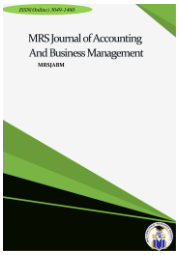
MRS Journal of Accounting and Business Management
Abbriviate Title- MRS J Acco Bus Manag
ISSN *(Online) 3049-1460*
Vol-2, Iss-2(February-2025)



CRYPTOCURRENCY AND FINANCIAL STATEMENT QUALITY OF LISTED DEPOSIT MONEY BANKS (DMBS) IN NIGERIA

Ike, Romanus Chukwuma Ph.D[1*], Ezeilo, Florence Ijeoma Ph.D[2],

Department of Accounting, Business Administration and Economics,Faculty of Arts, Management and Social Sciences, Admiralty University of Nigeria, Ibusa, Delta State

Corresponding Author Ike, Romanus Chukwuma Ph.D

Department of Accounting, Business Administration and Economics,Faculty of Arts, Management and Social Sciences, Admiralty University of Nigeria, Ibusa, Delta State

Article History

Received: 09 / 02/ 2025

Accepted: 22 / 02 / 2025

Published: 25 / 02 / 2025

Abstract: *The emergence of cryptocurrencies has disrupted traditional financial systems, creating both opportunities and challenges for financial institutions. This study examined the effects of cryptocurrency adoption on the quality of financial statements in listed Deposit Money Banks (DMBs) in Nigeria from 2018 to 2023, focusing on cryptocurrency volatility, organizational cryptocurrency exposure, and accounting information systems complexity. Using a panel EGLS (two-way random effects) regression analysis on data from 16 DMBs, the results revealed that cryptocurrency volatility had no significant effect on discretionary accruals, indicating limited influence on financial statement quality. Organizational cryptocurrency exposure significantly improved financial reporting quality by reducing earnings manipulation, highlighting the potential of blockchain technology for transparency and accountability. However, increased accounting information systems complexity was associated with higher discretionary accruals, suggesting reduced reliability in financial statements. The study recommended that policymakers should prioritize the establishment of clear and comprehensive cryptocurrency regulations. These should address valuation, recognition, and disclosure challenges, providing standardized guidelines for integrating cryptocurrencies into financial reporting.*

Keywords: *Cryptocurrency Volatility, Organizational Cryptocurrency Exposure, Accounting Information Systems, Financial Statement Quality, Blockchain Technology, Earnings Management*

Cite this article: Ike, R. C. Ph.D., Ezeilo, F. I. Ph.D., (2025). CRYPTOCURRENCY AND FINANCIAL STATEMENT QUALITY OF LISTED DEPOSIT MONEY BANKS (DMBS) IN NIGERIA. *MRS Journal of Accounting and Business Management, 2 (2),37-48.*

Introduction

The financial sector has undergone significant transformation over the past two decades, driven by technological advancements and the digitization of financial processes. Among these innovations, cryptocurrencies have emerged as a revolutionary asset class, reshaping the way transactions are conducted, assets are valued, and financial systems operate. Unlike traditional fiat currencies, cryptocurrencies such as Bitcoin, Ethereum, and Ripple are decentralized, operating independently of Central Banks and governments through Blockchain Technology. This decentralized nature has positioned cryptocurrencies as both an opportunity and a challenge for financial institutions, particularly in developing economies like Nigeria, where adoption rates are among the highest globally (Chainalysis, 2020).

In Nigeria, the rapid adoption of cryptocurrencies is driven by a combination of economic and demographic factors, including a youthful population, high unemployment rates, and the need for faster and more affordable cross-border transactions (Agbo & Nwadialor, 2020). As traditional banking systems face limitations in addressing these needs, cryptocurrencies have become a popular alternative for individuals and businesses seeking financial inclusion and diversification. Despite regulatory uncertainties, Nigeria remains a significant player in the global cryptocurrency market, with substantial trading volumes recorded on peer-to-peer platforms (CBN, 2020).

The integration of cryptocurrencies into the financial ecosystem has far-reaching implications for financial reporting, particularly in the banking sector. Financial statements are a cornerstone of corporate governance, serving as a primary source of information for stakeholders, including investors, regulators, and the public (International Accounting Standards Board [IASB], 2021). They are expected to provide a true and fair view of an organization's financial performance and position. However, the inclusion of cryptocurrency-related transactions in financial statements introduces complexities in valuation, recognition, and disclosure. Cryptocurrencies are characterized by extreme price volatility, limited standardization, and susceptibility to fraud and

hacking, all of which challenge the quality and integrity of financial reporting (KPMG, 2019).

Furthermore, the lack of Universally accepted Accounting Standards for cryptocurrencies has created a regulatory gap, leaving financial institutions to rely on discretionary interpretations of existing frameworks. For instance, International Financial Reporting Standards (IFRS) classify cryptocurrencies as intangible assets, which may not fully capture their economic substance (PwC, 2018). This ambiguity poses significant challenges for auditors and accountants tasked with ensuring compliance with reporting standards while addressing stakeholders' demands for transparency and reliability.

In Nigeria, these challenges are further compounded by a dynamic regulatory environment. The Central Bank of Nigeria's 2021 directive prohibiting banks from facilitating cryptocurrency transactions highlights the tension between the growing adoption of cryptocurrencies and regulatory efforts to maintain financial stability (CBN, 2021). While the directive aimed to mitigate risks associated with cryptocurrencies, it also underscored the need for clearer policies to guide their integration into financial reporting practices.

Deposit money banks (DMBs), which play a pivotal role in Nigeria's financial system, are at the forefront of this transition. As the primary intermediaries for financial transactions, these banks face increasing pressure to adapt their operations to accommodate cryptocurrency-related activities while maintaining the quality of their financial statements. Financial statement quality is a critical measure of a bank's operational efficiency and compliance, influencing investor confidence and regulatory oversight (Gbadebo, 2024).

Prior studies have highlighted both the potential and the complexities associated with integrating cryptocurrency transactions into financial statements. For instance, KPMG (2019) identified valuation, volatility, and the absence of universally accepted accounting standards as significant challenges, which can undermine the relevance, reliability, and comparability of financial reports. Similarly, PwC (2018) emphasized the difficulties in recognizing and disclosing cryptocurrencies, noting that their classification as intangible assets under IFRS fails to capture their economic essence fully.

Despite the high cryptocurrency adoption rate in Nigeria, empirical research on its impact on the quality of financial reporting in DMBs is scarce. Existing studies often focus on the operational or economic implications of cryptocurrencies rather than their influence on financial reporting and auditing processes. In Nigeria, research by Gbadebo (2024) explored the macroeconomic implications of cryptocurrency adoption, focusing on financial stability rather than the implications for financial reporting quality. Nwankwo et al. (2020) examined cryptocurrency adoption among businesses and individuals but did not address its impact on the financial statements of DMBs.

This study explores the effect of cryptocurrency on the quality of financial statements prepared by listed DMBs in Nigeria. By examining key aspects such as cryptocurrency volatility, organizational cryptocurrency exposure and accounting information systems complexity, the study aims to provide insights into how cryptocurrency adoption is reshaping financial reporting practices. This research is particularly timely as it contributes to the ongoing discourse on the intersection of technology and financial governance, offering practical recommendations for policymakers, regulators, and practitioners in the banking sector.

Hypotheses of the Study

The following null hypotheses were tested in this study:

- **HO_1:** Cryptocurrency volatility has no significant effect on the financial statement quality of listed deposit money banks in Nigeria.
- **HO_2:** Organizational cryptocurrency exposure does not significantly affect the financial statement quality of listed deposit money banks in Nigeria.
- **HO_3:** Accounting information systems complexity has no significant influence on the financial statement quality of listed deposit money banks in Nigeria.

Literature Review

Conceptual Clarification

The Concept of Cryptocurrency

Cryptocurrency is a digital or virtual currency secured by cryptography, enabling secure transactions, control of new units, and asset verification. Unlike traditional fiat currencies, cryptocurrencies are decentralized and typically operate on blockchain technology—a distributed ledger ensuring transparency and security (Nakamoto, 2008; Zheng et al., 2017). Bitcoin, introduced in 2009 by Satoshi Nakamoto, was the first cryptocurrency and functions as a peer-to-peer payment system. Since then, thousands of cryptocurrencies like Ethereum, Ripple, and Binance Coin have emerged, each with unique features (Yue et al., 2021).

Decentralization is a core feature of cryptocurrencies, achieved through blockchain networks where "miners" validate transactions and secure the system in exchange for cryptocurrency rewards, a process known as mining (Wang et al., 2019). Cryptographic protocols using public and private keys ensure secure transactions and verifiable ownership (Chohan, 2021).

Cryptocurrencies offer advantages like low transaction costs, borderless payments, and financial inclusion, especially in regions with limited banking access. They also enable smart contracts, which automate agreements using code (Zheng et al., 2017). However, challenges like price volatility, regulatory uncertainty, and misuse in illicit activities pose risks. For instance, Bitcoin's fluctuating value limits its use as a stable medium of exchange (Kristoufek, 2020), while pseudonymous transactions raise concerns about money laundering and tax evasion (Chen & Bellavitis, 2019).

In Nigeria, cryptocurrencies have grown in popularity for international remittances, investment, and hedging against currency devaluation. Despite a 2021 Central Bank of Nigeria (CBN) ban on financial institutions handling cryptocurrency transactions, adoption remains high, driven by tech-savvy users and businesses bypassing traditional systems (CBN, 2021). Cryptocurrencies also influence financial reporting, creating challenges in valuation, disclosure, and compliance with accounting standards. Although classified as intangible assets under IFRS, this does not fully address their unique attributes, complicating financial reporting (PwC, 2018).

Cryptocurrency Volatility

Cryptocurrency volatility refers to the rapid and unpredictable price fluctuations common in digital assets, influenced by speculative trading, limited liquidity, regulatory uncertainty, technological advancements, and macroeconomic trends (Kristoufek, 2020). For example, Bitcoin's price rose from under $1,000 in early 2017 to nearly $20,000 by the end of the year, only to plummet in 2018 (Chen & Hafner, 2019). Speculative trading drives much of this instability as market participants act on anticipated price changes rather than intrinsic value. Limited market liquidity and concentrated holdings among large investors, known as "whales," further amplify price swings (Bouri et al., 2017; Smales, 2021). Regulatory developments, such as the Central Bank of Nigeria's 2021 ban on cryptocurrency transactions, also contribute to sharp market reactions (CBN, 2021). Additionally, technological advancements, security breaches, and the lack of intrinsic value tied to cryptocurrencies make them particularly vulnerable to external shocks (Yue et al., 2021).

Addressing cryptocurrency volatility requires robust risk management strategies and clear regulatory frameworks. Financial institutions can adopt tools like futures contracts to hedge against price fluctuations and diversify holdings across multiple digital assets. Transparent financial disclosures on cryptocurrency holdings and risks enhance trust and ensure compliance with reporting standards (PwC, 2018). Regulatory clarity, such as consistent guidelines for classification and taxation, reduces market ambiguities (KPMG, 2019). Advanced technologies like artificial intelligence and machine learning offer predictive insights into market trends, supporting informed decision-making (Huynh et al., 2020). Stablecoins, pegged to fiat currencies or commodities, present a promising solution for reducing volatility and could help Nigerian institutions integrate cryptocurrencies more effectively into their operations (Kristoufek, 2020).

Organizational Cryptocurrency Exposure

Organizational cryptocurrency exposure encompasses an entity's involvement with cryptocurrencies through holdings, transactional activities, or reliance on blockchain technology. For Nigerian Deposit Money Banks (DMBs), this exposure arises from holding digital assets, facilitating cryptocurrency transactions, and adopting blockchain technologies, each of which carries implications for financial reporting, risk management, and operational frameworks (Kristoufek, 2020). Direct cryptocurrency holdings subject organizations to volatility, affecting financial statements through unrealized gains or losses, particularly with assets like Bitcoin, which face price swings influenced by speculation and regulatory shifts (Chen & Bellavitis, 2019). Institutions offering cryptocurrency-related services or adopting blockchain also encounter financial, operational, and compliance risks, further deepening their exposure to the evolving cryptocurrency landscape (Bouri et al., 2017).

Effective management of cryptocurrency exposure demands comprehensive strategies balancing innovation with risk mitigation. Organizations must adopt robust risk management frameworks to address market volatility, liquidity constraints, and operational risks. Clear and consistent accounting policies aligned with international standards are crucial for enhancing financial transparency (IASB, 2021). Engagement with regulators to ensure compliance and advocacy for balanced policies can provide a stable operating environment. Additionally, leveraging advanced analytics for market monitoring and equipping staff through training programs strengthens institutional capacity to manage exposure. These efforts, alongside innovations like stablecoins and blockchain-enabled solutions, support financial institutions in navigating the complexities of cryptocurrency integration while minimizing associated risks (Chen & Hafner, 2019; Kristoufek, 2020).

Accounting Information Systems Complexity

Accounting Information Systems (AIS) are essential for managing financial data, supporting decision-making, and ensuring regulatory compliance. However, the rise of digital assets like cryptocurrencies has significantly increased AIS complexity, particularly for financial institutions such as Deposit Money Banks (DMBs) in Nigeria. Integrating cryptocurrency transactions, blockchain technology, and addressing the associated risks require sophisticated AIS enhancements. Unlike traditional assets, cryptocurrencies are decentralized and operate without uniform regulatory frameworks, necessitating advanced systems capable of processing real-time data and managing their inherent volatility (Chen & Bellavitis, 2019; PwC, 2018).

Blockchain technology further complicates AIS by requiring seamless integration to ensure transparency and security in handling digital assets. Continuous updates and technical expertise are essential to accommodate evolving blockchain protocols (Bouri et al., 2017). Additionally, the lack of universal accounting standards for cryptocurrencies under International Financial Reporting Standards (IFRS) challenges the consistent reporting of their volatile and exchange-medium characteristics (IASB, 2021). Security concerns, including risks of cyberattacks and fraud, demand robust measures like encryption and real-time monitoring, adding another layer of complexity to AIS design while balancing efficiency and accessibility (KPMG, 2019).

Discretionary Accruals as a Proxy for Financial Statement Quality

Discretionary accruals represent adjustments in accrual-based accounting influenced by managerial discretion rather than business operations, often serving as a proxy for financial statement quality (Dechow, Ge, & Schrand, 2010). Total accruals consist of non-discretionary components, driven by economic activities, and discretionary components, arising from managerial judgment. Models like the Modified Jones and Dechow-Dichev models estimate non-discretionary accruals, with deviations classified as discretionary. High discretionary accruals often indicate earnings management, signaling lower financial statement quality, while lower levels reflect faithful representation and adherence to accounting standards (Cohen & Zarowin, 2010).

Discretionary accruals are crucial for assessing earnings quality, guiding investor decisions, and supporting regulatory oversight. They help stakeholders identify earnings manipulation practices like income smoothing, enhancing transparency and reliability for investors and aiding regulators in detecting fraud (Hu et al., 2024; Couchoux, 2024). However, challenges arise from measurement errors, as models may not capture industry-specific nuances, and not all discretionary accruals imply manipulation. Legitimate managerial decisions, governance practices, and economic conditions can influence their interpretation, highlighting

the need for contextual understanding (Biddle, Hilary, & Verdi, 2009).

Effect of Cryptocurrency Volatility on Financial Statement Quality

Cryptocurrency volatility poses significant challenges to financial reporting and statement quality, particularly within the banking sector in Nigeria, where digital financial technologies are evolving rapidly (Gbadebo, 2024). Extreme price fluctuations of digital assets, such as Bitcoin, complicate asset valuation, introduce uncertainty, and create complex accounting challenges in measuring and recognizing digital assets (Peters et al., 2016). For example, Okorie and Lin (2020) found that Bitcoin prices can shift dramatically within hours, directly affecting financial statements. Nigerian financial institutions struggle with fair value measurement, recognizing unrealized gains and losses, and appropriate accounting treatment for cryptocurrency transactions, necessitating advanced risk management strategies (Obeng, 2023). These challenges also highlight the need for enhanced regulatory frameworks, as current standards fail to address the intricacies of cryptocurrency reporting, adding to the difficulty of ensuring accurate and transparent financial statements.

Empirical evidence links cryptocurrency exposure to risks such as earnings management and financial statement manipulation, undermining the reliability and comparability of financial reports (Niyitegeka & Zhou, 2023). Regulatory uncertainty further exacerbates these challenges, requiring urgent development of accounting standards and valuation methodologies tailored to cryptocurrencies (Peters et al., 2016). Financial institutions must adopt robust risk assessment models, advanced valuation techniques, and transparent reporting practices to address these issues effectively. Additionally, the transformative nature of cryptocurrency volatility offers opportunities to enhance financial reporting practices through innovations like real-time asset tracking and improved auditability. However, realizing these benefits demands sophisticated systems and clear regulatory guidance to mitigate the inherent risks associated with cryptocurrency-related financial reporting (Obeng, 2023).

Effect of Organizational Cryptocurrency Exposure on Financial Statement Quality

The rising engagement of organizations with cryptocurrencies has introduced complexities that significantly impact financial statement quality and transparency (Sheela et al., 2023). Research highlights that cryptocurrency holdings, due to their volatile and unpredictable valuations, present significant measurement and reporting challenges that can compromise an organization's financial position accuracy (Danielsson & Lindblad, 2021). Industries with direct cryptocurrency exposure face acute difficulties in valuing assets, recognizing unrealized gains or losses, and maintaining consistency in reporting amid rapid price fluctuations (Morozova et al., 2020). This dynamic environment requires organizations to adopt sophisticated accounting approaches to ensure accurate and reliable financial statements while navigating a complex regulatory landscape.

Cryptocurrency exposure is also associated with risks of earnings management and financial statement manipulation, challenging fundamental principles of accounting transparency (Yue et al., 2021). Organizations must enhance their internal controls, valuation techniques, and disclosure mechanisms to address these risks effectively. Regulatory uncertainty complicates compliance efforts, underscoring the need for updated accounting standards and clear guidelines for digital asset reporting (Sheela et al., 2023). Despite the challenges, cryptocurrency exposure presents potential benefits, such as enhanced transparency and auditability, which could improve financial reporting practices. However, realizing these advantages depends on addressing the significant technical and regulatory hurdles to integrate digital assets effectively into financial statements (Morozova et al., 2020).

Effect of Accounting Information Systems Complexity on Financial Statement Quality

The increasing complexity of accounting information systems (AIS) has fundamentally transformed financial management and reporting, introducing both opportunities and challenges (Neely, 2008). Modern AIS integrates advanced technologies such as artificial intelligence, real-time data processing, and comprehensive reporting mechanisms, requiring high levels of technical expertise (Romney et al., 2012). This sophistication enhances analytical capabilities but also creates significant implementation and maintenance challenges. Organizations must carefully balance system complexity with operational efficiency while navigating regulatory requirements that demand robust and adaptable technological infrastructures (Kucherenko et al., 2021).

AIS complexity also introduces critical concerns such as cybersecurity risks, data integration issues, and the need for skilled personnel to manage intricate systems (Otero, 2018). Comprehensive training programs and talent development are essential to equip professionals with the skills to operate these advanced systems effectively (Romney et al., 2012). Moreover, organizations must implement robust cybersecurity measures and risk management strategies to safeguard data integrity and ensure compliance with evolving regulatory standards. By addressing these challenges, organizations can leverage AIS complexity to improve financial reporting quality, enhance decision-making processes, and maintain competitive advantage in increasingly technology-driven financial ecosystems.

Theoretical Framework

The theoretical framework for this study is underpinned by three relevant theories: Agency Theory, Signaling Theory, and Institutional Theory. These theories provide a robust foundation for understanding the relationship between cryptocurrency adoption and financial reporting quality in the banking sector.

Agency Theory

Agency theory, introduced by Jensen and Meckling (1976), explains the relationship between principals (shareholders) and agents (managers) within an organization. The theory highlights the challenges arising from information asymmetry and conflicting interests between these parties. In the context of cryptocurrencies, their volatile nature and lack of standardized accounting practices exacerbate the risk of misalignment between managers' reporting strategies and shareholders' expectations. For instance, managers may exploit the ambiguity surrounding cryptocurrency valuation and reporting to manipulate financial outcomes, thereby compromising the reliability and transparency of financial statements (Chouaibi, Zouari & Khlifi, 2019). Implementing robust disclosure standards and governance mechanisms is essential to

mitigate these risks and align management actions with shareholders' interests.

Signaling Theory

Signaling theory, as articulated by Spence (1973), posits that organizations send signals to stakeholders through observable actions, such as financial disclosures. The adoption and reporting of cryptocurrencies in financial statements serve as a signal of innovation, adaptability, and future growth potential. However, the quality of the signal depends on the accuracy and clarity of the reported information. If cryptocurrency-related disclosures are inconsistent, incomplete, or unreliable, they can lead to misinterpretation by investors and other stakeholders, thereby affecting their trust and decision-making (Gelb, 2002). Effective signaling requires accurate valuation methods and transparent reporting frameworks to ensure that cryptocurrency integration reflects positively on financial statement quality.

Institutional Theory

Institutional theory, developed by Meyer and Rowan (1977), emphasizes the influence of societal norms, regulations, and industry practices on organizational behaviour. This theory is relevant to understanding how regulatory environments and market pressures shape the adoption and reporting of cryptocurrencies in DMBs. The lack of globally harmonized accounting standards for cryptocurrencies creates institutional pressures for Nigerian banks to conform to emerging norms and regulatory expectations, potentially at the expense of reporting consistency and comparability (DiMaggio & Powell, 1983). As financial institutions navigate this evolving landscape, institutional theory underscores the need for standardized frameworks and practices to ensure that cryptocurrency reporting aligns with societal expectations and enhances financial statement quality (Marian, 2015).

Review of Empirical Studies

Odunayo et al. (2023) examined the impact of digital disruption of accounting information (DDAI) on the financial reporting quality of listed deposit money banks (DMBs) in Nigeria. Infrastructure deficiencies and unstable power supplies hindered digitalization efforts. Using a field survey, 641 validated responses were analyzed, with Cronbach alpha reliability scores ranging from 0.877 to 0.967. Results showed a significant positive effect of DDAI on financial reporting quality, emphasizing the need for banks to adopt digital accounting processes.

Opebiyi (2022) explored cryptocurrency user interaction (CUI) regulation in Nigeria, identifying issues like data security, market manipulation, and regulatory incoherence. A doctrinal analysis revealed inadequate regulatory frameworks, with private actors possessing more resources than state regulators. Recommendations included leveraging private resources and adopting regulatory surrogacy for better governance.

Babate, Abubakar, and Ishola (2024) highlighted Bitcoin's potential to create jobs in blockchain and marketing while enabling financial independence through peer-to-peer transactions. They urged the government to establish policies supporting digital assets to tackle unemployment, infrastructure gaps, and fiscal deficits, promoting economic growth and global competitiveness.

Abdulmalik et al. (2022) analyzed the relationship between financial innovation and deposit money banks' efficiency in Nigeria from 2016 to 2019. Using ARDL and DEA, the study found dynamic forward and backward linkages, highlighting the role of innovation in enhancing bank efficiency.

Usman, Griffiths, and Alam (2024) examined the impact of FinTech on money laundering in Nigeria, focusing on illicit money transfers from developed to developing economies. While FinTech is often praised, its role in money laundering lacked empirical study, relying on anecdotal evidence. The study used a survey of 248 FinTech users and partial least square structural equation modeling (PLS-SEM) to analyze data. Results revealed a significant link between FinTech and money laundering, moderated by financial regulation but not financial literacy. The study highlighted the challenges of regulating technology-driven money laundering in developing nations due to the absence of targeted laws.

Hubbard (2023) assessed accounting treatments for cryptocurrencies, proposing an intangible asset revaluation model allowing fair value adjustments in other comprehensive income. Through exploratory analysis and illustrations, the study highlighted this model's ability to improve asset accuracy without distorting income statements, providing valuable insights for standard setters and financial statement preparers.

Tiron-Tudor, Mierlita, and Manes (2024) reviewed literature on accounting and auditing of cryptocurrencies, identifying a research focus on reporting and measurement while neglecting auditing. They recommended combining theoretical and empirical methods to address gaps and emphasized areas for future exploration to impact practitioners and academics.

Georgiou et al. (2024) analyzed blockchain's role in accounting and auditing, examining challenges, implications, and research directions. Based on 75 peer-reviewed studies, they highlighted the need for empirical research, focusing on skills, governance, auditor independence, and regulatory challenges in blockchain adoption.

Lazea, Bunget, and Lungu (2024) reviewed cryptocurrency accounting (CA) literature, mapping trends, collaboration networks, and challenges from 2007 to 2023. Using tools like VOSviewer, the study provided insights into CA's role in financial and managerial accounting, taxation, and auditing. Despite limited author collaboration, the study underscored the importance of innovative solutions to crypto-related challenges.

Adiningsih (2023) evaluated crypto trading taxation's compatibility with Pancasila values, highlighting how the final tax favored large capital owners and increased tax burdens, affecting financial statements. The study recommended revising rules to adopt a progressive tax approach.

Akanbi (2024) investigated professional accountants' views on reflecting crypto assets in financial statements. Using a survey of 64 accountants, the study found that crypto assets could be classified as intangible assets, cash equivalents, inventory, or financial instruments. It concluded that crypto assets impact financial statements and called for specific standards and regulations to reduce reliance on discretionary judgments.

Zhuang (2024) explored challenges in establishing accounting standards for digital currencies. The dual role of these

currencies as commodities and currencies complicates classification. The study advocated adopting fair value measurement and standardizing accounting practices to address valuation, regulatory, and legal issues while ensuring transparency and reliability in financial reporting.

Ramassa and Leoni (2022) analyzed how the International Accounting Standards Board (IASB) addressed cryptocurrency accounting. Despite criticism, the IASB upheld existing standards through a regulatory agenda, resisting national efforts to create new guidelines while maintaining its position in the regulatory space.

Judijanto, Kusnadi, and Al-Amin (2024) identified key challenges in crypto reporting, such as price volatility and valuation complexities, and proposed solutions like blockchain adoption, advanced algorithms, and international collaboration. These measures aim to enhance the reliability and compliance of cryptocurrency accounting with global standards.

Dyball and Seethamraju (2022) examined blockchain technology's impact on financial statement audits in Australian firms. They found that blockchain posed unique risks, prompting shifts in audit methodologies. The study highlighted that professionalism and commercialism provided complementary opportunities to develop expertise in this emerging area.

Methodology

This study adopts an *ex-post facto* research design. The design allows for the analysis of existing financial data of quoted DMBs without manipulating variables, ensuring that real-world conditions are captured. The population of this study consists of all forty-three (43) DMBs quoted on the NGX between 2018 and 2023. These DMBs include seven (7) commercial banks with international authorization, fifteen (15) commercial banks with national authorization, four (4) commercial banks with regional authorization, four (4) non-interest banking with national authorization, six (6) merchant banks with national authorization, and seven (7) financial holding companies in Nigeria. A purposive sampling technique was be employed to select ten (10) DMBs for this study. The sample included DMBs that meet specific criteria, such as: exclusion of banks newly listed before 2018 due to incomplete historical data, availability of complete financial data for the entire period (2018–2024), and inclusion of banks with consistent financial reporting practices.

Method of Data Collection

Data for this study were sourced from the annual reports of the firms from 2018 to 2023 through the mechanism of Content Analysis.

Variable Measurement

Table 1 shows the measurement of the variables used in the study.

Table 1: Variable Measurement

Variable	Measurement	Source
Dependent variable		
Financial Statement Quality (Discretionary Accruals [ACCL])	Discretionary Accruals: Modified Jones Model	Givoly and Hayn (2000)
Independent variables		
Cryptocurrency Volatility (CCUV)	Standard deviation of monthly cryptocurrency (Bitcoin) price changes	Dwyer (2015)
Organizational Cryptocurrency Exposure (OCUE)	Percentage of total revenue derived from cryptocurrency-related activities	Dwyer (2015)
Accounting Information Systems Complexity (AISC)	Number of integrated blockchain/crypto tracking systems	Nakamoto (2008)
Control variables		
Firm Size (FMSZ)	Natural logarithm of total assets	Beaver and Ryan (2005)

Method of Data Analysis

Data generated for the variables of the study were analysed using Panel Error Correction-Generated Least Squares (EGLS) method. E-views version 13 was the computer package used for this. The results from the analysis were extracted and presented in tables.

Model Specification

The following regression models were developed in this study in their implicit form to capture the variables of the study:

$$ACCL = f(CCUV, OCUE, AISC, FMSZ) \dots\dots\dots (1)$$

The econometric form or testable form is given as:

$$ACCL_{it} = \beta_0 + \beta_1 CCUV_{it} + \beta_2 OCUE_{it} + \beta_3 AISC_{it} + \beta_4 FMSZ_{it} + e_{it} \dots\dots\dots (2)$$

Where:

ACCL = Financial Statement Quality (Discretionary Accruals)

CCUV = Cryptocurrency Volatility

OCUE = Organizational Cryptocurrency Exposure

AISC = Accounting Information Systems Complexity

FMSZ = Firm Size

e = Error Term

β_0 = Intercept

$\beta_1 - \beta_4$ = Coefficients of the regression

Note that Firm Size was introduced in the modelling of the variables as a control variable.

In line with Givoly and Hayn (2000) total accruals is computed by the following models:

$$ACCL_{it} = (NI_{it} + DEP_{it}) - CFO_{it} \dots\dots\dots (3)$$

Where: ACC is the total accruals,

NI is the net income before extraordinary items,

DEP is the depreciation and

CFO is the operating cash flows.

Results and Discussions

Descriptive statistics

The descriptive statistics presented in Table 2 offer valuable insights into the variables affecting financial statement quality among listed Deposit Money Banks (DMBs). For Discretionary Accruals (ACCL), a mean value of 0.107 and a median of 0.100 suggest moderate levels of accrual management across the sampled banks. The low standard deviation of 0.037 reflects consistency in financial reporting practices, but the range of 0.040 to 0.200 reveals variability, with some banks exhibiting higher discretionary accruals that may indicate earnings management behaviours. The positive skewness (0.333) and kurtosis (2.593) indicate a concentration around the mean with occasional higher values. Similarly, Cryptocurrency Volatility shows an average volatility of 7.958, with a narrow spread indicated by a standard deviation of 0.438. The symmetric distribution, as evidenced by the mean and median (7.962), and the moderate fluctuation range of 7.347 to 8.650, reflect relative market stability. However, the Jarque-Bera probability of 0.079 suggests occasional deviations from normality, which could impact financial reporting frameworks.

Organizational Cryptocurrency Exposure (OCUE) demonstrates notable variability, with a mean of 3.099 and a higher median of 3.500, indicating moderate average exposure but slightly higher levels for many banks. The wide range, from 0.015 to 8.000, and standard deviation of 2.143 highlight significant differences in cryptocurrency involvement across institutions. The negative skewness (-0.152) suggests that most banks report exposure below the mean, with fewer recording extreme high values. Accounting Information Systems Complexity (AISC) reveals a mean of 3.885 and a median of 4.000, indicating moderate investment in blockchain or cryptocurrency tracking systems. The range of 1.000 to 7.000 and a standard deviation of 1.608 highlight variability in system sophistication, with positive skewness (0.111) reflecting a tendency towards simpler systems. Firm Size, represented by the natural logarithm of total assets, shows a mean of 3.032 and a median of 3.030, confirming homogeneity among the banks. The narrow range (2.939–3.122), low standard deviation (0.044), and near-zero skewness (-0.001) indicate uniform size distribution, minimizing the potential for size-based variability in the analysis of financial statement quality.

Table 2: Descriptive statistics

Statistics	ACCL	CCUV	OCUE	AISC	FMSZ
Mean	0.107	7.958	3.099	3.885	3.032
Median	0.100	7.962	3.500	4.000	3.030
Maximum	0.200	8.650	8.000	7.000	3.122
Minimum	0.040	7.347	0.015	1.000	2.939
Std. Dev.	0.037	0.438	2.143	1.608	0.044
Skewness	0.333	0.134	-0.152	0.111	-0.001
Kurtosis	2.593	1.905	1.979	2.130	2.042
Jarque-Bera	2.435	5.078	4.539	3.227	3.671
Probability	0.296	0.079	0.103	0.199	0.160
Sum	10.310	763.977	297.518	373.000	291.118
Sum Sq. Dev.	0.128	18.219	436.448	245.740	0.186
Observations	96	96	96	96	96

Hausman Test

The findings in Table 3 shows the Hausman Test, on the effect of cryptocurrency on financial statement quality in listed deposit money banks (DMBs) in Nigeria. The result presented showed that at 5% level of significance, the chi-square statistic was 0.304 and p-value >5% which is insignificant. This lack of significance in the p-value indicates that the Hausman test supported the interpretation of the random effect model.

Table 3: Hausman Test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section and period random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section and period random	0.304	3	0.214

Regression Analysis on the effect of cryptocurrency on financial statement quality in listed deposit money banks (DMBs) in Nigeria

The regression analysis in Table 4 examines the effects of cryptocurrency-related variables and firm-specific factors on the quality of financial statements, using discretionary accruals (ACCL) as the dependent variable.

Cryptocurrency Volatility

The coefficient of cryptocurrency volatility is -0.005, with a t-statistic of -0.802 and a p-value of 0.425, indicating that cryptocurrency volatility does not have a statistically significant

effect on discretionary accruals. While the negative coefficient suggests a potential inverse relationship, the lack of statistical significance implies that fluctuations in cryptocurrency prices do not directly influence the quality of financial statements. This therefore means that the null hypothesis which stated that cryptocurrency volatility has no significant effect on the financial statement quality of listed deposit money banks in Nigeria is hereby accepted.

This finding might be attributed to the relatively nascent stage of cryptocurrency adoption in Nigeria's banking sector, where direct engagement with volatile cryptocurrency markets may remain limited or highly regulated. Cryptocurrency volatility typically poses challenges for financial reporting due to its unpredictability and susceptibility to extreme market fluctuations. In situations where banks or firms engage heavily in cryptocurrency transactions, volatility can introduce valuation uncertainties that complicate financial disclosures. However, in this study, the insignificant impact could indicate that Nigerian DMBs have not yet integrated cryptocurrencies deeply enough into their operations for volatility to influence financial statement quality substantially. This aligns with findings from Hubbard (2023), who argued that while cryptocurrency volatility is a concern globally, its impact varies based on institutional exposure and regulatory environments.

Another possible explanation lies in the relatively low level of direct cryptocurrency holdings among Nigerian DMBs. Unlike more developed financial markets where cryptocurrencies might form part of corporate assets or investment portfolios, Nigerian banks may engage more indirectly primarily facilitating cryptocurrency transactions for clients or experimenting with blockchain technology. This limited exposure could mitigate the direct effects of volatility on financial reporting outcomes. Furthermore, given the CBN restrictive stance on cryptocurrency transactions, banks might have adopted cautious practices that shield financial reporting processes from the effects of cryptocurrency market fluctuations. While the results suggest no immediate concerns related to cryptocurrency volatility, they underscore the need for proactive measures as the adoption of digital assets grows. DMBs must ensure robust accounting frameworks to manage the potential challenges posed by volatile cryptocurrency markets. These measures could include real-time valuation tools, risk management protocols, and enhanced training for financial reporting professionals to address the complexities of digital asset accounting.

Organizational Cryptocurrency Exposure (OCUE)

The coefficient for Organizational Cryptocurrency Exposure (OCUE) is -0.013, with a t-statistic of -6.164 and a p-value of 0.000, indicating a statistically significant negative relationship with discretionary accruals at the 1% level. This finding suggests that increased cryptocurrency exposure by organizations leads to a reduction in earnings management practices, thereby improving the quality of financial statements. This means that the null hypothesis which stated that organizational cryptocurrency exposure does not significantly affect the financial statement quality of listed deposit money banks in Nigeria is hereby rejected.

The result highlights the potential of cryptocurrencies and their underlying blockchain technology to enhance financial reporting transparency and reliability in Nigerian DMBs. One possible explanation for this finding is the inherent transparency of blockchain technology. Cryptocurrencies operate on decentralized ledgers where transactions are recorded immutably and can be traced in real-time. This transparency can discourage manipulative accounting practices, as stakeholders including regulators, auditors, and investors can easily verify financial data. Studies such as Zhuang (2024) and Lazea, Bunget, and Lungu (2024) corroborate this, emphasizing that cryptocurrency adoption fosters financial accountability by creating an environment where transactions are both secure and accessible. Nigerian DMBs may leverage this advantage to bolster the credibility of their financial reporting.

Moreover, OCUE's negative relationship with discretionary accruals may reflect the cautious integration of cryptocurrencies into DMB operations. Given the regulatory uncertainty surrounding cryptocurrencies in Nigeria, DMBs likely adopt stringent risk management and compliance protocols for their cryptocurrency-related activities. These measures could indirectly improve overall accounting practices and reduce opportunities for earnings manipulation. For instance, DMBs may implement robust internal controls and audit mechanisms to monitor cryptocurrency transactions, ensuring adherence to evolving guidelines. Additionally, the findings align with global best practices advocating for the incorporation of emerging technologies in financial reporting systems. Blockchain technology has been recognized for its ability to streamline accounting processes, reduce redundancies, and ensure data accuracy. As Nigerian banks increasingly integrate digital assets into their operations, their exposure to blockchain systems could drive broader improvements in accounting standards. For example, enhanced transaction traceability may compel banks to adopt more conservative accounting policies, thereby mitigating the risk of misstating earnings or assets.

However, the results also emphasize the importance of establishing a clear regulatory framework for cryptocurrency operations in Nigeria. While the CBN has introduced measures such as the eNaira, broader cryptocurrency regulation remains in its infancy. Policymakers should prioritize creating comprehensive guidelines that encourage responsible cryptocurrency adoption while safeguarding against systemic risks. Regulatory clarity could further amplify the positive impact of OCUE on financial reporting quality by fostering a stable environment for innovation and accountability.

Accounting Information Systems Complexity (AISC)

The coefficient for Accounting Information Systems Complexity (AISC) is 0.010, with a t-statistic of 3.454 and a p-value of 0.001, indicating a statistically significant positive relationship with discretionary accruals. This result suggests that higher complexity in accounting information systems correlates with an increase in earnings management, as represented by discretionary accruals. This therefore means that the null hypothesis which stated that accounting information systems complexity has no significant influence on the financial statement quality of listed deposit money banks in Nigeria is hereby rejected.

This finding has profound implications for the quality of financial reporting, as it highlights how complex accounting systems may inadvertently or deliberately reduce transparency and accuracy in financial disclosures. Accounting systems that are

overly complex often pose significant challenges to users, especially when such systems lack intuitive interfaces or adequate training for operators. The complexity could lead to errors in data input, misinterpretation of financial data, or difficulties in auditing processes, which provide opportunities for earnings manipulation. Additionally, complex systems may impede effective internal controls, creating a scenario where financial information becomes less reliable. This aligns with the observations of Odunayo et al. (2023), who found that digital infrastructure challenges in accounting systems often lead to inconsistencies in financial reporting and undermine stakeholders' trust.

Furthermore, this result can be explained by the DMBs in Nigeria, where technological adoption in accounting systems has often been rapid but not necessarily accompanied by adequate capacity building or process streamlining. The implementation of complex accounting information systems without robust operational frameworks and staff training can exacerbate the risk of misreporting. This is especially critical in environments where regulatory enforcement is uneven, and oversight mechanisms may not fully address the intricacies introduced by advanced systems. Another important consideration is the cost associated with managing complex accounting systems. High costs often divert resources from other critical areas, such as compliance and internal audits, further compromising the quality of financial reporting. If the systems require constant updates, troubleshooting, and specialized knowledge, organizations may face increased risks of downtime or systemic errors, which could impact reporting timelines and accuracy. This finding calls for a balance between the sophistication of accounting systems and their usability, ensuring that the systems are not only technologically advanced but also practical and effective for the specific needs of the firms.

Firm Size

The coefficient for firm size is 0.210, with a t-statistic of 1.195 and a p-value of 0.235, indicating that firm size does not significantly affect discretionary accruals. Larger firms, often expected to have more robust internal controls and accounting systems, do not appear to exert a significant influence on earnings management in this study. This finding contrasts with general literature suggesting that larger firms tend to exhibit lower discretionary accruals due to stronger corporate governance and regulatory scrutiny. It may reflect specific contextual factors in Nigerian DMBs, such as varying management practices or differences in regulatory oversight.

Model Diagnostics

The model has an R-squared value of 0.413 and an Adjusted R-squared of 0.387, indicating that approximately 38.7% of the variations in discretionary accruals are explained by the independent variables. The significant F-statistic (16.010; p-value = 0.000) confirms the overall significance of the model, suggesting that the included variables collectively have explanatory power. The Durbin-Watson statistic (1.894) indicates no significant autocorrelation, supporting the reliability of the regression results.

Table 4: Regression Analysis

Dependent Variable: ACCL				
Method: Panel EGLS (Two-way random effects)				
Date: 12/07/24 Time: 12:37				
Sample: 2018 2023				
Periods included: 6				
Cross-sections included: 16				
Total panel (balanced) observations: 96				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CCUV	-0.005	0.007	-0.802	0.425
OCUE	-0.013***	0.002	-6.164	0.000
AISC	0.010***	0.003	3.454	0.001
FMSZ	0.210	0.176	1.195	0.235
C	0.830	0.523	1.586	0.116
	Effects Specification			
			S.D.	Rho
Cross-section random			0.026	0.803
Period random			0.006	0.037
Idiosyncratic random			0.012	0.160
	Weighted Statistics			
R-squared	0.413	Mean dependent var		0.018
Adjusted R-squared	0.387	S.D. dependent var		0.016
S.E. of regression	0.013	Sum squared resid		0.015
F-statistic	16.010	Durbin-Watson stat		1.894
Prob(F-statistic)	0.000			
	Unweighted Statistics			

R-squared	0.291	Mean dependent var		0.107
Sum squared resid	0.090	Durbin-Watson stat		1.218

*** is significant at 1%.

Conclusion

This study highlights the effects of cryptocurrency adoption on the financial statement quality of Nigerian DMBs, offering valuable insights for the banking sector. While cryptocurrency volatility has minimal impact on financial reporting, organizational cryptocurrency exposure enhances transparency and reliability, reducing earnings manipulation and improving accountability through blockchain technology. However, the complexity of accounting information systems negatively affects financial statement quality, emphasizing the need for balanced, user-friendly systems. The findings underline the importance of clear policies from the Central Bank of Nigeria to manage risks and optimize the benefits of digital assets. Strategic integration of cryptocurrencies and robust internal controls are crucial for improving financial reporting standards in the sector.

Based on the findings of the study, the following recommendations were made:

- Policymakers should prioritize the establishment of clear and comprehensive cryptocurrency regulations. These should address valuation, recognition, and disclosure challenges, providing standardized guidelines for integrating cryptocurrencies into financial reporting.
- Financial institutions should streamline their accounting information systems to ensure usability and reliability. This involves adopting standardized systems, offering adequate training for users, and reducing unnecessary complexities that hinder accurate financial reporting.
- Banks should invest in training programs to enhance staff competencies in managing cryptocurrency-related transactions and understanding blockchain technology. This ensures accurate valuation and reliable disclosures in financial statements.
- DMBs should implement robust internal control mechanisms to monitor cryptocurrency activities. This includes employing real-time tracking systems, comprehensive audit trails, and periodic evaluations to safeguard against earnings manipulation.

References

1. Abdulmalik, M., Lamino, H. A., Maitala, F., & Taiwo, M. (2022). Dynamic Linkage (s) between Financial Innovation and Efficiency of Deposit Money Banks in Nigeria. *WSEAS Transactions on Business and Economics*, *19*, 1979-1989.
2. Adiningsih, T. E. (2023). Crypto taxation and financial reporting in the context of Pancasila. *Jurnal Akuntansi Multiparadigma*, *14*(3), 485-504.
3. Agbo, E. I., & Nwadialor, E. O. (2020). Cryptocurrency and the African economy. *Economics And Social Sciences Academic Journal*, *2*(6), 84-100.
4. Akanbi, A. (2024). Financial Reporting and Accounting Treatment of Crypto Assets: Professional Accountants Perspectives. *International Journal of Accounting, Finance and Risk Management*, *12*(2), 1-11.
5. Babate, A. I., Abubakar, A., & Ishola, A. (2024). Bitcoin Adoption as a Tool for Empowering Nigeria's Youth amid Economic Challenges. *European Journal of Science, Innovation and Technology*, *4*(5), 1-13.
6. Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency?. *Journal of accounting and economics*, *48*(2-3), 112-131.
7. Bouri, E., Molnár, P., Azzi, G., Roubaud, D., & Hagfors, L. I. (2017). On the hedge and safe haven properties of Bitcoin: Is it really more than a diversifier? *Finance Research Letters*, 20, 192–198. https://doi.org/10.1016/j.frl.2016.09.025
8. Central Bank of Nigeria. (2020). Cryptocurrency and the Nigerian financial system: Challenges and prospects. *CBN Quarterly Report*.
9. Central Bank of Nigeria. (2021). Press release on cryptocurrency transactions in Nigeria. *CBN Official Bulletin*.
10. Chainalysis. (2020). *The 2020 geography of cryptocurrency report*. Chainalysis.
11. Chen, C., & Hafner, C. M. (2019). Sentiment-induced bubbles in the cryptocurrency market. *Journal of Risk and Financial Management*, 12(2), 53. https://doi.org/10.3390/jrfm12020053
12. Chen, Y., & Bellavitis, C. (2019). Blockchain disruption and decentralized finance: The rise of decentralized business models. *Journal of Business Venturing Insights*, 13, e00151.
13. Chohan, U. W. (2021). Decentralized finance (DeFi): An emergent alternative financial architecture. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3822743
14. Chouaibi, J., Zouari, G., & Khlifi, S. (2019). How does the real earnings management affect firms innovative? Evidence from US firms. *International Journal of Law and Management*, *61*(1), 151-169.
15. Cohen, D. A., & Zarowin, P. (2010). Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of accounting and Economics*, *50*(1), 2-19.
16. Couchoux, O. (2024). Navigating knowledge and ignorance in the boardroom: A study of audit committee members' oversight styles. *Contemporary Accounting Research*, *41*(1), 459-497.
17. Danielsson, A., & Lindblad, F. (2021). Unreliable Accoutning of Intangible Assets in a Digital Era: A study on the association between reliability and value relevance of intangible assets. Master Thesis in Business Administration. School of Business and Economics at Linnaeus University
18. Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of accounting and economics*, *50*(2-3), 344-401.
19. DeFond, M. L., Erkens, D. H., & Zhang, J. (2020). Do financial reporting standards matter for financial statement quality? Evidence from cross-country settings. *Review of Accounting Studies*, *25*(3), 1–32. https://doi.org/10.1007/s11142-020-09513-9

20. DiMaggio, P., & Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147–160. https://doi.org/10.2307/2095101
21. Dyball, M. C., & Seethamraju, R. (2022). Client use of blockchain technology: exploring its (potential) impact on financial statement audits of Australian accounting firms. *Accounting, Auditing & Accountability Journal*, *35*(7), 1656-1684.
22. Gbadebo, A. D. (2024). The Impact of Cryptocurrency on the Financial System in Nigeria. *Pakistan Journal of Life and Social Sciences*, *22(*2), 1022-1038
23. Gelb, D. S. (2002). Intangible assets and firms' disclosures: An empirical investigation. *Journal of business finance & accounting*, *29*(3-4), 457-476.
24. Georgiou, I., Sapuric, S., Lois, P., & Thrassou, A. (2024). Blockchain for accounting and auditing—accounting and auditing for cryptocurrencies: A systematic literature review and future research directions. *Journal of Risk and Financial Management*, *17*(7), 276.
25. Hu, J., Tang, Y., Yin, N., & Guo, X. (2024). Institutional investor information competition and accounting information transparency: Implications for financial markets and corporate governance in china. *Journal of the Knowledge Economy*, *15*(2), 9629-9666.
26. Hubbard, B. (2023). Decrypting crypto: implications of potential financial accounting treatments of cryptocurrency. *Accounting Research Journal*, *36*(4/5), 369-383.
27. Huynh, T. L. D., Khalifa, N., & Nasir, M. A. (2020). Volatility spillovers across international cryptocurrencies: A VAR–MGARCH evidence. *Research in International Business and Finance*, 53, 101231.
28. International Accounting Standards Board (IASB). (2021). *Conceptual framework for financial reporting*. IFRS Foundation.
29. Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm. *Managerial Behavior, Agency Costs and Ownership Structure*.
30. Judijanto, L., Kusnadi, I., & Al-Amin, A. A. (2024). Accounting Analysis for Cryptocurrencies: Challenges And Solutions In Financial Reporting Standards. *COSMOS: Jurnal Ilmu Pendidikan, Ekonomi dan Teknologi*, *1*(6), 500-512.
31. KPMG. (2019). Cryptocurrencies: Accounting and auditing considerations. *KPMG Insights*.
32. Kristoufek, L. (2020). Bitcoin and its mining on the global market: Game-theoretic analysis. *Economic Modelling*, 87, 1–12.
33. Kucherenko, T., Anishchenko, H., Melnyk, L., & Glinkowska-Krauze, B. A. (2021). Accounting Information System under the Digital Transformation. *Oblik i finansi*, *94*, 23-29.
34. Lazea, G. I., Bunget, O. C., & Lungu, C. (2024). Cryptocurrencies' Impact on Accounting: Bibliometric Review. *Risks*, *12*(6), 94.
35. Li, C., & Oroy, K. (2024). *Exploring the Dynamics of Accounting Information Systems (AIS): Evolution, Adoption, and Strategic Integration in Contemporary Business* (No. 12782). EasyChair.
36. Marian, O. (2015). A conceptual framework for the regulation of cryptocurrencies. *U. Chi. L. Rev. Dialogue*, *82*, 53.
37. Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, *83*(2), 340–363. https://doi.org/10.1086/226550
38. Morozova, T., Akhmadeev, R., Lehoux, L., Yumashev, A. V., Meshkova, G. V., & Lukiyanova, M. (2020). Crypto asset assessment models in financial reporting content typologies. *Entrepreneurship and Sustainability Issues*, *7*(3), 2196.
39. Neely, M. P. (2008). Accounting Information Systems: A Business Process Approach. *Issues in Accounting Education*, *23*(3), 495.
40. Niyitegeka, O., & Zhou, S. (2023). An investigation of financial contagion between cryptocurrency and equity markets: Evidence from developed and emerging markets. *Cogent Economics & Finance*, *11*(1), 2203432.
41. Obeng, J. O. H. N. (2023). *Impact of cryptocurrency volatility on stock market performance* (Doctoral dissertation, University of Education, Winneba).
42. Odunayo, J., Akintoye, R. I., Aguguom, T. A., Sanyaolu, A. W., Omobowale, A., & Osunusi, K. A. (2023). Digital disruption of accounting information and quality of financial reporting of listed money deposit banks in Nigeria. *International Journal of Applied Economics, Finance and Accounting*, *17*(2), 337-352.
43. Okorie, D. I., & Lin, B. (2020). Crude oil price and cryptocurrencies: evidence of volatility connectedness and hedging strategy. *Energy economics*, *87*, 104703.
44. Opebiyi, F. M. (2022). *Regulating user interactions within the financial technology market: Cryptocurrencies in Nigeria* (Doctoral dissertation, University of Manchester).
45. Otero, A. R. (2018). *Information technology control and audit*. Auerbach publications.
46. Ozili, P. K. (2022). Decentralised finance and cryptocurrency activity in Africa. In *The New Digital Era: Digitalisation, Emerging Risks and Opportunities* (pp. 3-11). Emerald Publishing Limited.
47. Peters, G. W., Chapelle, A., & Panayi, E. (2016). Opening discussion on banking sector risk exposures and vulnerabilities from virtual currencies: An operational risk perspective. *Journal of banking regulation*, *17*, 239-272.
48. PwC. (2018). Blockchain and cryptocurrencies: Impact on financial reporting. *PwC Accounting Insights*.
49. Ramassa, P., & Leoni, G. (2022). Standard setting in times of technological change: accounting for cryptocurrency holdings. *Accounting, Auditing & Accountability Journal*, *35*(7), 1598-1624.
50. Romney, M., Steinbart, P., Mula, J., McNamara, R., & Tonkin, T. (2012). *Accounting Information Systems Australasian Edition*. Pearson Higher Education AU.
51. Sheela, S., Alsmady, A. A., Tanaraj, K., & Izani, I. (2023). Navigating the Future: Blockchain's Impact on Accounting and Auditing Practices. *Sustainability*, *15*(24), 16887.

52. Smales, L. A. (2021). Volatility spillovers among cryptocurrencies. *Journal of Risk and Financial Management*, *14*(10), 493.
53. Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, *87*(3), 355–374. https://doi.org/10.2307/1882010
54. Tiron-Tudor, A., Mierlita, S., & Manes Rossi, F. (2024). Exploring the uncharted territories: a structured literature review on cryptocurrency accounting and auditing. *The Journal of Risk Finance*, *25*(2), 253-276.
55. Usman, N., Griffiths, M., & Alam, A. (2024). FinTech and money laundering: moderating effect of financial regulations and financial literacy. *Digital Policy, Regulation and Governance*.
56. Wang, X., Zha, X., Ni, W., Liu, R. P., Guo, Y. J., Niu, X., & Zheng, K. (2019). Survey on blockchain for Internet of Things. *Computer Communications*, *136*, 10-29.
57. Yue, Y., Li, X., Zhang, D., & Wang, S. (2021). How cryptocurrency affects economy? A network analysis using bibliometric methods. *International Review of Financial Analysis*, *77*, 101869.
58. Zheng, Z., Xie, S., Dai, H., Chen, X., & Wang, H. (2017). An overview of blockchain technology: Architecture, consensus, and future trends. *2017 IEEE International Congress on Big Data (BigData Congress)*, 557–564.
59. Zhuang, J. (2024). Challenges and Prospects of Establishing Accounting Treatment Standards for Digital Currency. *Advances in Economics and Management Research*, *11*(1), 217-217.