ABSTRACT: Financial crime has been one of the current challenges faced by organizations especially deposit money banks. To ameliorate this ugly development, technology-enabled forensic auditing was introduced in addition to conventional auditing. This study examined the impact of technological forensic auditing on financial crime detection in Nigeria; a study of selected deposit money banks in Nigeria. The theories reviewed in the study are the strain theory, the theory of inspired confidence, and the credibility theory. The study adopted the survey design. The population of the study is made up of the accounting staff of five selected deposit money banks in Delta state namely; Zenith, First Bank, United Bank for Africa (UBA), Fidelity Bank, and Sterling Bank with a statistic of fifty-eight (58) staff/respondents. Data for the study were generated through the distribution of well-structured questionnaires to the corresponding respondents. Data was analyzed with the multiple linear regression method. The study found that robotic process automation, textual analysis, and data analytics contribute significantly to detecting financial crime in selected deposit money banks in Nigeria. It is therefore the recommendation of this study that forensic audit firms and deposit money banks should strategically employ the usage of software applications that can permit data analytics, textual analysis, and robotic process automation to redeem the credibility image of the forensic auditors’ report.

KEYWORDS: Forensic Auditing, Financial Crime, Deposit Money Banks, Nigeria
INTRODUCTION

The field of accounting was revolutionized with the emergence of information and communication technology (ICT). Diverse accounting functions and dimensions were adjusted given the rise of technology. One of those dimensions is forensic auditing. In this present era of rapid technological improvement, auditing and fraud investigation with dependable computer forensic skills is an indispensable tool for forensic accountants and auditors to detect substantial financial misstatements and errors that could have gone undetected and as a result reduced the quality of audit reports (Ugochukwu & Okenwa, 2021). Every tool that will ensure the usefulness of the information made available to diverse users must be ensured. In all firms worldwide, the auditors' report determines the reliability of the corporate annual financial report; therefore, the availability of technology is utilized and adopted by audit firms especially when carrying out independent forensic audits (Knežević, 2015).

Despite widespread praise for firms' adherence to financial reporting standards, public trust in auditors' reports is declining globally. This could be due to the tragic failures of businesses that were thought to be doing well after external auditors reported on their financial health (Gbegi et al., 2018). The reason for this failure was that the audit report that is meant to add credibility to financial reports has shortcomings that can adversely affect investors (Okenwa & Nwoye, 2021). It is becoming a significant concern that financial statement report quality is declining and it poses a threat to the entire accounting profession, which has lagged behind in updating and acquiring the requisite technological skills necessary to help professional accountants successfully complete their set objectives.

It is believed that engaging forensic technology in the audit process will improve the quality and standard of the auditor’s report issued by the audit firms. Due to the volume of records kept by organizations, especially deposit money banks, ranging from financial statements to sustainability reports, engaging technological forensic auditing as part of audit techniques will enable auditors to search for irregularities and provide more analytical reports (Akpan & Akpan, 2021). Also, there is less likelihood that fraud and material misstatement will go unnoticed (Gandía & Huguet, 2021). With the expansion of audit techniques to the use of forensic audit technology, there is significant potential in improving the audit report quality as it avails auditors the use of computer technology in the procedure of examining evidence using technological and scientific methods, and also creates and evaluates ideas that can be used in a court of competent jurisprudence to respond to inquiries in the case of litigation and also enlighten the jury as expert witnesses. The Deposit Money Banks in Nigeria are one of the organizations that host a huge amount of financial data. It is believed that these firms are one of the primary beneficiaries of technology-enabled forensic auditing in detecting financial crimes or irregularities and this presents a motivation to investigate this study. Empirical studies that delved into the impact of technological forensic audit and fraud detection especially in Nigeria are scarce and generally unexplored. Previous studies mainly concentrate on audit firms’ characteristics such as size, auditors’ expertise, auditors’ skepticism, and audit fee as determinants of audit report quality (Fujianti & Satria, 2020; Jayeola et al., 2020; Salehi et al., 2019; Subianto, 2018; e.t.c.). This study seeks to fill this gap in the literature as it explores the disaggregated dimensions of technological forensic auditing techniques and how they impact on fraud detection. It is based on this premise that this study is aimed at carrying out an empirical analysis of technological forensic auditing and financial crime detection in Nigeria, with a focus on selected deposit money banks.
LITERATURE REVIEW

Conceptual Reviews

Technological Forensic Audit

Technological forensic audit refers to the use of technical solutions for the retrieval and analysis of enormous and complicated data sets that can be utilized to meet litigation concerns, investigation needs, regulatory needs, and requirements related to financial crime (Bhusahan, 2015; Easwaramoorth, 2016). A subfield of forensic science is called computer forensics and it deals with the recovery and examination of data from digital devices, frequently in the context of computer crime (Paransanthi, 2016). Also, Bhusahan (2015) explained that computer forensic specialists are responsible for the preservation, gathering, and analysis of data and other evidence found on computers to ascertain the relevant facts. Fenu and Solinas (2016) and Galvan and Battiato (2016) described computer forensics as the process of investigating a computer system used for accounting, financial reporting, and/or financial transaction purposes to determine the cause of the incident.

The mainstay of any digital forensic investigation is computer tools as they remove the barrier that limits the expertise of auditors (Bhat et al., 2021). Professional accountants, such as auditors and forensic accountants, urgently need to upgrade digitally their existing forensic accounting abilities in order to successfully soothe the rising tension in the corporate financial reporting environment. This action is expedient to prevent dreaded speculations among fearful investors whose value of investments are rapidly declining (Ugochukwu & Okenwa, 2021). The development of efficient and trustworthy computer forensics is primarily responsible for the positive change in auditing practice in countries like the United States of America and other developed countries.

Using computer forensics, any type of evidence can be preserved by analyzing information through electronic means. It equally aids in the understanding of series of events, storing, classifying, and validating information. Technology like data analytics enables forensic accountants and auditors to spend less time sifting through boxes of paperwork and more time investigating matters of concern. Textual analysis on the other hand as a technique is useful in predicting outcomes by identifying anomalies, trends, and correlations in huge data sets (Akpan & Akpan, 2021). Organizations can easily transform raw data into meaningful information if it is analyzed in summary. According to Bassey (2018), by employing software to search for patterns in big amounts of data, forensic auditors can learn more about their clients, and predict if the existing workplan will be executed and cost effective.

Robotic Process Automation (RPA)

The robotic process automation differs from artificial intelligence as RPA cannot learn from data patterns and make judgments. RPA is commonly used by accounting and auditing firms to collect audit evidence when the data are in different organizational systems that are not integrated. Areas such as reconciliations, audit confirmations, generation of emails, and so on can be facilitated using RPA. RPA is somewhat expensive to implement but can provide financial as well as non-financial benefits (Jerry, 2018).
Textual Analysis (TA)

Textual analysis refers to a variety of ways to collect data from written sources for use in data analysis, business intelligence, or research, among other things (Loughran & McDonald, 2016). Textual analysis is the method used to describe and interpret the characteristics of information and the main purpose of textual analysis is to describe the content, structure, and functions of the messages contained in texts. According to Kumar et al. (2016), textual analysis comprises a variety of techniques that aim to extract meaningful information from documents. It is done by identifying and examining patterns in the unstructured data of various types of documents. In the study of Loughran and McDonald (2016), the techniques used in textual analysis are content analysis approach, dictionary approach, and machine learning approach. In the study, the process of assessing documents to discern their subjective undertone is known as textual analysis. Auditors can only offer a clean audit opinion in their report when they have no substantial reservations about anything related to the financial statements. It can then be said that the threshold for a modified audit opinion is lowered when auditors are unable to determine whether audit evidence is adequate which can easily be done through textual analysis.

Data Analytics (DA)

The process of evaluating data sets to make inferences about the information they contain using specialized tools and software is known as data analytics (DA). It entails data structure exploration, finding trends and clusters, noticing local patterns, assessing model output, and presenting results. Data quality assessment and familiarization with the structure and features of the data are crucial for exploratory data analysis for auditors (Mara Stats, 2019). When an investigation on information is to be carried out, data analysis is capable of presenting the condensed version of client financial information which is mostly oversimplified to obscure substantial underlying variation and this obscurity can easily be revealed and observed when it is analyzed. Analyzing full data sets for abnormalities and trends that can be investigated further to establish audit evidence entails the use of audit data analytics. Typically, this procedure analyzes entire populations of data as opposed to the much more typical audit approach, which just looks at a small subset of the information.

Financial Crime Detection

The fact that fraud cannot be completely eliminated does not guarantee that it should be ignored, for it can be controlled to reduce losses. Then, this control for fraud brings about fraud deterrence and detection. Fraud deterrence involves the proactive identification and removal of the causal and enabling factors of fraud. It is based on the premise that fraud is not a random occurrence but occurs when the conditions are right for it to occur, its purpose being that it proactively deters financial misrepresentation so as to ensure more accurate financial reporting and, in turn, increases investor confidence (George, 2017). From time to time, there are ugly developments in organizations in the area of financial crime and irregularities. Through some intentional or unintentional mechanisms, there are cases of poor or falsified financial reports, firm embezzlements or fund diversions. Financial crime detection is the strategic identification of these financial fraud related activities (Anderson, 2020). This detection is either made available through manual, forensic or technological means. Leonard (2019) posits that financial crime detection repositions firms to maintain financial intergrity and enhance financial performance.
Empirical Studies

Gandía and Huguet (2021) studied textual analysis and sentiment analysis applications in accounting. After introducing the terms textual analysis and sentiment analysis and highlighting their relevance to accounting, the prior research on the application of these ideas in finance and accounting, as well as the steps that should be taken when using this textual analysis methodology, were reviewed. The paper then recommends using textual analysis to uncover hidden clues that might conflict with the intermediary's stated public position in the audit reports or opinions. Furthermore, the potential advantages of incorporating textual analysis into auditing were examined by Liu, Y. (2019), and they specifically examined how textual analysis will enhance knowledge of the annual report review procedure, audit fee determination, and internal control risks. The study uses the strong and weak modal word lists from Loughran and McDonald (2011) to gauge the strength of the initial SEC comment letters based on their modal usage. The study identifies a favorable correlation between a more abnormally negative tone of earnings in press releases, associated with higher audit fees, demonstrating that the abnormal tone of press releases can be a signal of the client's business. The study also found an association between the intensity of the comment letter and the likelihood of restatement of the reviewed 10-K filing.

Al-Ateeq et al. (2022) investigated the effects of perceived benefits and perceived accessibility of components of the technology acceptance model (TAM), on the adoption of big data analytics in auditing and the subsequent effect on audit quality. A questionnaire poll was conducted with Jordanian offices and linked external audit firms. Structural equation modeling (SEM) was used to analyze the measurement model and test the study's assumptions. The research revealed that, without mediating the actual usage of data analytics, perceived usefulness and perceived simplicity of use have a direct impact on audit quality. However, the application of big data analytics has been proven to moderate the connection between perceived usefulness and audit quality.

Ugochuckwu and Okenya (2021) investigated if the use of forensic digital tools effectively predicts tendencies of material misrepresentation in Nigerian financial regimes before and after the implementation of IFRS. Using secondary data, data obtained from 50 manufacturing companies in Nigeria were evaluated utilizing pre- and post-IFRS annual reports from 2006 to 2016 using digital forensic techniques such as Probit Model e-enabled spreadsheets. The Mann-Whitney U test and the Multiple Regression Analytical tool were used to examine pertinent hypotheses. The analysis' findings demonstrated that the proper use of digital forensic techniques can accurately forecast the likelihood of substantial falsification in the pre- and post-IFRS Financial Statements of certain manufacturing enterprises sampled in Nigeria. Vaijayanthi (2017) discovered that the retrieved documents can be automatically categorized into several useful groups using clustering methods via textual analysis. Word groups known as descriptors are used to characterize the contents of cluster documents and the seized digital devices can provide precious information and evidence about facts if well analyzed. Likewise, Bassey (2018) focused on computer forensic accounting as it affects the management of fraud in microfinance institutions in Cross River State. Data collected from both primary and secondary sources were analyzed using the ordinary least square technique. The regression results showed that the estimated coefficients of the regression parameter are all negative signs. The study revealed that audit failures over decades have prompted a paradigm shift in accounting and thus concluded that forensic accounting plays a significant role in the prevention of crimes and corruption.
Ellull and Buttigieg (2021) evaluated how data analytics (DA) can be applied to Maltese external public sector audits to increase the value that can be gained from them. They also examined DA's application in Malta's National Audit Office here, including its descriptive, diagnostic, predictive, and prescriptive aspects (NAO). The research employs a hybrid methodological strategy where semi-structured interviews were used to acquire empirical data, and NAO auditors from every audit unit were given questionnaires to be completed. The results show that although NAO has begun to incorporate data analytics into its operations, the usage of DA by the office is still modest. According to the report, data analytics implementation will be advantageous for every unit within NAO.

Fedyk et al. (2022) explored how artificial intelligence (AI) affects audit quality and efficiency. The study used a unique dataset of more than 310,000 individual resumes with specific information for the 36 top audit firms to determine which audit firm employed AI workforce in the auditing industry. Importantly, the company's AI division is consolidated, with personnel concentrating on a small number of teams and areas. Our findings demonstrate that even if the benefit does not become apparent for some years, investing in AI improves audit quality, lowers costs, and eventually replaces human auditors.

Theoretical Reviews

Three theories were reviewed in this study, namely, the Strain Theory, the Theory of Inspired Confidence, and the Credibility Theory. However, the study is anchored on the Credibility Theory as the theoretical framework.

**Strain Theory:** The strain theory was propounded by Robert K. Merton (1938). This theory states that social structures in society may encourage citizens to commit fraud. When the goals of society become significant to an individual, achieving them becomes more important than the means adopted, as there is usually an encouragement to strive for monetary success with little or no emphasis placed on the legitimate means of achieving them.

**Theory of Inspired Confidence:** Limperg (1932) propounded the theory of inspired confidence and the theory assumes that the necessity for expert and independent examination as well as the need for an expert and independent judgement backed by the examinations are the sources of the auditor's broad function in the society as a confidential agent. This necessitates auditors to prepare and carry out their audit in ways that will reduce the possibility of substantial misstatements going unnoticed (Amahalu, 2020). The theory provides a link between the financial report that users desire, which is a credible and reliable financial report, and the audit procedures' ability to meet those needs. It equally observes the evolution of these public (stakeholder) needs and audit methods through time. The theory is significant to forensic audit technology because it links stakeholders' needs for financial information reliability to audit techniques' capacity to meet these needs. This is because changes in the needs of stakeholders might result in changes in auditing procedures and the auditor's function. The auditor must perform the audit in such a way that any external stakeholder's expectation is not jeopardized. As a result, when audit techniques progress, auditors should strive to meet the public's realistic expectations. Also, the fact that audit firms are investing heavily in cutting-edge technical advances to boost the effectiveness and efficiency of the audit process (Albawwat & Frijat, 2021) implies that they aim to inspire the confidence of the public in audit practice.
Credibility Theory: The credibility theory is explained in the study of Hayes et al. (2005) as an audit service theory. The theory assumes that the primary function of an audit is the increased credibility it provides to the financial statements cum the public perception of auditing. Accordingly, the general public is more likely to trust and embrace reports provided by those who are independent, such as external auditors, because higher credibility has a greater influence on their trust in the quality of financial reports (Umeogu, 2012). The study is hinged on the theory because the trustworthiness of the financial statements that will be used as the foundation for decision-making can be improved by the auditor's report, and this will be better improved if the techniques employed in auditing are more scientific, enabling a higher level of reasonable assurance. Therefore, it is desired that forensic auditors can continue to produce high-quality reports, and the request for audit services will be on the increase because it will gain higher credibility (Ellula & Buttigieg, 2021).

METHODOLOGY

Research Design

Given the nature of this study, the research design adopted in the study is the survey design. The survey design was adopted due to the fact that the data for the study was extracted through the primary method of distributing questionnaires to the respective respondents.

Population of the Study

The population of the study was made up of the accounting staff of some selected deposit money banks in Delta State, Nigeria. The total population was made up of 58 persons.

Method of Data Collection

The method that was used in collecting data for the study was the questionnaire instrument. The questionnaire was distributed to the respondents to extract specific information in line with the objectives of the study.

Technique of Data Analysis

The method of data analysis that was used in this study was multiple linear regression with the application of the Ordinary Least Squares (OLS) technique. This method is most appropriate when there is an analysis of the impact of some independent variables on a dependent variable, and this is applicable to this study.

Model Specification

In this research, technological forensic auditing measured with robotic process automation, textual analysis and data analytics represents the independent variables while financial crime detection is the dependent variable. The model below is specified thus:

\[ FCD = b_0 + b_1 \text{RPA} + b_2 \text{TXA} + b_3 \text{DA} + U \]

By definition:

FCD = Financial Crime Detection
RESULTS AND DISCUSSION

Result Presentation and Analysis 1

Dependent Variable: Financial Crime Detection
Method: Least Squares
Date: 08/29/23   Time: 12:35
Sample: 55
Included observations: 55

<table>
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<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>15.44626</td>
<td>12.54416</td>
<td>1.231351</td>
<td>0.2532</td>
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<tr>
<td>RPA</td>
<td>0.587644</td>
<td>0.839643</td>
<td>3.699874</td>
<td>0.0038</td>
</tr>
</tbody>
</table>

Source: Author’s Computation Using E-views Software

The regression output shows that the probability value for robotic process automation (RPA) yielded 0.0038. Since this value is less than 0.05, we reject the null hypothesis and therefore conclude that robotic process automation contributes significantly to detecting financial crime in selected deposit money banks in Nigeria.
Result Presentation and Analysis 2

Dependent Variable: Financial Crime Detection
Method: Least Squares
Date: 08/29/23   Time: 12:42
Sample: 55
Included observations: 55

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<th>Prob.</th>
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<td>C</td>
<td>0.062281</td>
<td>13.78142</td>
<td>0.077081</td>
<td>0.9405</td>
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<tr>
<td>TXA</td>
<td>1.134649</td>
<td>0.516481</td>
<td>2.196886</td>
<td>0.0393</td>
</tr>
</tbody>
</table>

Source: Author’s Computation Using E-views Software

The regression output shows that the probability value for textual analysis (TXA) yielded 0.0393. Since this value is less than 0.05, we reject the null hypothesis and therefore conclude that textual analysis contributes significantly in detecting financial crime in selected deposit money banks in Nigeria.

Result Presentation and Analysis 3

Dependent Variable: Financial Crime Detection
Method: Least Squares
Date: 08/29/23   Time: 12:45
Sample: 55
Included observations: 55

<table>
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<th>Variable</th>
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<th>Prob.</th>
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<tr>
<td>DXA</td>
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<td>0.464180</td>
<td>3.407784</td>
<td>0.0093</td>
</tr>
</tbody>
</table>

Source: Author’s Computation Using E-views Software

The regression output shows that the probability value for data analytics (DXA) yielded 0.0093. Since this value is less than 0.05, we reject the null hypothesis and therefore conclude that data analytics contributes significantly in detecting financial crime in selected deposit money banks in Nigeria.
Robustness Checks

On the basis of the analysis carried out, it was discovered that the three proxies used in measuring technological forensic auditing contributed significantly to financial crime detection in selected deposit money banks. This clearly shows that the deposit money banks have indeed embraced and utilized the computerized forensic auditing system in financial crime control, assessment and detection. This is in line with the findings of Ellull and Buttigieg (2021) who evaluated how data analytics (DA) can be applied to Maltese external public sector audits to increase the value that can be gained from them, and the research concluded that data analytics is significant in audit quality and crime detection. The findings of the present study are also in empirical agreement with the results of Ugochuckwu and Okenya (2021) who investigated if the use of forensic digital tools effectively predicts tendencies of material misrepresentation in Nigerian financial regimes before and after the implementation of IFRS. The research discovered that forensic digital tools effectively and accurately predict financial misrepresentations. The findings of the present study are also in line with the findings of Fedyk et al. (2022) who explored how artificial intelligence (AI) affects audit quality and efficiency. Again, the research indicated that in the long term, investing in AI improves audit quality, lowers costs, and reduces the labour hours of auditors.

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The findings of the study reveal that technological forensic auditing contributes significantly to financial crime detection in selected deposit money banks in Nigeria. The implication of this finding is that deposit money banks have already embraced and started applying technologically based forensic auditing in their financial crime explorations. The conclusion drawn from this finding is that the use of a technologically based forensic auditing mechanism is efficient, effective, and much better than manual techniques. The advent of ICT in this area is indeed a welcome development.

RECOMMENDATIONS

The following recommendations were made based on the findings of the study:

i. Forensic audit firms should strategically employ the usage of software applications that can permit data analytics to redeem the credibility image of forensic audit reports, which will simultaneously enhance financial crime detection in Nigeria.

ii. Audit firms should ensure they engage the latest versions and updates on robotic process automation and train more personnel on its use.

iii. Forensic accountants and auditors should stay abreast on the updates of other technological forensic auditing tools and step up their financial intelligence skills by embedding textual analysis in audit engagement. This is to sharpen their skepticism for proper audit evidence and also favorably influence the technological forensic audit quality.
REFERENCES


