

Fraud Detection and Forensic Accounting in listed Manufacturing Firms in Nigeria

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ABSTRACT

This study examines fraud detection and forensic accounting in listed manufacturing firms in Nigeria. Ordinary regressions analysis was used for the analysis of the data and pre-estimation tests were carried out. Data were obtained from the structured questionnaire. The findings of this study showed that all the explanatory variables (ICS, AC and WB) have significant positive relationships with dependent variable (FA) The study concluded that there is significant positive relationship between fraud detection and forensic accounting in listed manufacturing firms in Nigeria and recommends that management of manufacturing firms should establish sound internal controls system, effective audit committee and put in place whistle blowing mechanisms.

Key Words: Fraud Detection; Forensic Accounting; Whistle-blowing

INTRODUCTION

In recent periods, there has been grave concern on the management of manufacturing companies' resources and obligations because of large scale financial crisis. The manufacturing sector has been singled out because of the vital role they play in an economy in term of production of goods and services. Hence for the firms to sustain these roles they need close monitoring and supervision. Manufacturing companies' supervisions involve not only the implementations of rules and regulations, but also judgments concerning the soundness of manufacturing companies' assets, its capital adequacy and management. In Nigeria, the rising cases of fraudulent activities have also become a foremost source of concern for all the stakeholders. Extant literature has attributed these acts of frauds to weakness in orthodox audit exercises and limitations in scope of audit engagement now seeking for introduction of forensic accounting to assist in detecting and preventing of frauds (Zysman, 2019). According to Mainom and Oyedokun (2019) forensic accounting as well as anti-fraud organizations are emanated to instruct researchers and experts on what fraud involves which includes the tools and the techniques to curb fraudulent activities. They further explained that the effect of fraud in many companies has created wide discourse all over the globe. Besides the financial effects on stakeholders, businesses and governments, there is also a possibility of damage to reputation, client confidence and violation of regulations. Therefore firm who exploits a proactive and counter-response to fraud has a real competitive advantage with tangible and intangible advantages. According to the Association of Certified Fraud Examiners (ACFE) (2019), fraud is defined as any deliberate act or omission calculated to deceive others, resulting in the victim suffering a loss and/or the perpetrator achieving an advantage. The Institute of Internal Auditors considers fraud as any illicit act typified by deceit, concealment, or violation of trust. Such acts are not reliant upon the threat of violence or physical force. Frauds are perpetrated by persons and firms to obtain pecuniary gain, property, or services; to evade payment or loss of services, or to obtain personal or business benefit. Black's Law Dictionary defines fraud as "a knowing misrepresentation of the truth or concealment of a material fact to induce another to act to his or her detriment." Forensic accounting is the synthesis of knowledge of accounting profession, auditing

skills, computer competences and legal understanding to gather admissible evidences which is presentable in court of law in order to reveal clandestine issues and make professional judgment (Singleton & Singleton, 2010; Fasua *et al*, 2016). From extant literature there are existing lapses in internal control systems, whistle blowing mechanism and audit committee that need to be strengthened by forensic accounting in order to detect and prevent frauds. According to Renzhous (2011), regulations and laws dealing with the financial and administrative corruptions are characterized by lapses and stereotypes, thus they can no longer react to the exacerbation of these treacherous phenomena, apart from the fact that the traditional accounting procedures are not effective to detect and diagnose financial corruption cases, because they focus on the form rather than content. According to Economic and Financial Crime Commission (EFCC) (2018), many big firms, including manufacturing firms in Nigeria and influential personalities have continued to fall victim to fraudsters losing huge amount of currency in the process. It added that in recent periods, a stream of frauds has been carrying out both in the public sector and private sector of the economy, even under the supervisions of the internal auditors of these firms. Therefore, since forensic accounting has evolved as a means of discovering and curbing frauds and the conventional accounting systems and auditing are not effective in some aspects in preventing fraud. Considering the assertion of Mainom and Oyedokun (2019) that forensic accounting has more advance roles in fraud prevention, detection, and management thus this assertion needs to be examined. However, the application and effectiveness of forensic accounting have raised serious concerns as it has been contested that it is used mainly aftermath of the fraud to discover the perpetrator and how it was performed in order to avoid future occurrence (Okoye & Ndah, 2019). As a device mostly for legal reasons, the sophistication of fraudsters and the position of insiders who have facts on how to go around the tool and not get caught have also questioned the usefulness and crave for forensic accounting. Nevertheless, there has not been sufficient prominence, particularly survey evidence on how forensic accounting can assist curb financial frauds beyond the numerous unreliable perspectives that proliferate. All these doubts and many more have provided the call for this study. This study examines forensic accounting and fraud detection in listed manufacturing firms in Nigeria. The primary objective is to investigate the effect of forensic accounting on fraud detection in listed manufacturing firms. This study is motivated to answer the following questions: Is there significant relationship between forensic accounting and internal control system? Is there significant relationship between forensic accounting and audit committee? Is there significant relationship between forensic accounting and whistle blowing? The remaining parts of this study are divided into: literature review; methodology which states the scope, population, sample size, variables and model specification; analysis of data and conclusion. Primary data are employed because of the nature of this study; it is qualitative and interpretive in nature. Therefore a structural questionnaire is adopted as research instrument in order to address established questions in this study. This research work is carried out in South West zone of Nigeria. This study contributes to the existing literature on forensic accounting and fraud detection. The study will be of great use to a range of stakeholders of manufacturing companies, policy makers, and researchers as it would assist in making economic decision.

LITERATURE REVIEW

Conceptual Review

Forensic Accounting

According to Pedneault *et al*. (2012) forensic accounting is the way of applying investigative and analytical skills for the intention to unravel financial problems in a manner that abides by the standard required by court regulations. Forensic accountants use uncommon competencies in accounting, auditing, finance, certain areas of the law, research, and investigative skills to collect, analyze and evaluate on the evidence at hand and to interpret and communicate results to their clients. According to the research carried out by Corporate Financial Institute (2019), forensic accounting is the investigation of fraud or financial

manipulation by performing extremely detailed research and analysis of financial information. Forensic accountants are often employed to prepare for litigation associated to insurance claims, insolvency, divorces, embezzlement, fraud, skimming, and any type of financial crime.

Fraud

Pedneault *et al.* (2012) see fraud as an activity that takes place in a social setting and has severe consequences for the economy, corporations, and individuals. It is an unprincipled infection that ruptures forth when greed meets the possibility of deception. The fraud investigator is like the attending physician looking and listening for the signs and symptoms that reveal an outbreak. According to Collins dictionary (2019), fraud is the crime of gaining money or financial benefits by a trick or by lying. It also went further that fraud is something or someone that deceives people in a way that is illegal or dishonest. There are two principal methods of getting something from others unlawfully; either by physically forcing someone to surrender substances (using a gun, knife, or other weapon), or by hoaxing them out of their assets. The first type of theft is seen as robbery, while the second type calls fraud. Robbery is generally more violent and more traumatic than fraud and attracts much more media attention, but losses from fraud far exceed losses from robbery (Albrecht *et al.*, 2011.) Fraud as it is commonly understood today means dishonesty in the form of an intentional deception or a willful misrepresentation of a material fact. Lying, the willful telling of an untruth, and cheating the gaining of an unfair or unjust advantage over another, could be used to further define the word fraud because these two words denote intention or willingness to deceive. Accounting fraud is an act of knowingly falsifying accounting records, such as sales or cost records, in order to boost the net income or sales figures; accounting fraud is illegal and subjects the company and the executives involved to civil lawsuits (Arokiasamy and Cristal, 2009). Company officials may resort to accounting fraud to reverse loss or to ensure that they meet earning expectations from shareholders or the public. There are three major categories of organizational fraud, each of which can devastate a business financially and reputationally: asset misappropriation, corruption, and financial statement fraud (Singleton & Singleton 2010).

Fraud Detection

According to Companies and Allied Matters Act (2020) section 359, every listed company on the floor of Nigeria Exchange Group (NEG) is to make provision for sound internal control systems, provides adequate medium for effective whistle blowing mechanism and set up effective audit committee. According to the Act management is responsible for provision for effective medium to detect and prevent frauds and other financial regularities through above means: internal control systems; whistle blowing and audit committee.

Internal Control Mechanisms

Fasua (2019) views internal control mechanisms as the collective plans, procedures and methods which protect the assets of an entity improve operational as well as financial performance and promote adherence to policies that are approved. Ndungu (2013) is of the opinion that internal control mechanisms are sets of managerial policies and procedures that guarantee that entire transactions are carried out in the suitable manner in order to eradicate waste, theft as well as abuse of an entity's resources. Generally, a number of others like COSO (2013); Kaplan (2008); Cunningham (2004), as well as International Organization of Supreme Audit Institutions (INTOSAI) (2004) are of the opinion that internal control systems (ICS) are procedures instituted by the board of directors, management, and all personnel of a firm, to give reasonable confidence concerning the attainment of the firm's objectives and goals. Its objectives include effectiveness and efficiency of activities, honesty of executive and financial statements, execution of relevant regulations as well as laws, and the protection of the firm's reputation.

Audit Committee

According to ICAN (2019) audit committee is a sub-committee of the board of directors and reports to the main board. Corporate Finance Institute (2021) asserts that an audit committee is a sub-group of a company's board of directors responsible for the oversight of the financial reporting and disclosure process. To be successful, the audit committee should be aware of the processes and internal controls in the organization. It argues that the following are the responsibilities of audit committee. The audit committee assesses the analysis of important issues and judgments made by management in the financial reports. The effects of accounting and regulatory initiatives on the financial statements are also reviewed by the audit committee. It ensures that appropriate policies and processes are in place for the prevention and identification of fraud, such as asset misappropriation, corruption, and financial statement fraud. The audit committee works with management to make sure that necessary steps are taken on the detection of fraud. It should understand the responsibilities of management regarding laws governing anti-corruption and determine whether appropriate policies and controls are in place for the detection and mitigation of risks related to corruption.

Whistle blowing

There is no consensus definition of whistle-blowing (Brennan & Kelly, 2007). One consistent element that scholars agree on is that whistle-blowing is an act to account, report as well as expose wrongdoings. The whistle-blowing term has been differently defined and debated in available literatures. The substantial disagreement as well as arguments surround which channels (external vs. internal whistle-blowing) to report and whether auditors (external or internal), should be countered as whistleblowers. For instance, some researchers assert that whistle-blowing is an action which involves reporting of the wrongdoing is only to outside persons (Elliston et al 1985; Courtemanche, 1988). Fasua and Osifo (2017) asserted that "whistleblowing is an ethical dilemma because it necessitates a breach of trust". This is because the whistleblower has violated his loyalty not only to his own organization but to the professional association he represents as well as to the general public.

Theoretical Review

Several extant literature on fraud theories exist, among these are the Fraud Triangle Theory (FTT), Fraud Diamond Theory (FDT) and Fraud Box Key Model (FBKM), Differential Opportunity Theory (DOT), Theory of Concealment, Cultural Transmission/Differential Association Theory, Anomie Theory of deviant Behaviour and so on. For the purpose of this study, the study is anchored on first three theories.

The Fraud Triangle Theory (FTT)

The Fraud Triangle Theory (FTT) is associated with Donald R. Cressey in his book titled "Other People's Money", published in 1953 (Cressey, 1953). The fraud triangle theory asserts that the commission of fraud is as a result of interaction between perceived pressures (often financial), perceived opportunity and rationalization. Hence, for fraud to occur, these three elements must be present. Pressure, which is a significant financial need or problem, is frequently what causes the act of fraud. Opportunity facilitates the ability to commit fraud. Rationalization connotes the justification of the fraud as consistent with the employees'/fraudsters' personal code of ethics.

The Fraud Diamond theory (FDT)

The Fraud Diamond theory (FDT) which is an expanded version of the Fraud Triangle Theory was propounded by Wolfe and Hermanson in 2004. It added capacity as a fourth dimension to the earlier

triangle. It believes that the presence of pressure, opportunity and rationalization alone cannot lead to fraud except the person/employee has the capacity to commit that fraud. They opined that Opportunity opens the doorway to fraud, and pressure and rationalization can draw a person towards fraud. However, for fraud to be committed, the person must have the capacity to recognize the open doorway as an opportunity and take advantage of it by walking through it. Capacity is the possession of relevant traits or skills and ability to turn such opportunity to a reality. Hence, capacity connotes understanding of the internal control system and its lapses that could be exploited in planning and implementation of the fraud (Okoye et al, 2017).

The Fraud Box Key Model (FBKM)

The Fraud Box Key Model (FBKM) was propounded by Okoye and Onodi in 2014 as the immediate response to the long endured lapses of FTT and FDT. It is an expanded version of the Fraud Diamond Theory. It added a fifth perspective which is corporate governance. FTT and FDT tend to bother on the reasons and ways of committing fraud without reliable corresponding response to how to stop the fraud. The FBKM believes that no matter how strong the pressure may be, no matter how accessible the opportunity may be and no matter the rationale and capacity of the intending fraudster may be, once there is effective corporate governance (audit committee) in place as a key, the whole intentions will amount to nothing (no room to execute the fraud) (Aigienohuwa, *et al.* 2018).

Empirical Review

Forensic Accounting and Fraud Detection

Okoye (2019) appraised the impact of expert witness testimony on fraud prevention and detection in deposit money banks operating in Nigeria. The study employed the survey research design approach and data was obtained via a combination of personal interviews and administered structured questionnaires. The study showed that expert witness testimony has a statistically positive relationship with fraud detection and prevention. The study thereafter recommended that forensic accountants in the employment of deposit money banks should be empowered to ensure that fraud investigation is always followed through with expert testimony in courts of competent jurisdiction to serve as deterrent to fraud perpetrators. The study's findings are corroborated by the works of Basse and Ahonkhai (2017) and Ukoma and Azikiwe (2019). Henry and Ganiyu (2017) investigated the impact of forensic accounting on fraud reduction in Nigerian banks but with particular focus on certain key risk areas. These are loan processing and foreign exchange management. Data was obtained using structured questionnaire while the collected data was analyzed with the aid of correlation regression tool. The research found that the adoption of forensic accounting tools aided the reduction of incidences of frauds while it recommended improved regulatory oversight on the part of the Central Bank of Nigeria to ensure continued safeguard of customers' interest. Okoye and Ndah (2019) studied the association between forensic accounting and fraud prevention with particular focus on manufacturing companies operating in Nigeria. The survey research design method using questionnaires was utilized to gather data while the regression model was used to analyze the collected data. Findings from the study indicate that the adoption of forensic accounting practices significantly aid the prevention of frauds in manufacturing outfits in Nigeria. The study recommended among others the retention of the services of forensic accountants on a permanent basis as well as prompt investigation and prosecution of fraudulent staff members to deter future financial frauds by others. Enofe *et al* (2013a) examined forensic accounting: A tool for detecting fraud in Nigeria business environment. A survey research design was adopted and the data used were collected from 50 randomly selected respondents via a well-structured questionnaire. The analysis done using descriptive method showed that forensic accounting services were required in Nigeria. It was also revealed that forensic accounting was an effective tool for detecting fraud in Nigeria business environment. Ahmadu *et al.* (2013) empirically examined the role of forensic audit in enhancing financial investigations in Nigeria. The primary data collected via questionnaire administered to 240 accountants as respondent were analysed using correlation and regression analytic method. The result revealed a significant relationship between forensic audit and financial crime. Thus, it implies that forensic

audit could be used to ensure early detection and confirmation of fraud and hence, enhance financial crime investigations in the country. Therefore, the introduction of independent audit skill into periodic audit would boost the financial crime investigations especially in enhancing early detection and confirmation of fraud. Modugu and Anyaduba (2013) examined forensic accounting and financial fraud in Nigeria. Survey design was employed with a sample size of 143 respondents, which include accountants, management staff, practicing auditors and stakeholders. A binomial test was employed for data analysis and it was found that there is significance agreement among stakeholder on the effectiveness of forensic accounting in fraud control, financial reporting and internal control quality. Enofe *et al.* (2013b) conducted a study on the impact of forensic accounting on fraud detection in Nigeria. The data collected from the sample of fifteen firms were analyzed using ordinary least square and chi square analysis technique. The result of the study revealed that the application of forensic accounting services on firms affect the level of fraudulent activities. Okoye and Gbegi (2013) investigated the impact forensic accountants on planning and management of fraud risk detection procedures. The study employed analysis of variance (ANOVA) as the analytic technique. The study discovered that forensic accountants effectively modify the extent and nature of audit test when the risk of management fraud was high. The study established that forensic accountant should be involved in the risk of fraud management and assessment process than consulting. Nwoye *et al* (2013) investigated the 2006 – 2010 annual reports of top 5 manufacturing companies in Nigeria towards determining whether Beneish Model will effectively improve Nigeria Auditors' detection of fraud in the Financial Statements. Output of preliminary analysis performed on data extracts from the affected annual reports and consequent data analyses performed using one ANOVA statistical technique showed that the adoption and application of Beneish Model by Auditors in Nigeria will effectively improve detection of fraud in the Financial Statements. Ocansey (2017) descriptively assessed 66 technical officers of Economic and Organized Crime Office of Ghana to examine the relevance of forensic accounting technique application in combating financial crimes in Ghana. Analyzing the qualitative data obtained via questionnaire using regression statistics, it was found that the application of forensic accounting technique has significant impact on combating economic and financial crimes in Ghana. The study however failed to lend credence to findings through practical identification of the relevant forensic accounting technique that is most significant at combating economic and financial crimes in Ghana

Forensic Accounting and Internal Control Systems

Aigienohuwa *et al.* (2018) examined the effectiveness of forensic accounting as a corporate governance tool in reducing fraud and improving internal control systems in the Banking Industry, using a likert scale questionnaire as the research instrument for data generation from respondents. 120 questionnaires were administered to bankers in Benin City using the judgmental sampling technique. Data obtained were analyzed using binomial test. Findings from the study revealed that forensic accounting aside significantly reducing fraud in the banking industry has helped to improve considerably the internal control systems of banks. Ehioghiren and Atu (2016) examined Forensic accounting and fraud management: Evidence from Nigeria and found that forensic accounting significantly influences fraud detection and internal control systems. This is consonance with the findings of Modugu and Anyaduba (2013) and Kamal and Tanim (2016).

Forensic Accounting and audit committee

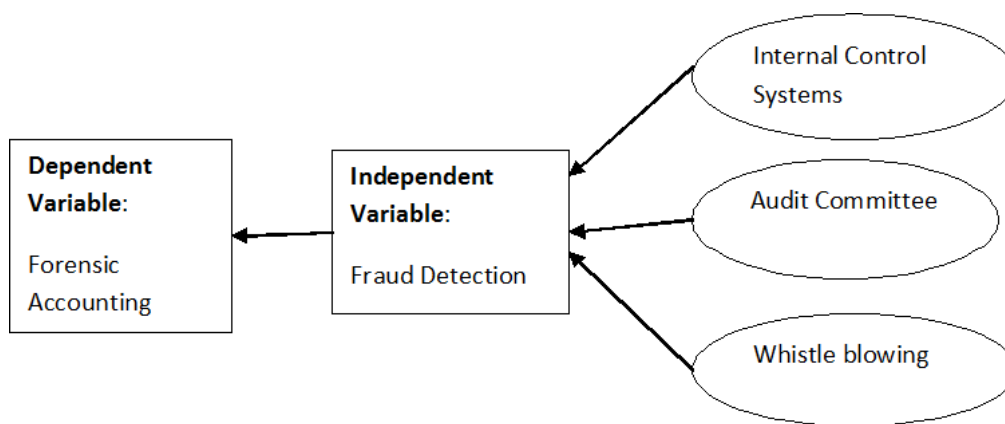
Olaoye and Olanipekun (2018) examined the impact of forensic accounting and investigation on corporate governance in Ekiti State, gathering primary data through a well – structured questionnaire, designed and administered to 100 forensic accountants and the practitioners in Ekiti State.

The returned questionnaires were coded and analyzed using a binary logistic regression techniques and it was revealed that 76.2 percent of the time that forensic accounting and investigation enhanced corporate governance were correctly classified and in overall. The study's findings revealed that there is significant positive relationship between forensic accounting and corporate governance (audit committee).

Forensic Accounting and Whistle blowing

Dilshad et al. (2020) examined empirical evidence of forensic auditing and whistleblower on fraud control, organizational performance; a case study of public and private sectors of Pakistan, embracing the deductive approach under positivism paradigm. The study employed a survey design of research in cross-section using correlation and regression techniques to evaluate relationship that subsists between dependent and independent variables. The study's findings forensic audit and whistle blowing has a positive relationship with fraud control and organization performance. Priyadi *et al* (2022) investigated the effect of whistle blowing system toward fraud detection with forensic audit and investigative audit as a mediating variable, using primary data to obtained important information from the respondents by employing purposive sampling method. The object research is 56 auditors in the Inspectorate of Banten Province. Smart PLS 3 was used to analyze the research purpose, that consist are descriptive statistics and hypothesis tested. The result of this study indicates that whistle blowing system partially have a positive significant effect on the forensic audit. Whistle blowing system partially has a positive significant effect on the investigative audit.

Conceptual Framework



Explanatory variables

Source: Author's concept (2023)

Conceptual framework on forensic Accounting and fraud detection in listed manufacturing firms in Nigeria

RESEARCH METHOD

The study adopts a survey research design. This type of research design is suitable for this study because it entails gathering the opinions, beliefs and feelings of selected groups of individuals often chosen for demographic sampling. In order to provide answers to the research questions in introduction a structured questionnaire was formulated and distributed among selected respondents. This study has a target population of selected four manufacturing firms within South West Zone. The sampling technique is purposive sampling methods. Therefore sample size for this study was 100 employees of accounting and audit/investigation departments of which 25 copies of questionnaire were distributed to each firm. This method was selected because of availability of data. The questionnaire is structured in two parts, section 'A' which contain the bio data of the respondents while section 'B' contain questions on each of the objectives of the study. A total of 15 questions will be raised, 3 questions for bio-data while 12 questions relating to the objectives of the study. The questionnaire was designed in a Likert-scale rating style ranging from strongly agreed of 5-point to strongly disagreed of 1-point. The Likert-scale format enables the researchers to assign numerical value to the responses for easy quantitative analysis. In specifying the model for the study, the independent variables were grouped into three namely: Internal Control System (ICS), Audit Committee (AC) and Whistle blowing (WB). Forensic accounting is assumed to be a function of Internal Control

System (ICS), Audit Committee (AC) and Whistle blowing (WB) as formulated the following model.

$$FA = f(FD)$$

This can be expressed clearly in equations 1 and 2.

$$FA = f(ICS, AC, WB) \dots \dots \dots Eq. (1)$$

Equation (1) is expressed explicitly as:

$$FA = \beta_{0it} + \beta_1 ICS_i + \beta_2 AC_i + \beta_3 WB_i + \mu_i \dots \dots \dots Eq. (2)$$

Where: FA= Forensic Accounting; β_0 = Intercept of the regression line; β_{1-4} = Coefficient or slope of the regression line or independent variables; FD = Fraud Detection; Internal Control System (ICS), Audit Committee (AC) and Whistle blowing (WB); μ =Error term that represents other independent variables that affect the model but not captured; i ,= firm

Data Analysis and Interpretation

Demographic Characteristics of the respondents

Gender Distribution of Respondents

Table of Gender Distribution of Respondents

| GENDERS | FREQUENCY | PERCENTAGE |
|---------|-----------|------------|
| FEMALE | 42 | 42 |
| MALE | 58 | 58 |
| TOTAL | 100 | 100 |

Source of data: From the field, 2023

Table: 4.1: shows gender distribution of respondents. 58 respondents representing (58%) were male while 42 respondents representing (42%) were female. It implies that majority of the respondents were male. This also shows fair distribution of questionnaire among genders.

Educational Level of Respondents

Table 4.2 Educational Level of Respondents

QUALIFICATION

| LEVEL | FREQUENCY | PERCENTAGE |
|-------|-----------|------------|
| BSC | 51 | 51 |
| HND | 37 | 37 |
| ND | 12 | 12 |
| TOTAL | 100 | 100 |

Source of data: From the field, 2023

Table: 4.2: shows educational level of respondents that 51 respondents representing (51%) had B.Sc educational qualification, 37 respondents representing (37%) were HND holders, and 12 respondents

representing (12%) had ND holders. This reveals B.Sc holders were the highest respondents. This implies large percentage of the respondents understood the questionnaire very well because of level of their education experience and such information would be relevant and reliable.

Years in Service of Respondents

Table 4.3 Years in Service of Respondents

| YEARS IN SERVICE | FREQUENCY | PERCENTAGE |
|------------------|-----------|------------|
| (6-8) | 3 | 3 |
| (9-11) | 18 | 18 |
| (12-14) | 27 | 27 |
| (15 and Above) | 52 | 52 |

Source of data: From the field, 2023

Table: 4.3: reveals years in service of respondents. 3 respondents representing (3%) were staff who had spent between 6 to 8 years, 18 respondents representing (18%) were staff who had spent between 9 to 11 years, 27 respondents representing (27%) were staff who had spent between 12 to 14 years and 52 respondents representing (52%) were staff who had spent between 15 and above years. It implies that majority of the respondents were staff who had spent between 15 and above years. This also shows that questionnaire papers were answered with those respondents with several years of experiences. This implies information given should reliable and appropriate.

Data Analysis

This section gives a clear description of the various findings included in this study. Firstly, it provides a full description of the findings with the use of the descriptive statistics for testing the normality of the variables. Secondly, it provided the result of the correlation analysis (matrix) for testing the relationship between and among the variables. It further tested the hypotheses through ordinary least square regression method.

Descriptive Statistics of Respondents

Table 4.2.1 Descriptive Statistics of Respondents

| | FA | ICS | AC | WB |
|--------------|-----------|-----------|-----------|-----------|
| Mean | 4.700000 | 4.470000 | 4.400000 | 4.310000 |
| Median | 5.000000 | 5.000000 | 5.000000 | 5.000000 |
| Maximum | 5.000000 | 5.000000 | 5.000000 | 5.000000 |
| Minimum | 4.000000 | 3.000000 | 2.000000 | 2.000000 |
| Std. Dev. | 2.147373 | 0.784380 | 0.932034 | 1.021931 |
| Skewness | -0.093828 | -0.036356 | -0.474550 | -0.161745 |
| Kurtosis | 2.895522 | 3.426104 | 3.070308 | 2.917868 |
| Jarque-Bera | 19.98646 | 19.27289 | 41.01148 | 22.52231 |
| Probability | 0.143046 | 0.070065 | 0.056210 | 0.057323 |
| Sum | 6070.000 | 447.0000 | 440.0000 | 431.0000 |
| Sum Sq. Dev. | 45651.00 | 60.91000 | 86.00000 | 103.3900 |
| Observations | 100 | 100 | 100 | 100 |

Table 4.2.1 reveals the descriptive statistics of the fraud detection and forensic accounting in listed Manufacturing firms in Nigeria. The mean scores of the data displayed the level of consistency as they fall between the minimum and maximum scores. Thus, the forensic accounting stood at mean values of 4.70000 while means of Internal Control System (ICS), Audit Committee (AC) and Whistle blowing (WB) stood at 4.470, 4.400 and 4.300 respectively. Their standard deviations measuring the spread of the distribution stood at values of 2.147373, 0.784, 0.932 and 1.021 for Forensic Accounting (FA), Internal Control System (ICS), Audit Committee (AC) and Whistle blowing (WB) respectively while their Jarque-Bera stood at 19.98646, 19.27289, 41.01148 and 22.52231 with p-values which were greater than 0.05. The skewness and kurtosis statistics of the variables were normally distributed as skewness values are close to zero and kurtosis values are appropriately ± 3 respectively. Thus, the variables exhibited normality.

Correlation Analysis

Table 4.2.2: Correlation Analysis

| | FA | ICS | AC | WB |
|-----|----------|----------|----------|----------|
| FA | 1.000000 | | | |
| ICS | 0.033785 | 1.000000 | | |
| AC | 0.009453 | 0.028487 | 1.000000 | |
| WB | 0.033615 | 0.050518 | 0.060815 | 1.000000 |

Source: Researcher’s Compilations (2023)

Table 4.2.2 shows Pearson correlation matrix for the variables as contained in the analysis. The correlation coefficients show positive relationships between fraud detection and forensic accounting in listed Manufacturing firms in Nigeria as contained in the analysis. Hence, most of these results are in conformity with the hypotheses with regard to the relationship between fraud detection and forensic accounting in listed Manufacturing firms in Nigeria. Hence, there is no problem about correlation as the correlation coefficients were less than 0.8 (Gujarati, 2004). This implies the existence of a multicollinearity (the presence of a linear relationship between two or more independent variables).

Ordinary least square regression method

Ordinary least square regression method was employed to test the research objective one to three. The regression analysis was engaged to examine the relationship between fraud detection and forensic accounting in listed Manufacturing firms in Nigeria.

Table 4.3: Estimation of Ordinary Least Square Results

| Dependent Variable: CSC | | | | |
|----------------------------|-------------|------------|-------------|--------|
| Method: Least Squares | | | | |
| Date: 05/03/23 Time: 00:18 | | | | |
| Sample: 1 100 | | | | |
| Included observations: 100 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| ICS | 12.85575 | 2.971306 | 4.326634 | 0.0000 |
| AC | 8.003040 | 2.001424 | 3.998672 | 0.0002 |
| WB | 8.852025 | 3.055446 | 2.897130 | 0.0047 |

| | | | | |
|--------------------|-----------|-----------------------|----------|----------|
| C | 41.88069 | 5.066495 | 8.266206 | 0.0000 |
| R-squared | 0.794264 | Mean dependent var | | 4.700000 |
| Adjusted R-squared | 0.790959 | S.D. dependent var | | 2.147373 |
| S.E. of regression | 7.090910 | Akaike info criterion | | 6.794682 |
| Sum squared resid | 4826.977 | Schwarz criterion | | 6.898889 |
| Log likelihood | -335.7341 | Hannan-Quinn criter. | | 6.836857 |
| F-statistic | 270.6391 | Durbin-Watson stat | | 2.009819 |
| Prob(F-statistic) | 0.000000 | | | |

The results in table 4.3 show that fraud detection attributes (Internal Control System (ICS), Audit Committee (AC) and Whistle blowing (WB) have the R^2 of 0.7943 of their forensic accounting (FA) which can be explained by the model. The remaining 0.2057% is counted for by other factors included in the disturbance term. In addition the Durbin Watson statistics of 2.010 shows the absence of autocorrelation or serial correlation between the variables as the coefficient is 2.

DISCUSSION OF FINDINGS

The findings in respect of hypothesis one is in agreement with expectation, as Internal Control System (ICS) exhibited a significant positive relationship with Forensic Accounting in listed Manufacturing firms in Nigeria (FA). The result showed that the P-values (0.000) with T-statistic (4.33) were lower than the 5% significant level. Hence, the result supported the rejection of the null hypothesis as against the alternate hypothesis. The implication is that, an increase in Internal Control System (ICS) leads to Forensic accounting effectiveness by 12.86 in in listed Manufacturing firms in Nigeria. The result is in conformity with the studies conducted by Aigienohuwa *et al.* (2018), Modugu and Anyaduba (2013) and Kamal and Tanim (2016). The findings from hypothesis two showed a significant positive relationship between Audit Committee (AC) and Forensic Accounting in listed Manufacturing firms in Nigeria (FA). The result showed that the P-values (0.000) and T-statistic (3.99) were lower than the 5% significant level. Thus, the result supported the acceptance of the alternate hypothesis as against the null hypothesis. This indicates that an increase in adoption and implementation of AC brings about (8.003) efficiency to Forensic Accounting in listed Manufacturing firms in Nigeria. The result is in agreement with the work of Olaoye and Olanipekun (2018). Hypothesis three, the findings also showed a significant positive relationship between Whistle blowing (WB) and Forensic Accounting in listed Manufacturing firms in Nigeria. The result showed that the P-values (0.005) with T-statistic (8.852) were lesser than the 5% significant level. Thus, the result supported the rejection of the null hypothesis and acceptance of the alternate hypothesis. This indicates that an increase in level of WB leads to effectiveness of Forensic Accounting in listed Manufacturing firms in Nigeria by 8.852 level of degree. The result is consistent with the work of Dilshad *et al.* (2020) and Priyadi *et al* (2022).

CONCLUSION AND RECOMMENDATION

This study examined fraud detection and forensic accounting in listed manufacturing firms in Nigeria. It investigated the relationship that subsists between them conceptually and empirically. The study concluded that there are significant positive associations between elements of fraud detection examined and forensic accounting in listed manufacturing firms in Nigeria. It recommends that management of listed manufacturing firms in Nigeria should take the privilege of selected arms of fraud detection to detect any form of frauds and material misstatements by strengthening them if they are already established or put in place if there are yet to be formed.

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