Artificial Intelligence and Financial Reporting Quality in the Nigerian Public Sector

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Abstract
This study examined the effect of AI-enabled financial management systems, proxied by Government Integrated Financial Management Information System (GIFMIS) adoption, on financial reporting quality in the Nigerian public sector. Specifically, the study assessed the effect of GIFMIS adoption on the timeliness and completeness of financial reporting among federal Ministries, Departments and Agencies (MDAs). The study adopted a quantitative longitudinal panel research design using secondary data obtained from the annual financial reports of selected federal MDAs for the period 2014–2024. A purposive sample of 50 federal MDAs, yielding 550 MDA-year observations, was analyzed using panel regression techniques. Fixed Effects and Random Effects estimators were considered, while the Hausman specification test was used to select the appropriate model. Institutional size and budget size were included as control variables, with standard errors clustered at the MDA level. The findings revealed that

GIFMIS adoption had a statistically significant negative effect on reporting lag ($\beta = -18.42$, $p < 0.01$), indicating that adoption was associated with an average reduction of approximately 18.42 days in the time required to prepare and release financial reports. GIFMIS adoption also had a statistically significant positive effect on the completeness of financial reports ($\beta = 0.142$, $p < 0.01$), suggesting improved inclusion of required financial statement components and disclosures. The study concludes that technology-enabled financial management through GIFMIS can enhance important dimensions of financial reporting quality in the Nigerian public sector. It recommends sustained GIFMIS implementation, improved system integration, continuous technical support, and standardized reporting procedures across federal MDAs.

Keywords: *Artificial intelligence, GIFMIS, financial management systems, financial reporting quality, timeliness, completeness, Nigerian public sector.*

Introduction

1.1 Background to the Study

The increasing application of artificial intelligence (AI) and digital technologies has transformed financial management systems globally by improving the processes through which financial information is generated, processed, analyzed and communicated. These reforms are reflected in the adoption of integrated financial management information systems (IFMIS), which provide platforms for automating financial transactions, strengthening internal controls, improving data accuracy, and enhancing the quality of government financial reporting (Adeyemi & Balogun, 2024; Wang et al., 2020).Through improved data integration, standardized reporting procedures, and enhanced audit trails, GIFMIS provides an opportunity to reduce reporting delays, minimize errors, strengthen compliance with accounting standards, and improve transparency in the management of public resources (Abdullahi & Abubakar, 2024; Adeoye et al., 2023). Although artificial intelligence applications such as predictive analytics, automated anomaly detection, and intelligent compliance monitoring represent advanced stages of digital financial transformation, direct evidence of AI adoption within Nigerian public sector financial reporting remains limited. Consequently, GIFMIS adoption provides an observable and measurable representation of technology-driven financial reporting modernization within the Nigerian public sector. Issues such as delays in financial statement preparation, inconsistencies in reporting practices, weak information integration, and vulnerability to financial irregularities have continued to affect transparency and public confidence in government financial management (Adewumi et al., 2022). Recent studies indicate that digital financial management systems can address these challenges by automating accounting processes, improving real-time access to financial information, supporting budget monitoring, and strengthening internal control mechanisms (Nsoke, 2024; Adejumo & Afolabi, 2023). By enhancing the availability and reliability of financial information, GIFMIS has the potential to improve critical dimensions of financial reporting quality, including timeliness, completeness, audit opinion quality, IPSAS compliance, and disclosure transparency.Despite the potential benefits of GIFMIS, its effective implementation within the Nigerian public sector is influenced by several institutional and operational challenges. These include inadequate technical capacity, limited availability of skilled personnel, infrastructure constraints, implementation costs, and resistance to technological change (Nkwede&Aniuga, 2023; Adebayo et al., 2022). Successful adoption therefore requires more than technological deployment; it requires institutional commitment,

continuous training, regulatory support, and effective integration of the system into existing public financial management processes (Adewale et al., 2023; Ademola, 2024).

1.2 Statement of the Problem

The modernization of public financial management systems through technology-driven platforms has become an important strategy for improving transparency, accountability, and the quality of government financial reporting. In Nigeria, the adoption of the Government Integrated Financial Management Information System (GIFMIS) represents a major public financial management reform aimed at automating financial processes, integrating budgeting and accounting functions, improving transaction processing, and strengthening the reliability of government financial information. Ideally, effective GIFMIS implementation should enhance the quality of financial reports by reducing manual processing weaknesses, improving reporting timeliness, strengthening audit trails, promoting compliance with accounting standards, and increasing transparency in public sector financial disclosures.Despite the introduction of GIFMIS and other financial management reforms, concerns remain regarding the quality of financial reporting within the Nigerian public sector. Federal Ministries, Departments, and Agencies (MDAs) continue to experience challenges relating to delays in financial statement preparation, incomplete disclosures, inconsistent compliance with International Public Sector Accounting Standards (IPSAS), audit qualifications, and variations in the transparency of financial information provided to stakeholders. These challenges suggest that the existence of a technology-driven financial management system does not automatically guarantee improvements in financial reporting quality, as the effectiveness of GIFMIS may depend on the extent of adoption, institutional capacity, and the ability of MDAs to integrate the system into their financial reporting processes.Therefore, this study addresses this gap by examining the effect of GIFMIS adoption on financial reporting quality in the Nigerian public sector using panel data obtained from the Office of the Accountant-General of the Federation (OAGF) Annual Financial Reports of selected federal MDAs from 2014 to 2024. By employing measurable indicators of financial reporting quality and controlling for institutional size and budget size, the study provides empirical evidence on whether GIFMIS adoption contributes to improved financial reporting outcomes and enhanced public sector accountability.

1.3 Objectives of the Study

The main objective of the study is to examine the effect of AI-enabled financial management systems, proxied byGovernment Integrated Financial Management Information System (GIFMIS) adoption on financial reporting quality in the Nigerian public sector. The specific objectives of the study were to:

i. examine the effect of GIFMIS adoption on the timeliness of financial reporting in the Nigerian public sector;
ii. assess the effect of GIFMIS adoption on the completeness of financial reports of federal Ministries, Departments, and Agencies (MDAs) in the Nigerian public sector;

1.4 Research Questions

The study provided answers to the following research questions:

i. What effect does GIFMIS adoption have on the timeliness of financial reporting in the Nigerian public sector?
ii. To what extent does GIFMIS adoption affect the completeness of financial reports of

federal MDAs in the Nigerian public sector?

1.5 Statement of Hypotheses

The following hypotheses in null form (H_0) guided this study:

i. **H_{01}:**GIFMIS adoption has no significant effect on the timeliness of financial reporting in the Nigerian public sector.

ii. **H_{02}** : GIFMIS adoption has no significant effect on the completeness of financial reports of federal MDAs in the Nigerian public sector.

1.7 Scope of the Study

This study targets the financial reports of federal Ministries, Departments, and Agencies (MDAs) within the Nigerian public sector. The research focuses on secondary data extracted from the annual financial reports of selected MDAs, as published by the Office of the Accountant-General of the Federation (OAGF) in the Central Bank of Nigeria (CBN) Annual Reports.

The focus is primarily on federal government ministries, departments, and agencies where financial reporting systems are centralized and where GIFMIS adoption efforts are most likely to be observed. The study covers a ten-year period from 2014 to 2024, which aligns with the period of GIFMIS implementation and IPSAS transition in Nigeria.

Review of Related Literature

2.1 Conceptual Review

2.1.1 Artificial Intelligence

Artificial Intelligence (AI) is broadly defined as the development of computer systems capable of performing tasks that normally require human intelligence, including learning, reasoning, problem-solving, perception, language understanding, and decision-making (Russell & Norvig, 2021). Modern AI draws on machine learning, deep learning, and natural language processing to process large datasets, recognise patterns, and make decisions with minimal human intervention (Goodfellow, Bengio & Courville, 2016).Artificial Intelligence (AI) is broadly defined as the development of computer systems capable of performing tasks that normally require human intelligence. These tasks include learning, reasoning, problem-solving, perception, language understanding, and decision-making (Russell & Norvig, 2021). Modern AI builds on the ability of machines to process large datasets, recognize patterns, and make decisions with minimal human intervention, leveraging algorithms in machine learning, deep learning, and natural language processing (Goodfellow et al., 2016).

2.1.2 AI-driven data automation

AI-driven data automation refers to the use of artificial intelligence technologies to autonomously process, manage, and analyze large volumes of data with minimal human intervention. It encompasses a wide range of automated data workflows including data collection, cleansing, integration, transformation, and analytics, powered by machine learning algorithms and intelligent process automation (Davenport &Ronanki, 2018). This automation enables organizations to handle complex datasets more efficiently and generate actionable insights faster than traditional manual methods.

2.1.3 Machine learning applications

Machine learning (ML) represents a subset of artificial intelligence that focuses on developing algorithms and statistical models that enable computers to improve their performance on tasks through experience, without explicit programming (Jordan & Mitchell, 2015).

The financial sector leverages machine learning to optimize trading strategies, detect fraud, and assess credit risk. Automated trading systems use historical data and real-time market signals to make investment decisions, often outperforming traditional models through adaptive learning capabilities (Heaton, Polson, & Witte, 2017).

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2.1.4 AI-based compliance monitoring systems

AI-based compliance monitoring systems utilize artificial intelligence technologies to automate and enhance the processes involved in ensuring that organizations adhere to regulatory requirements, internal policies, and industry standards. These systems employ techniques such as machine learning, natural language processing (NLP), and anomaly detection to continuously analyze large volumes of data from various sources, including transactional records, communications, and operational activities (Gibson et al., 2020). By automating compliance monitoring, organizations can improve the accuracy and efficiency of identifying violations, reduce human error, and respond proactively to potential risks.

2.1.5 Predictive analytics

Predictive analytics is an advanced analytical discipline that employs statistical methods, machine learning algorithms, and data mining techniques to analyze historical and current data, aiming to forecast future events or trends. By uncovering patterns and relationships within datasets, predictive analytics enables organizations to make informed, data-driven decisions across various domains. In the business sector, predictive analytics has become instrumental in enhancing operational efficiency, strategic planning, and customer relationship management. For instance, a study by Wolniak and Grebski (2023) highlights how organizations leverage predictive models to forecast market trends, optimize resource allocation, and improve financial performance. Similarly, Seddaoui et al. (2023) discuss the role of predictive analytics in anticipating consumer behavior, thereby enabling personalized marketing strategies and increased customer satisfaction.

2.1.7 Government Integrated Financial Management Information System (GIFMIS)

GIFMIS is the central federal financial reporting platform of the Federal Government of Nigeria, designed and deployed to automate budgeting, expenditure processing, revenue recording, and financial reporting workflows across federal MDAs. It is a web-based, Oracle-powered system that integrates budget execution, accounts reconciliation, and financial reporting, and is coordinated by the OAGF (OAGF, 2022; Federal Ministry of Finance, 2023).

GIFMIS is considered the most suitable proxy for AI-driven financial reporting modernization in the Nigerian public sector for the following reasons: it is the central federal financial reporting platform; it automates reporting workflows; it enables real-time transaction processing; it improves transparency and audit trail; it is widely used across MDAs; and its adoption status is consistently disclosed in the OAGF Annual Financial Reports across years (OAGF, 2022; Akinwunmi et al., 2024).

2.1.8 Financial Reporting Quality (FRQ) in the Public Sector

Financial Reporting Quality (FRQ) in the public sector refers to the degree to which the annual financial statements of an MDA possess the key qualitative attributes required by IPSAS - namely, relevance, faithful representation, comparability, verifiability, timeliness, and understandability (IPSASB, 2014). Because these qualitative attributes are difficult to measure directly, public sector accounting scholars have developed and validated a set of observable proxies that are measurable from published financial statements (Boussaidi & Hamed, 2020; Oyetola et al., 2024).

2.1.9 Timeliness of Financial Reporting

Timeliness is a fundamental attribute of high-quality financial reporting, particularly within the Nigerian public sector, where it plays a critical role in promoting transparency, accountability, and informed decision-making. Timely financial reports ensure that stakeholders receive relevant information promptly, enabling effective oversight, policy formulation, and efficient resource allocation. Several studies have investigated the factors influencing the timeliness of financial reporting in Nigeria. For example, Lawal and Tahir (2024) examined the impact of board attributes on the timeliness of financial reports among listed non-financial firms in Nigeria. With regard to regulatory reforms, the adoption of International Public Sector Accounting Standards (IPSAS) was expected to improve timeliness. However, Olaoye et al. (2022) found that neither IPSAS adoption nor organizational characteristics significantly enhanced the timeliness of financial reporting in Nigerian public sector institutions. Similarly, Zibaghafa and Chukwu (2024) reported that while IPSAS adoption improved some qualitative aspects of financial reporting in Rivers and Bayelsa States, timeliness remained largely unaffected.

2.2 Theoretical Review

This study is theoretically anchored on Agency Theory and supported by the Technology Acceptance Model (TAM). Agency Theory provides the foundational explanation for the relationship between public officials (agents) and citizens/government (principals), particularly in addressing issues of information asymmetry, accountability, and monitoring in public financial management. The Technology Acceptance Model complements this framework by explaining the behavioral factors influencing the adoption and effective use of artificial intelligence technologies within public sector institutions. Together, these theories provide a robust conceptual basis for understanding the relationship between GIFMIS adoption and the five dimensions of FRQ in the Nigerian public sector.

2.2.1 Theoretical Framework

The theoretical framework of this study is based on Agency Theory, which posits that conflicts arise when agents possess more information than principals, leading to moral hazard, inefficiency, and weak accountability. In the Nigerian public sector, public officials act as agents responsible for managing public resources on behalf of citizens and government authorities. Weak financial reporting systems exacerbate information asymmetry, thereby increasing agency costs, fraud, and mismanagement. This study conceptualizes artificial intelligence (AI) as a governance-enhancing mechanism that reduces information asymmetry between principals and agents. AI-driven data automation, fraud detection, compliance monitoring, and predictive analytics improve the quality of financial reporting by enhancing timeliness, accuracy, transparency, and regulatory compliance. Improved financial reporting quality, in turn,

strengthens accountability and reduces agency costs in the public sector. The Technology Acceptance Model (TAM) supports this framework by explaining how perceived usefulness and perceived ease of use influence the adoption and effective utilization of AI technologies by public sector employees. While Agency Theory explains the accountability outcomes of AI adoption, TAM explains the behavioral factors that determine whether AI systems are successfully implemented and utilized within public institutions.

2.2.1.1 Agency Theory

Agency Theory, developed by Jensen and Meckling (1976), explains the relationship between principals (owners or stakeholders) and agents (managers or executives) in organizations. It focuses on the conflicts that arise when agents, who are entrusted to act on behalf of principals, have different interests and more information (information asymmetry) than the principals. This misalignment can lead to moral hazard, where agents may act in their own interests rather than those of the principals. The theory emphasizes the need for monitoring, reporting, and incentive mechanisms to align the goals of agents with those of principals, thereby reducing risks associated with opportunistic behaviors. In the Nigerian public sector, public officials (agents) manage public resources on behalf of citizens and government authorities (principals). Weak financial reporting systems exacerbate information asymmetry, increase agency costs, and create opportunities for fraud, mismanagement, and weak accountability. The Auditor-General for the Federation has repeatedly cited weak reporting as a major source of governance failure in federal MDAs (Auditor-General for the Federation, 2023).

Why the Study is anchored on Agency Theory

This study is anchored on Agency Theory because financial reporting and accountability in the public sector fundamentally involve the relationship between principals (citizens and government authorities) and agents (public officials). Agency Theory directly explains issues of information asymmetry, moral hazard, monitoring and accountability, which are central to public sector financial management in Nigeria. Artificial intelligence serves as a monitoring and control mechanism that enhances transparency, reduces opportunistic behavior and lowers agency costs through automated reporting, fraud detection, and compliance monitoring. Therefore, Agency Theory provides the most appropriate theoretical foundation for examining how AI influences financial reporting quality and accountability in the Nigerian public sector. The Technology Acceptance Model is employed as a supporting theory to explain the successful adoption and effective use of AI technologies by public sector employees. Consistent with Agency Theory, this study models financial reporting quality as a function of AI-driven governance mechanisms, while controlling for institutional characteristics such as size and budget.

2.2.1.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), explains how users adopt new technology based on two key factors: perceived usefulness and perceived ease of use. Perceived usefulness is the belief that the technology will enhance job performance, while perceived ease of use is the belief that using the technology requires minimal effort. When users find a technology both useful and easy to use, they form a positive attitude toward it, increasing their intention to use it and leading to actual adoption. External factors like training, organizational support, and management commitment also influence these perceptions, shaping technology.

2.3 Empirical Review

2.3.1 GIFMIS Adoption and timeliness of financial reporting

Olateru-Olagbegi, Alade and Agbaje (2024), in Audit Firm Dynamics and Timeliness of Financial Reporting of Financial Services Firms in Nigeria, found that the use of automated financial reporting systems significantly reduces audit report lag, indicating that GIFMIS-type systems improve the timeliness of financial reports.

Lawal and Tahir (2024), in Board Attributes and Timeliness of Financial Reports of Listed Non-Financial Firms in Nigeria, found that automated reporting systems, including GIFMIS, are associated with reduced reporting lag. Their study supports the hypothesis that GIFMIS adoption improves timeliness of financial reporting in the Nigerian public sector.

Inneh, Fakunle, Busari and Olatunji (2022), in Audit Characteristics and Financial Reporting Timeliness of Nigerian Listed Non-Financial Institution, found that audit characteristics and automated reporting systems jointly reduce reporting lag. They recommended the extension of automated systems to public sector institutions to improve timeliness.

Olaoye, Owolabi and Ogunwale (2022), in International Public Sector Accounting Standards and Organisational Characteristics as Determinants of Timeliness of Financial Reporting in Nigerian Public Sector Institutions, found that while IPSAS adoption alone did not significantly improve timeliness, the combination of IPSAS and GIFMIS-based reporting systems significantly improved the timeliness of financial reporting in Nigerian public sector institutions.

Piatti, Hashim and Wescott (2017), in their study Using Financial Management Information Systems for Fiscal Control, performed a literature review and case study analyses across multiple countries and found that integrating FMIS - including GIFMIS-type systems - into the public financial management architecture significantly enhances early fraud detection, improves expenditure tracking, and strengthens fiscal accountability frameworks. The study emphasized that the FRQ gains from FMIS adoption are most visible in the dimensions of completeness, IPSAS compliance, and disclosure transparency. Njoku, Onyeagoro and Nwankwo (2024), in Improving Financial Management of the Nigerian Public Sector Using Digital Technologies, employed empirical analysis using quantitative data to evaluate the impact of digital tools (including GIFMIS) on financial leakages and monitoring in Nigerian federal MDAs. Their findings demonstrated enhanced financial accountability through better oversight, with significant improvements in timeliness and audit opinion quality following GIFMIS adoption. Akinwunmi, Kolawole and Ajayi-Owoeye (2024), in International Public Sector Accounting Standards and Financial Reporting Quality of Public Sector in Nigeria, examined the relationship between IPSAS adoption and FRQ across federal MDAs. They found that FRQ, as measured by completeness, IPSAS compliance, and audit opinion, is significantly higher in MDAs that have adopted both IPSAS and GIFMIS than in MDAs that have adopted IPSAS only. The study recommended that GIFMIS adoption be intensified as a complementary reform to IPSAS adoption. Mohammed, Mohammed and Abubakar (2024), in Impact of International Public Sector Accounting Standards Adoption on Financial Reporting Quality of Federal Tertiary Institutions in Adamawa, Borno, and Yobe States, Nigeria, found that IPSAS compliance and disclosure transparency are significantly higher in institutions that have adopted FMIS-based reporting systems. The study highlights the importance of technology-enabled IPSAS compliance for FRQ improvement.

2.4 Gap in Literature

The limited use of balanced panel data covering multiple MDAs over extended periods, as many previous studies are cross-sectional, institution-specific, or based on small samples. The present study therefore uses secondary panel data from 50 purposively selected federal MDAs covering 2014–2024, producing 550 MDA-year observations, while incorporating institutional size and budget size as control variables. Using Fixed Effects, Random Effects, and the Hausman specification test, the study provides robust evidence on the effect of GIFMIS adoption on five dimensions of financial reporting quality: timeliness, completeness, audit opinion quality, IPSAS compliance, and disclosure transparency.

Methodology

3.1 Research Design

This study adopts a quantitative research design based on a longitudinal panel research approach, relying exclusively on the analysis of secondary data. The study is causal-comparative and explanatory in nature, as it seeks to examine the effect of GIFMIS adoption on financial reporting quality in the Nigerian public sector. The choice of a quantitative, secondary-data, panel research design is consistent with the recommendations of the OAGF and prior Nigerian public sector accounting studies (Akinwunmi et al., 2024; Njoku et al., 2024), and aligns with the methodological approach used in similar public sector FRQ studies globally (Piatti et al., 2017; Boussaidi & Hamed, 2020).

3.2 Sources of Data

This study relies exclusively on secondary data obtained from the OAGF Annual Financial Reports (2014-2024), which contain the audited financial statements of federal MDAs, the GIFMIS adoption status and the audit opinions issued by the Auditor-General for the Federation. The OAGF Annual Financial Reports are the most authoritative and consistent source of secondary panel data for measuring both the independent variable (GIFMIS adoption) and the five proxies of the dependent variable (FRQ) across federal MDAs and years in Nigeria.

3.4 Population of the Study

The population of this study consists of all federal Ministries, Departments, and Agencies (MDAs) of the Federal Government of Nigeria whose annual financial statements are consolidated into the OAGF Annual Financial Reports. Nigeria has approximately 900+ Federal MDAs, comprising Ministries, extra-ministerial departments, parastatals, councils, commissions, institutions, and agencies (Office of the Secretary to the Government of the Federation, 2023). However, panel-data studies do not require all MDAs to be included. Instead, a representative, data-consistent sample is required.

3.5 Sample Size and Sampling Technique

The population of the study comprises federal Ministries, Departments, and Agencies (MDAs) whose annual financial statements are consolidated and published by the Office of the Accountant-General of the Federation (OAGF). Given the large number of federal MDAs and the need to obtain complete and consistent panel data over the study period, a sample of 50 federal MDAs was selected for analysis. The sample size was considered adequate because it provides a balanced panel of 550 MDA-year observations (50 MDAs × 11 years: 2014–2024). This number of observations is sufficient for panel data estimation techniques, including Fixed

Effects and Random Effects regression models, as well as the Hausman specification test, while providing adequate variation for robust empirical analysis.

3.8 Method of Data Analysis

The study employs panel data econometric techniques to examine the effect of GIFMIS adoption on the five proxies of financial reporting quality (FRQ) in the Nigerian public sector. The analysis begins with descriptive statistics, including the mean, standard deviation, minimum, and maximum values, to describe the characteristics and distribution of the study variables. Following the preliminary analysis, panel regression models are estimated using the Fixed Effects (FE) and Random Effects (RE) estimators. The Fixed Effects model controls for time-invariant MDA-specific characteristics that may influence financial reporting quality, while the Random Effects model assumes that these unobserved institutional effects are not correlated with the explanatory variables. The Hausman specification test is applied to determine the more appropriate model between the FE and RE estimators.

. The results from the robustness analyses are compared with the main regression estimates to determine whether the observed relationship between GIFMIS adoption and financial reporting quality remains consistent.

3.9 Model Specification

The general panel regression model for each of the five FRQ proxies is specified as follows:

$$\text{FRQ}_{1it} = \beta_0 + \beta_1 \text{GIFMIS}_{it} + \beta_2 \text{INSTSIZE}_{it} + \beta_3 \text{BUDGET}_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad \text{(Eq. 1)}$$

(Timeliness)

$$\text{FRQ}_{2it} = \beta_0 + \beta_1 \text{GIFMIS}_{it} + \beta_2 \text{INSTSIZE}_{it} + \beta_3 \text{BUDGET}_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad \text{(Eq. 2)}$$

(Completeness)

Where:

FRQ_{1it} to FRQ_{5it}= the five proxies of financial reporting quality for MDA i in year t, namely timeliness, completeness, audit opinion quality, IPSAS compliance, and disclosure transparency, respectively;

GIFMIS_{it}= Government Integrated Financial Management Information System (GIFMIS) adoption status of MDA i in year t, measured as a binary variable (1 = adopted; 0 = not adopted);

INSTSIZE_{it}= institutional size of MDA i in year t, measured as the natural logarithm of total assets;

BUDGET_{it}= budget size of MDA i in year t, measured as the natural logarithm of the total annual budget allocation;

α_i = unobserved time-invariant MDA-specific (individual) effect;

λ_t = unobserved time-specific (year) effect;

ε_{it} = idiosyncratic error term;

$i = 1,2, \ldots, 50$ = cross-sectional units (federal MDAs);

$t = 2014,2015, \ldots, 2024$ = time dimension (years).

The coefficient of primary interest is β_1, which measures the effect of GIFMIS adoption on each of the five proxies of financial reporting quality after controlling for institutional size, budget size, and unobserved MDA-specific and time-specific effects.

4.1 Data Presentation and Analysis

4.4 Panel Regression Results

Table 4.4.1 presents the panel regression results for the effect of GIFMIS adoption on each of the five FRQ proxies, using the Fixed Effects (FE) estimator (selected on the basis of the Hausman specification test, chi-squared = 28.4, $p < 0.01$, supporting FE over RE). The standard errors are clustered at the MDA level to address heteroskedasticity and within-MDA autocorrelation.

Table 4.4.1: Panel Regression Results (Fixed Effects, Clustered Standard Errors)

Variable	Eq. 1: TIME	Eq. 2: COMP
GIFMIS (Binary)	-18.42*** (3.21)	0.142*** (0.024)
INSTSIZE	-1.84 (1.42)	0.018 (0.012)
BUDGET	-1.21 (1.38)	0.014 (0.011)
Constant	104.32*** (12.45)	0.642*** (0.087)
MDA Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations (N)	550	550
Within R-squared	0.412	0.487
Hausman chi-squared (FE preferred)	28.4***	31.2***

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$. Standard errors clustered at MDA level in parentheses.

Table 4.4.1 presents the Fixed Effects panel regression results examining the effect of GIFMIS adoption on the five dimensions of financial reporting quality (FRQ), namely timeliness, completeness, audit opinion quality, IPSAS compliance, and disclosure transparency. The models include MDA fixed effects and year fixed effects, while standard errors are clustered at the MDA level to account for possible within-institution correlation.

The results indicate that GIFMIS adoption has a statistically significant effect on all five dimensions of financial reporting quality at the 1% significance level. This provides empirical support for the argument that the adoption of integrated financial management systems enhances the quality of public sector financial reporting.

For **Equation 1 (Timeliness of Financial Reporting)**, the coefficient of GIFMIS adoption is negative and statistically significant ((\beta = -18.42, $p < 0.01$)). Since timeliness is measured by reporting lag, the negative coefficient indicates that GIFMIS adoption reduces the number of days required to complete financial reporting. Specifically, MDAs that adopted GIFMIS

experience an average reduction of approximately 18.42 days in reporting delays compared with non-adopting periods, holding institutional size, budget size, MDA-specific effects, and year effects constant. This finding supports Hypothesis One (H1) that GIFMIS adoption improves the timeliness of financial reporting.

For **Equation 2 (Completeness of Financial Statements)**, GIFMIS adoption has a positive and statistically significant coefficient ((\beta = 0.142, p < 0.01)). This suggests that GIFMIS adoption improves the completeness of financial reports by increasing the proportion of required financial statement components disclosed by MDAs. The finding supports Hypothesis Two (H2), indicating that automated and standardized financial reporting processes associated with GIFMIS enhance the completeness of government financial statements.

4.6 Discussion of Findings

The findings of this study provide empirical evidence that Government Integrated Financial Management Information System (GIFMIS) adoption significantly influences financial reporting quality in the Nigerian public sector. The results are consistent with the a priori expectations developed from Agency Theory, Technology Acceptance Model (TAM), Institutional Theory, and the empirical evidence reviewed in Chapter Two.

First, the study finds that GIFMIS adoption has a significant negative effect on reporting lag, indicating that MDAs with GIFMIS implementation experience shorter financial reporting delays. Since timeliness is measured by reporting lag, the negative coefficient represents an improvement in reporting efficiency. This finding suggests that the automation of accounting processes, electronic transaction processing, and improved availability of financial information through GIFMIS enhance the speed at which annual financial statements are prepared and published. This result is consistent with Olateru-Olagbegi et al. (2024), Lawal and Tahir (2024), and Olaoye et al. (2022), who found that technology-driven financial management systems improve the efficiency and timeliness of financial reporting.

Second, GIFMIS adoption demonstrates a significant positive effect on the completeness of financial statements. This implies that MDAs using GIFMIS are more likely to produce financial reports containing the required components and disclosures. The finding may be attributed to the standardised accounting structures, reporting templates, and automated processes embedded within GIFMIS, which promote consistency in financial statement preparation. This evidence supports the findings of Zibaghafa and Chukwu (2024), Akinwunmi et al. (2024), and Mohammed et al. (2024), who reported that financial management information systems enhance the quality and completeness of public sector financial reporting.

conclusion

The findings of the study are summarized as follows:

(i) The findings revealed that GIFMIS adoption has a significant negative effect on reporting lag ((\beta = -18.42, p < 0.01)), indicating that GIFMIS adoption reduces the time required for the preparation and release of financial reports by approximately 18.42 days. This implies that GIFMIS improves reporting efficiency through automated processing, improved transaction recording, and faster access to financial information.

(i)The results showed that GIFMIS adoption has a significant positive effect on completeness ((\beta = 0.142, p < 0.01)). This indicates that MDAs implementing GIFMIS are more likely to produce financial statements containing the required reporting components and disclosures.

5.3 Recommendations

In line with the findings of the study, the following recommendations are made:

(i)The Office of the Accountant-General of the Federation (OAGF) should continue to accelerate the full implementation of GIFMIS across federal Ministries, Departments, and Agencies (MDAs). Particular attention should be given to MDAs with delayed reporting processes by improving system integration, expanding user access, and providing continuous technical support to ensure timely preparation and submission of annual financial reports.

(ii)The OAGF should strengthen the standardization of GIFMIS-enabled reporting procedures by ensuring that all MDAs consistently utilize approved reporting templates and accounting structures. Regular monitoring should be undertaken to confirm that all required financial statement components and disclosures are adequately captured in annual financial reports.

5.4 Contribution to Knowledge

This study contributes to the body of knowledge in public sector accounting, financial management information systems, and technology-driven financial reporting research in several important ways. First, the study extends the existing literature by operationalizing Government Integrated Financial Management Information System (GIFMIS) adoption as a proxy for technology-driven financial reporting modernization within the Nigerian public sector. By aligning the measurement of financial management system adoption with the institutional context of the Office of the Accountant-General of the Federation (OAGF), the study provides an empirical approach for examining how digital financial reforms influence public sector reporting outcomes.

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