associated indicators, demonstrating strong convergent validity. Among them, Transparency shows the highest AVE, indicating it has the strongest explanatory power, while Reviewing financial statements, though slightly lower, still meets acceptable standards. Overall, the results from SPSS v.26 confirm that the measurement model is reliable and that the constructs are well represented by their respective indicators.

Reliability

The strategy for addressing reliability within the study will use internal consistency by calculating Cronbach’s alpha for each subscale and each total scale. Cronbach’s alpha is useful for testing internal consistency in scales used in previous research studies and is used to determine if constructs are right measurements (Pallant, 2013). The Cronbach alpha composite reliability test would be used to determine the reliability of instrument. For the Cronbach alpha to be accepted as reliable it should meet a threshold of 0.7 and above. The data would be tested repeatedly, and the information is very reliable if the same result is obtained

Table 2 Reliability Statistics

Variables	Cronbach's Alpha ^a	N of Items
Ratio analysis technique	.704	3
Reviewing financial statement	.786	3
Transparency	.780	3

Source: SPSS Output v. 26

Table 2 presents the reliability analysis of the study variables using Cronbach’s alpha, based on SPSS output. The results show that all three constructs, ratio analysis technique ($\alpha = 0.704$), reviewing financial statements ($\alpha = 0.786$), and transparency ($\alpha = 0.780$) have acceptable levels of internal consistency, as their alpha values exceed the commonly recommended threshold of 0.70. Each variable was measured using three items, and the relatively close alpha values suggest a consistent level of reliability across the constructs. Overall, this indicates that the measurement items used for these variables are sufficiently reliable for further statistical analysis.

DATA ANALYSIS AND DISCUSSIONS

Descriptive statistic

Table 3 Descriptive statistics for the study variables

	Minimum	Maximum	Mean	Std. Deviation
Transparency	1.14	4.29	2.1717	.68521
Ratio analysis technique	1.00	4.40	2.3938	.93305
Reviewing financial statement technique	1.00	4.00	2.3938	.98328

Source: SPSS Output v.26

With a mean of 2.1717, a standard deviation of 0.68521, a minimum of 1.14, and a maximum of 4.29, transparency is highly dispersed because the mean deviates from the standard deviation. The ratio analysis technique has a mean of 2.3938, a standard deviation of 0.93305, and minimum and maximum values of 1 and 4.40, respectively. Additionally, reviewing financial statement technique had mean and standard deviation values of 2.3938 and 0.98328, respectively, while maintaining the same minimum with financial statement technique and a maximum of 4.00. This suggests that different methods can be used to analyse accounting records based on the type of fraud that needs to be exposed.

Table 4 ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22.655	4	5.664	18.757	.000 ^b
	Residual	37.442	124	.302		
	Total	60.097	128			
a. Dependent Variable: Transparency						
b. Predictors: (Constant), Ratio analysis technique, Reviewing Financial Statement technique						
The dependent variable (transparency) is strongly predicted (0.000) by the ratio analysis and reviewing financial statement techniques, as shown in Table 2. It indicates that the model is suitable for further analysis.						

Table 5 Table of Coefficient

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std. Error	Beta		

1	(Constant)	1.298	.214		6.064	.000
	Ratio analysis technique	-.268	.058	-.366	-4.642	.000
	Reviewing financial statement technique	.045	.064	.065	.711	.479

a. Dependent Variable: Transparency

Decision Rule

The null hypothesis is rejected if the sig. value is less than 0.05. On the other hand, the null hypothesis is accepted if the sig. value is higher than 0.05.

Test of Hypothesis One

The hypothesis two is restated as follows:

H0₁: There is no significant effect of ratio analysis technique on transparency in Plateau State Internal Revenue Service. Given the coefficients in table 5 above, the regression analysis run demonstrates that the ratio analysis technique has a statistically significant negative effect on Plateau State Internal Revenue Service transparency ($\beta = -0.366$, $t = -4.642$, $p\text{-value} = 0.000$). Therefore, the Plateau State Internal Revenue Service's transparency is negatively and significantly affected by the ratio analysis technique.

Test of Hypothesis Two

The hypothesis three is restated as follows:

H0₂: There is no significant effect of reviewing financial statement technique on transparency in Plateau State Internal Revenue Service. The regression analysis run, given the coefficients in table 5 above, shows that reviewing financial statement technique have positive and insignificant effect on transparency in Plateau State Internal Revenue Service, given ($\beta = 0.065$, $t = 0.711$, $p\text{-value} = 0.479$). Thus, reviewing financial statement technique has no significant effect on transparency in Plateau State Internal Revenue Service.

DISCUSSION OF FINDINGS

From the first hypothesis, it indicates that ratio analysis technique has a negative significant effect on transparency in Plateau State Internal Revenue Service with $\beta = -0.366$, $t = -4.642$, $p\text{-value} = 0.000 < 0.05$. This suggests that there is a negative effect of independent variable on the dependent variable. For every 1-unit increase in the predictor, the outcome decreases by 0.366 units (on average), assuming other variables are constant. The result is highly statistically significant because $p < 0.001$. Also, a value of -4.642 means the estimate is 4.642 standard errors below zero, which is quite far from what you would expect if there were no real effect. Ratio analysis is used as a diagnostic tool to draw attention to odd patterns and anomalies in financial data that can point to fraud. The importance of this technique is frequently highlighted in reports of forensic practices, especially in Nigerian studies where ratio analysis is mentioned in conjunction with other forensic instruments for identifying anomalies. This finding supported by the study of Laitinen (2018) who highlights that financial ratios can be difficult to interpret and may produce misleading conclusions due to variations in numerators and denominators, thereby potentially obscuring rather than clarifying financial reality. The study of Linares-Mustarós et al., (2022) also support this study by observing that there is a negative relationship, implying that ratio analysis, when applied to weak or manipulated data, may reduce transparency instead of enhancing it. The studies that contrast this finding include that of Raspati and Simanjuntak (2024) who find out that transparency in financial reporting has a positive and significant effect on report quality, implying that analytical tools that interpret financial statements (including ratio analysis) should improve, rather than reduce, transparency. Similarly, Ayagi and Salisu (2023) argue that ratio analysis is widely regarded as a key mechanism for interpreting financial statements and communicating firm performance to external users, thereby strengthening transparency and decision usefulness.

From the second hypothesis, it was discovered that reviewing financial statement technique has no significant effect on transparency in Plateau State Internal Revenue Service given $\beta = 0.065$, $t = 0.711$; P-value of $0.479 > 0.05$. It suggests that there is a 0.065 unit improvement in transparency for every unit increase in financial statement review technique. Reviewing financial statements alone is frequently insufficient to produce significant forensic insights unless it is combined with other investigation techniques. The finding corroborates with the study of Orjinta, Okpalaukeje & Atokpe (2026) who found out that key audit variables such as audit committee expertise and independence exhibited positive but statistically insignificant effects on transparency, suggesting that the mere presence of review mechanisms does not automatically translate into improved openness. Other studies like that of Deshi and Freeman (2022), Edward (2021) and Hashem (2020) also corroborate with the above finding. However, the finding contradicts a substantial body of literature that emphasizes a strong positive relationship between forensic accounting, financial statement review, auditing, and transparency. Studies such as Sari & Muslim (2023), Zhang, Li & Hossain (2024) and Joseph & Onyeonu (2023) opined that reviewing financial statement technique has a significant effect on transparency.

CONCLUSION AND RECOMMENDATION

Conclusion

This study examined the effect of forensic accounting techniques on transparency in the Plateau State Internal Revenue Service, with particular emphasis on ratio analysis and the review of financial statements. The results showed that ratio analysis has a major impact on forensic accounting methods, suggesting that it is an effective analytical tool for uncovering irregularities, spotting financial irregularities, and improving revenue service transparency. This implies that forensic accountants are better able to identify fraud and encourage accountability when ratio analysis is applied methodically. On the other hand, the study discovered that forensic accounting techniques are not much affected by reviewing financial statements. This suggests that improving openness may require more than just looking at financial accounts without the assistance of sophisticated analytical techniques. It is possible that sophisticated manipulations or hidden abnormalities in the organization's financial records will go undetected by traditional financial statement reviews. Therefore, the study comes to the conclusion that, especially when combined with analytical tools like ratio analysis, forensic accounting techniques greatly enhance transparency in the Plateau State Internal Revenue Service. However, attaining significant openness requires more than just normal financial statement checks. Therefore, improving financial accountability and lowering fraud in public sector revenue administration require the use of increasingly sophisticated forensic and analytical techniques.

Recommendations

Based on the findings of the study, it was recommended as that:

1. The Plateau State Internal Revenue Service (PSIRS) should routinely apply ratio analysis in audits and internal reviews due to detect manipulation, underreporting, and financial misstatement early, improving overall transparency in revenue reporting.
2. The Plateau State Internal Revenue Service (PSIRS) should educate staff members on the importance of forensic accounting techniques and should invest in regular training programs on digital forensics, fraud detection tools, and investigative accounting methods.

Implication of the study

1. Policy Implications: There is need to integrate ratio benchmarks into tax assessment and revenue monitoring policies of Plateau State Internal Revenue Service (PSIRS)

2. Practical Implications: There is need for staff education and training programs to improve technical competence of staff in detecting fraud, tax evasion, and revenue leakages in Plateau State Internal Revenue Service (PSIRS)

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