CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Internal audit function in fraud risk management is a critical part of the corporate governance within an organization. Corporate governance is an effective tool in risk management. Corporate governance includes those oversight activities undertaken by the board of directors and audit committee to ensure that there is effective risk management and the integrity of the financial reporting process (Public Oversight Board, 1993). Three monitoring mechanisms have been identified in the corporate governance literature. These are external auditing, internal auditing and directorships, (Anderson, Francis & Stokes, 1993; Blue Ribbon Committee, 1999), as well as the audit committee (Institute of Internal Auditor (11A, 2003; Coram, Ferguson & Moroney, 2011).

Risk management is the systematic application of management procedures and practices which provides the necessary information to address risk, (World Custom Organization, 2010). Risk management is viewed as a relatively recent corporate function, (Dionne, 2013). The modern risk management started after 1955 and up-to 1970, the concept covered more on insurance market and through that it developed to complement several other risk management activities, (Dionne, 2013). This made companies to diversify portfolios of physical assets and began to develop other areas of risk insurance to cover many areas of risk in the business.

The necessity for risk management has come up based on the changes on the strategic corporate/business operating environment and the expansion in transaction volumes that have as well affected the methods corporations approach and handle risk, (WCO, 2010).

Every business increase has a corresponding increase of uncertainties that drive many corporate management to desire a better structured and systematic way to handle risks. It is through risk management that corporations address the increasing demand of the modern business operating environment and the consequent risks by endeavoring to address these risks whenever they are found.

This brought the necessity of the word “fraud” risk management that covers numerous types of fraud caused by environment, technology, humans, organizations and politics.

Fraud in the other hand is an activity that takes place in a social setting and has severe consequences for the economy, corporations, and individuals (Silverstone & Sheetz, 2007). Fraud is as old as corporations. The South Sea Bubble of 1720 is the best known early episode of fraud. The company formed in England in 1711 to trade with Spanish America, was allowed in 1720 to assume responsibility for Britain’s National debt in return for a guaranteed profit. This complicated arrangement ignited a speculative boom with unscrupulous financiers that took advantage of the public excitement about assured profits to form other companies with dubious intentions. Many of the newly formed companies, some of which sought to extract gold from sea water soon failed together with the south sea company leaving thousands of shareholders to lose their investment. It caused financial catastrophe in London, Paris and Amsterdam. Subsequent investigations revealed fraud and corruption among ministers some of whom resigned and some committed suicide (Onogun, 2009; Adedeji, 2005).

Progressively, the Dictionary of Economics and Commerce confirmed that 200 banks failed in England alone between 1815 and 1850 just within a period of 35 years, one of the reasons attributed to the failure is improper fraud risk management (0wolabi, 2010).

Fraud risk management is the proper development and implementation of an intelligence enabled fraud risk management framework and having a fraud risk management culture within an organization that can assist more effective decision making at all levels of any business management especially in the area of fraud risk management. There is no doubt that proper fraud risk management is seen as one of the guiding principles associated with modern business management, (ISPWG, 2008).

Fraud risk management failure is the determining character of the global financial crisis (Witoonchart, 2012). The current financial crisis has brought with it a number of challenges for global economies. The impact of the crisis on the survival of regional blocks has attracted much attention in international circles (Lewis, Joseph & Roach, 2011).

One can rightly observe that the current financial crisis has its root from the failure of the sub-prime mortgage market as a result of improper fraud risk management in the USA. Fraud and other key operating factors have contributed to the ongoing economic crises of 2008 which includes the existence of a highly innovative and deregulated global financial system, rising assets prices and readily available credit. Many opinion attribute the main cause of the global financial crisis to the lack of appropriate and effective regulatory framework in developed countries. Others have suggested ethical failings of highly powered bankers and business persons' insensitivity in fraud risk management in the USA (Lewis, Joseph & Roach, 2011; Hamilton & Gabriel, 2012; Osisioma, 2012). This problem was complicated by the existence of an integrated and interconnected global community which reflected the vulnerability and openness of world economies to contagious risks and shocks today (Raja, 2008).

In an effort to reduce fraud risk which culminated to global financial crisis, (Witoonchart, 2012) stated that thirty five (35) official Anti-Fraud and regulatory bodies have been formed and recognized internationally to regulate, supervise and investigate organizations and their activities (Davis, 2011).

In Nigeria alone, several legislations were put in place to reduce and to alleviate and if possible to eradicate the occurrence and incidences of fraud risk in the industry (Awolabi, 2010). Most popular and prominent among them are: (Company and Allied Matters Decree No 19. 1990 (CAMD 1990), now CAMA, Declaration of Asset Act 1990, National drug law enforcement Agency Act 1990; Special Tribunal (miscellaneous offences) Act 1990; The Central Bank of Nigeria (CBN) Decrees No 24 of 1995; The Nigerian deposit Insurance Corporation Decrees No 22 of 1998; The Bank and other financial Institution Decree (BOFID) 1999; Economic and Financial Crime Commission Act 2004; (CBN) Prudential guideline for Deposit of Money in Banks in Nigeria; Money Laundry Act and so on.

The fraud risk management sagas are the same even in Nigeria. These have had sever negative consequences on the country and its global image. Lack of Fraud risk management and related problems have caused instability in the Nigerian economy resulting to a high mortality rate of business organizations and the consequent losses of revenue, huge financial losses to business organizations and their customers, depletion of shareholders funds and capital base as well as loss of confidence in business investment (Hamilton & Gabriel, 2012).

Fraud risk management has become the most intractable problems of modern day business in Nigeria. Public concern is growing by the day and management vigilance is not improving even with the aid of computerization.

A total number of one hundred (100) companies were estimated to have failed in Nigeria because of improper fraud risk management in 2010 (Adeyemi, 2012). The total number of frauds and forgeries case reported in one of the annual report of NDIC gave 10,719 cases of fraud which amounted to N168397.9 billion within a period of ten years i.e 2000-2009. The total depositor's loss in failed Banks amounted to ₦187.23 billion as of 2011. The CBN has also maintained that the dwindling situation is occasioned by weakness in the internal control system of the affected enterprise which is the key area where internal audit should function in fraud risk management, (Idowu, 2009; Adeyemi, 2012).

One can then deduce that these high profile corporate failures in recent years have focused significant public and regulatory interest on corporate fraud risk management. Therefore these recent well-publicized frauds have affected the work of the external financial statement auditors. Fraud in an audit of a "financial Report" has increased external auditors responsibilities in this area (Coram, Ferguson & Moroney, (2001). As a result, the auditing profession has faced more lawsuits from these years, (Brandon & Mueller, 2006; Lys & Watts, 1999; Palmrose, 1997; Paceni, Hillson & Sinason, 2000; Reilly & Levitz in Sonnier, Lassar & Lassar, 2012). Thus shareholders attribute their blames to auditors and auditors denounce full responsibilities and declare that management has much to attribute on the audit failure as a result of insensitivity to improper fraud risk management (Porter, 2012; Razeal & Crumbly. 2007).

The truth is that, whatever the size of the organization, external audit is terribly bad at fraud detection and the scope of their responsibility do not cover fraud risk management. A recent survey by (Pricewaterhouse Coopers, 2011), showed that perhaps only about 2 percent of frauds were detected through external auditor (Taylor, 2011).

Historically, management believed that external auditors would uncover fraud but the emergence of Sarbanes–Oxley specifically holds management responsible for fraud risk management and internal audit is an extension of management (Loftus, 2011).

It is expected that internal audit detects weakness in management operations and provides a basis for correcting deficiencies that have eluded the first line of defense before these deficiencies become uncontrollable or are exposed in the external auditors report (Eden & Moriah 1996).

The institute of internal Auditors (11A) provides mandatory guidance for internal auditors in its internal professional practices framework (IPPF) through the International Standard for the practice of Internal Audit function in fraud risk management (Standards) (11A, 2009a). Several standards outline the role of the internal audit function in detecting, preventing, and monitoring fraud risks and addressing those risks in audits and investigation (11A, 2009c). 11A standard 1200, proficiency and due professional care, require that internal auditors have sufficient knowledge to evaluate the risk of fraud in their organization (11A Standard 2060). Reporting to senior management and the board require that internal audit function report to the board any fraud risks found during their investigations under 11A standard 2120, of fraud Risk Management. (Burnaby, Howe & Muehlmann, 2012)

1.2 Statement of the Problem

It was stated by (Bota – Avram, 2012), that the current economic crises generate a major pressure over several areas and one of these is represented by the internal audit function in fraud risk management. Loftus, (2011) also agreed that the emergence of Sarbanese – Oxley specifically holds management responsible for fraud which results in improper risk

control and internal audit is an extension of management. The opinions of (Coram et al, 2011; Sawyer 1988; Coram et al 2008; Edem & Moriah in Coham & Sahag, 2012) were that the credibility of internal audit function in an organization in fraud risk management would be questionable. The reason being that the nature of the internal audit function is also an important consideration that may potentially affects its values in an organization, and also affect the enterprise objectives and will further be exposed in the external auditors report.

Some studies have been conducted both in Nigeria and other places on internal audit function in fraud risk. For instance, (Deloite, 2010; Frank, 2004; Hilison et al 1999; KPMG, 2013; Normal et al, 2010; PricewaterhouseCoopers, 2013) stated that the growing reliance by management and the audit committee (AC) on the Internal Audit Function (IAF) is a critical part of good corporate governance and more specifically as an effective tool to "Fight fraud". This has made the understanding of the role of the IAF in the context of fraud risk management.

This requires that internal audit has to expand its scope and assurance responsibility in fraud risk management and also the companies facing higher fraud risk will increase their organizational monitoring through internal audit function, providing evidence of the importance of the internal audit function in fraud risk management, (Coram et al, 2011).

Observations from some literatures (Omar & Baker 2012; Endaya & Hanefah; Thenfanis., Drogalis & Giovani, 2011; Domenic & Nonna, 2011; Intakhan & Ussahawanitchakit, 2010; Feizizadeh, 2012; Collier, Dixon & Marston 1991; Farcane, Blidset & Popa, 2009; Mui 2009; Stribu et al, 2009) showed that some of these studies on fraud risk management were not given a holistic approach instead, they were focused on

one aspect of fraud risk or the other and that internal audit was not given the responsibility of fraud risk management. Another limitation observed from some of these prior studies was that fraud risk combat was not given a management priority. In other words, internal audit involvement in fraud risk management was not given a full consideration by management.

There is, also, a dearth of academic studies that have focused on internal audit function in fraud risk management generally and especially in Nigerian context that were based on a specific school and have been conducted in a systematic manners. There are, few research that were conducted in a systematic manner on application of internal audit function in fraud risk management by Nigerian researchers. But, some of these researchers like (Badara & Saiden, 2014; Salamu & Agbeja, 2007), found negative or low positive and insignificant effect on the subject matter.

There are also, some of these studies on internal audit function in fraud risk management that made use of routine internal audit function but not on the holistic views of organization's fraud risk (Freiedberg, 1998; Welch, Holmes & Strawser, 1996; Kangarlovei, Motavasse & Moghammadzadah, 2013). Some of their various findings had mixed evidence that did not provide a strategic method of managing fraud risk holistically and proactively, (Coezee & Lubee, 2013; Bayo & Reinstain ,2001; Grazioli, Jamal & Johnson, 2006). Therefore, our observations from some of these literatures have shown that the subject matter is yet unsettle and hence the need for this study.

1. 3 Research Questions

The problem of this research is to establish a logical research questions using these four variables to form a bases of this study as follows:

To what extent does the application of the following internal audit function combats fraud risk in Nigeria banking sector:

1. Data-mining tool?
2. Proactive function?
3. Ongoing function?
4. Interactive function?

1.4 Objective of the Study

The main objective of this study is to broadly test the potentials of the application of internal audit function in the combating of fraud risk in banks. The following specific objectives were considered.

To determine the extent to which the following internal audit function variables are perceived to combat fraud risk in banks:

1. Data-mining tool,
2. Proactive function,
3. Ongoing function,
4. Interactive function.

1.5 Hypotheses of the Study

The following hypotheses have been formulated based on the research questions.

There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether:

H_{01}: Application of internal audit data mining tool is a significant factor in the management of fraud risk in Nigerian banks,

H_{02}: Application of internal audit proactive function significantly combats fraud risk in Nigerian banks,

H_{03}: Application of internal audit ongoing function is statistically significant in combating fraud risk in Nigerian banks,

H_{04}: Application of internal audit interactive function is significant in combating fraud risk in Nigerian banks.

1.6 Significance of the Study

The major significance of this research work is that it will share light on internal Audit function variables that impinge on the management of fraud risk in banks.

Other areas where the study will be significance are as follows:

This study will benefit companies and organizations because it will provide how to increase the efficiency of internal audit function in fraud risk management procedures and increase projects success and help the organizations to realize her main objectives. Proper fraud risk management will save the organizations from financial crises that will ultimately result in entity collapse. High profile corporate failures in recent years have focused significant public and regulatory interest on corporate fraud (Coram Ferguson and Moreney, 2011). Thus application of internal audit function in fraud risk management "adds values through improving the control and monitoring environment within organizations to detect fraud" (Coran et al, 2011)

Government also has interest in the financial reporting of an organization because of taxes paid to her by organizations. Thus when organizations continuously make fraudulent financial reports and declare no profit to pay tax, the government loses

millions of money. Corporate taxes paid to the government increase as organizations work to reduce the incidence of fraud through the application of internal audit activity and these contribute to the profitability of the organizations, (Burnaly, Howe & Muehimnn, 2012).

Researchers in the field of the study will also find it useful as a reference point in considering that application of internal audit function in fraud risk management is among, the least scientifically studied topics in management research, this study, will above all advance and stimulate more scientific interest in the area. The findings will share light on application of internal audit function in fraud risk management in various organizations. It will also be a springboard from which other researchers will generate future research on application of internal audit function, and will suggest direction for such studies.

To the general public, this study will also benefit in various ways. If corporation's fraud risks management is properly taken care of through the application of internal audit function, the financial strength of the organizations would be evident through the mandatory reporting in terms of dividends. Expansions and the consequent more employment are also made possible in profitability of a company that pays dividends to the public investors.

Finally, this study will improve the professional value of accountants, the auditors (External and Internal) generally. Litigations against auditors have increased and multimillion dollar used for settlement globally (Sonnier, Lasser & Lasser, 2012). These have affected the work of the external financial statement auditors (Curam et al, 2011). The credibility of the external auditors report is complemented by the effectiveness of the application of internal audit function especially in fraud risk management. Both values of

the auditors are improved in a complementary proper management of fraud risk management in an organization. Internal audit function is an important governance structure within an organization. Therefore the results of this study will give credence to the application of internal audit function in fraud risk management which will ameliorate the corporate governance and improve the image of the auditors in financial reporting and restore investor confidence globally.

1.7 Delimitations of the Study

Delimitation of the study has to do with the extent of the content, coverage of the study and not geographical area coverage (Uzoagulu, 1998).

Thus this study was delimited to the study of application of internal audit function in Fraud Risk Management, to ascertain how it combats fraud in banks.

The research covered banking sector and their internal auditors, fraud auditors and selected accountants in the industry

The study was also delimited to the study of how the application of internal audit function includes: data-mining tool, proactive function, ongoing function, and interactive function to combats fraud risk in banks. The study did not include every firm in Nigeria but was focused only on banking sector.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Conceptual Frame work

2.1.1 Internal Audit

A background opinion was put forward concerning internal audit by (Brink & Cashin, 1958), that internal audit emerged as a special segment of the broad field of accounting, utilizing the basic techniques and method of auditing. They, accepted the fact that the public accountants and internal auditor by using many of the same techniques leads to a mistaken assumption that there is little difference in the work or in ultimate objectives. The internal auditor, like any audit, is concerned with the investigation of the validity of representation, but in his case the representations' with which he is concerned cover a much wider range and have to do with many matters where the relationship to accounts is often somewhat remote. In addition, the internal auditor, being a company man, has a more vital interest in all types of company operations and its quite mutually more deeply interested in helping to make those operations as profitable as possible. Thus to a greater extent, management services come to influence this thinking and general approach (Brink & Cashin, 1958).

A wider definition of internal audit came in 1971, 1981 and 1990 after revising the statement of responsibilities by the Institute of Internal Auditors (11A). The standard contained the following definition and objectives that "Internal auditing is an independent appraisal activity established within an organization as a service to the organization. It is a control which functions by examining and evaluating the adequacy and effectiveness of

other controls. The objective of the internal auditing is to assist members of the organization in the effective discharge of their responsibilities'.

To this end, internal audit furnishes them with analysis, appraisal, recommendations, counsel and information concerning the activities reviewed. Therefore, the audit objective includes promoting effective control at reasonable cost.

2.1.2 Internal Audit Function

The Institute of Internal Auditors (11A) officially adopted a globally accepted new definition of the internal audit function. This has become the most globally acceptable definition of internal audit function that gave the conceptual framework of our research. "Internal Audit function is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes" (11A, 2000, Karagiorgos.,Drogalis., Christodoulou & Pazarskil, 2004).

Also, (Basel Committee, 2012) defined internal audit function as regards financial institution as an independent assessment function that carries out objective assurance activity that is meant to add value and improve corporation's operations. The internal audit function helps the financial corporation to attain its objectives by bringing in a systematic and disciplined approach in order to evaluate and improve the effectiveness of fraud risk management processes and internal control systems including controls of financial reporting, corporate governance, and, within this generality, includes compliance with the law, directives of the supervisory, ethical probity, economy and efficiency.

This revised definition clearly changes the internal audit function from involving assurance activities to value added activities (Nagy and Cenker, 2002). By this definition (Nagy & Cenker, 2002) suggests that internal audit function has proactive and interactive role with other key corporate governance players within the organization such as board of directors and executive management on the issues of risk, control and governance with the ultimate purpose to strengthen the organization (Bou –Raad 2000; Ebaid 2011; Julien & Richards 2008). Although the internal audit continues to have an internal controls focus, yet its function appears to be evolving from compliance to a more consultative function and fraud risk management (Bou-Raad, 2000; Ernst & Young, 2008).

The institute of internal auditors (IIA) in international professional practice framework (IPPF) indicated that internal audit function plays a crucial role in the ongoing maintenance and assessment of a corporation's internal control, risk management and governance systems and processes where authorities have keen interest.

Furthermore, internal auditors use risk based approaches to determine their respective work plans and actions. Internal audit function has a different mandate and is responsible for their own judgments and assessments in identifying fraud risks according to the stipulations of IIA in IPPF. It is also the internal audit function that has the mandate to develop an independent and informed idea of the risks that are eminent in the corporation based on their access to all records and data, their enquiries, and their professional competence. According to (IIA in IPPF), internal audit function should be able to discuss their views, findings and recommendations directly with the audit committee and the board of directors.

New York Stock Exchange (NYSE) in its listed company Manual rule 303 A.07 suggested that each listed company must have an internal audit function to provide management and the audit committee with ongoing assessment of the listed company risk management processes and system of internal control (NYSE, 2003).

It was stated in (KPMC, 2004) that internal audit functions in fraud risk management should apply data-mining tools. Further, (Burnaby, Howe and Muchlman, 2012) stated that internal audit functions will have to include data mining tools, while the Institute of Internal Auditors 11A's competence frame work states that proactive function is required in internal audit fraud risk management.

It is evident from these new definitions that internal audit function has shifted from assurance services provider to providing assistance and support to management in exercising its duties. The survey made by (Ernst & Young, 2008) in internal audit function supports the changing role of internal audit function with increasing focus on monitoring high-risk and operational areas in organizations to better support the management and business process owners.

2.1.3 Characteristics of Internal Audit function in Fraud Risk Management

Characteristics are the distinguishing, features or functions of a concept. In other words, the characteristics of internal audit function in fraud risk management are distinct function of internal audit in combating fraud risk. These characteristics of internal audit functions in fraud risk management are:

Independence: Independence of internal audit function in fraud risk management was described in (ICEW; IIA, 2011) as the freedom from conditions that threaten the ability

of the internal audit activity to carry out internal audit responsibility in an unbiased manner. Internal audit is an independent function that supports the organization's business objectives and evaluates the effectiveness of fraud risk management, control, and governance processes. Its threats to objectivity must be managed at the individual audit engagement, functional, and organizational levels. The member of management responsible for the internal audit function is the Chief Audit Executive (CAE) and should have no responsibility for operating the system of internal control and should report functionally to the audit committee. The Institute of Internal Auditors stated that the audit plan established by the head of internal audit function, that is the (CAE), and approved by the board of directors, the internal audit function must be able to perform its assignments on its own initiative in all areas of the organizations' fraud risk management.

The internal audit function must be free to report its findings and assessments internally through understandable reporting lines. The head of the internal audit (CAE) should demonstrate appropriate leadership with such necessary skills to accomplish the required responsibility for maintaining the function's independence.

The (IIA) made it clear that the internal audit function should not be involved in designing, selecting, implementing or operating specific internal control systems. All the same, the (IIA) agrees that the independence of the internal audit function should not prevent the senior management of the organization from demanding input from internal audit on matters related to fraud risk and internal controls.

Furthermore, (IIA) explained that the independence of the internal audit function may be undermined if the internal audit staff's salary is linked to the financial performance of the business operations as they carry out internal audit functions. In other words, the remunerations of the head of the internal audit function should be masterminded in

accordance with the remuneration policies and practices obtained in all the organization. Therefore, the remunerations to reward the effective performance of the internal audit head (CAE) should be structured to avoid causing conflicts of interest and confusion and thereby compromising independence.

Objectives and Ethics: Internal auditors should remain objective in the fraud risk management, which means they should perform their assignment free from bias and interferences. Objective is an unbiased mental attitude that allows internal auditors to perform engagements in such a manner that they believe in their work product and that no quality compromises are made (ICAEW). Objective includes that Chief Audit Executive CAE and all internal audit professional staff should avoid any conflicts of interest.

Institute 0f Chartered Accountants of England and Wales (ICAEW) was of the opinion that continuously performing similar tasks and routine jobs can negatively affect an individual internal auditor's capacity for critical judgment because of possible loss of professional objectivity. The sound practice in order not to mar the objectivity of the internal audit is that whenever practicable and without jeopardizing competence and expertise, to periodically rotate internal audit staff within the internal audit function. In addition, the organization can rotate staff from other functional areas of the business to the internal audit function or from the internal audit function to other functional areas of the organization. Staff rotations within the internal audit function and staff rotation to and from internal audit function should be guided and conducted in accordance with a sound written policy. At the same time, the policy should be designed to avoid conflicts of interests and also a critical observation of the period individual stays and returns to the former internal audit activities.

Further, ethics is another important area that is considered in internal audit function in banks as stated in (Basel Committee, 2012). Therefore a code of ethics is necessary and appropriate for the profession of internal audit founded as it is on the trust placed on its objective assurance about governance, fraud risk management, and control. It has principles that are relevant to the profession and practice of internal audit, IIA CODE OF ETHICS.

Professional competence and Due Care:

Professional competence, include the knowledge and experience of each internal auditor and of internal auditor collectively that is essential to the effectiveness of internal audit function. Professional competence was defined as the ability of an individual to perform a job or task properly, being a set of defined, skills, and behavior. Professional competence has a framework that provides a structured guide that enables the identification, evaluation, and development of required competence in individual internal auditors (IIA, Competence Framework).

There is the need of professional competence of those individuals involved in planning and conducting internal audits. Apart from the Bassel Statement on internal audit professional competence in risk management, ISO 19011 identified three components of professional competence as personal behaviour, auditing knowledge and skills, technical knowledge and skills. Therefore, the internal auditors need to have the appropriate knowledge and skills in all three of these areas. There are also other considerations stated by ISO 19011 that makes the work easy. These are: that the nature of the organizations, or the activities, that to be audited should be considered, the type, nature and the complexity of the audit to be performed, the size and the composition of the audit team,

the role of the auditor and the nature of his audit assignment and any specific requirements imposed by external parties (IIA, 2011)

There are individual professional competence requirements and group requirements. Both individual and group requirements are stated in International Professional Practice Framework (IPPF) guidance and should be known and mastered by internal auditors in order for them to be able to carry their work effectively. The IPPF consisted of the definition of internal auditing, a code of conduct, International Standards for the professional Practice of Internal Auditing and various practice advisory. These are what provide guidance on proficiency and skill requirements for internal auditors (IIA, 2011). The specific skills and competence requirements taken from mandatory guidance documents include adding value, risk analysis and interpretation and integrity, objectivity, and confidentiality (IIA, 2011; Plant, Coezee & Fourie, 2014).

Professional competence depends on the internal auditor's capacity to collect and understand information, to examine and evaluate audit evidence and to communicate to the stakeholders of the internal audit function. Therefore, this should be combined with suitable methodologies and tools and sufficient knowledge of auditing techniques.

Further, the head of internal audit function, (CAE) is the person responsible for acquiring human resources with sufficient qualifications and skills to effectively deliver on the mandate for professional competence, and to audit to the required level. The CAE should continually access and monitor the skills necessary to carry out the work. The necessary skills required for senior internal auditors should be the ability to judge outcomes and make an impact at the highest level of the organization.

Finally, the internal audit function in fraud risk must have to apply the necessary care and skills expected of a reasonable prudent and competent professional. However, due professional care does not imply infallibility. Therefore, internal auditors in internal audit function in fraud risk having a limited competence and experience in a particular area should be guided by a more experienced internal auditor (11A, 2000, Karagiorgos.,Drogalis., Christodoulou & Pazarskil, 2004; Basel Committee, 2012).

Internal Audit charter: Internal audit charter is a formal document that defines the internal audit activity, purpose, authority, and responsibility in an organization. There should be an internal audit charter that describes the purposes, authority, and responsibility of the internal audit function in fraud risk management. An audit charter should include the followings: a) the objectives and scope of internal audit function; b) the internal audit functions management reporting position within the organization as well as its authority and responsibilities; c) the responsibility and accountability of CAE; and, d) the internal audit function's responsibility to evaluate the effectiveness of the institution's fraud risk management.

The main mission of the internal audit function in fraud risk management is to provide independence, objective assurance and consulting services not just in fraud risk control but also to add value in organizations. These are achieved by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes. Therefore, the scope of work of the organizations internal audit function in risk management is to determine whether the governance, risk management, and control processes of the corporation, as designed to cover the entire management are complete and whether they are functioning in a way that provide some

level of confidence regarding some of the followings: a) whether significant key risks are appropriately identified and managed, b) whether significant financial, managerial, and operating information is accurate, c) whether employee actions are in compliance with policies, standards, procedures and applicable laws and regulations, d) whether resources are acquired economically, used efficiently, and guided properly, e) whether corporation's agendas, plans and objectives are achieved, f) whether quality and continuous improvements in risk control are really fostered in the organization control processes, g) whether significant regulatory issues that improves internal audit are recognized and addressed properly, and whether the internal audit function apply and uphold the principles of integrity, objectivity, confidentiality, and competence as required by the Institute of Internal Auditors Code of Ethics (IIA, 2007; IIA, 2009; AICPA, 2009; ACFE, 2009; Basel Committee, 2012).

2.2.1 The Four Predicted Application Variables for Fraud Risk Management.

-Data- mining Tool, (see Burnaby et al, 2013; Cook & Clement, 2009; KPMG, 2006; Ernst & Young, 2011; IIA Global Technology Audit Guide, 2009; IIA Data Mining 101, 2013).

-Proactive function, (Ernest & Young, 2011; Bullen, 1995; PWC, 2014; Fabiani & Smith, 2014; Stein & Crawford, 2015; Pacini, 2001; Ernest & Young, 2010; Kuenkaikaew & Rutgers, 2013; KPMG, 2016).

-Ongoing function, (ISPPIA, 2012; KPMG, 2006; PWC, 2003; KPMG, 2016; Coderre, 2005; Aquinot, Kaya & Erdem, 2014; Eden & Morriah, 1996; Ernst & Young, 2012).

-Interactive function, (Hitchinson & Mazlina, 2009; Bou-Read, 2000; Daugher, Parker & Garry, 2015; Ernest & Young, 2008; PWC, 2017; Dardevic & Dukic, 2015).

2.2.2 Data Mining Tool.

Data mining tool generally was defined as a technique, for searching large-scaled databases for pertains that are used mainly to find previously unknown correlations between variables that may be commercially useful, (Wiktionary). Research suggests that internal auditors' application of data mining includes business intelligence, as an effective tool in fraud risk management, (Burnaby et al, 2013). In their research, Cook & Clement 2009) stated that there is a lack of use of the best tools that are available in fraud detection and hope that internal auditors would develop the skills necessary to continue the fight against fraud by applying the business intelligence.

A statement made in the 11A Global Technology Audit Guide, was that fraud prevention and detection is required in an automated world. This stated that the application of this tool should be a fulfillment of the Global Technological Audit Guide requirements by the internal audit function as a tool required that allows the internal auditor the use of IT as a detective control and a monitoring technique in fraud risk management. Thus data analysis technology allows internal auditors to examine data for indications of fraud (11A, 2009b).

An observation made in (11A Data mining 10, 2013) was that application of data mining tool automates the detection of relevant patterns in a data base. This is achieved by using defined approaches and algorithms to look into current and historical data that can then be analyzed to predict future trends. The application of data mining tool in fraud risk is said to predict future trends and behaviour by trading through database for hidden patterns. This allows organizations to make proactive knowledge driven decisions and answer questions that were previously too time-consuming to resolve.

Data analytics is defend by (KPMC, 2002) as an analytical process by which insights are extracted from operations, financial, and other forms of electronic data, internal or external by the organization. These insights can be historical, real-time, or predictive and can also be risk-focused.

It was also stated by Witten & Drank as in (Ghanbari & Einakian, 2014) that data mining tool is the process of discovering patterns in data. The process must be automatic or more usually semi-automatic. The patterns discovered must be meaningful in that they lead to some advantage.

For effective fraud risk management, internal audit has to operate in a very dynamic environment and acquire the ability to adapt and be responsive to change, combined with the ability to leverage insight on the risk impacting the organization, (11A, WIPO, 2014). There are common applications of data mining tool in an internal audit function in fraud risk management. These applications are grouped as macro-and sustained micro-level analytics for quantitative based risk assessment for audit planning purposes, macro-and sustained micro-level analytics for control testing and/or compliance auditing such as optimizing in a repeatable and sustainable process that matures to a continuous auditing and continuous monitoring process, (KPMG, 2014; Burnaby et al, 2013),

More Literatures show that these techniques could be used for fraud risk management by internal audit function. Among these are statistical techniques or tools suggested by (Taylor, 2011), while artificial intelligence was put forward by (11A, 2013; Burnaby et al, 2013; Wikipedia, 2014). These authors suggested that they could be applied in internal audit function in fraud management as data preprocessing techniques for detection, validation, error correction, and filling up of missing or incorrect data. It could be used for calculation of various statistical parameters such as averages, performance metrics,

probability distributions, and so on, (Ghanbari & Einakian, 2014). Other uses to which they could be applied in fraud detections are as: a) models and probability distribution of various business activities either in terms of various parameters or probability distribution, (Durtschi., Hilson & Pacini, 2004), b) clustering and classification that are applied to find pattern and associations among groups of data (Ghanbari & Einakian, 2014), c) matching algorithms that are used to detect anomalies in the behavior of transaction or users as compared to previously known models and profiles.

Further, artificial intelligence in is part of data mining tools that could be used by internal audit function for fraud risk management as suggested by (Tarlor, 2011, Burnaby et al, 2012). In these authors' opinion they can be applied as follows:

a) Data mining is used for classification such as cluster used to segment the data and automatically find associations and rules in the data that signify interesting patterns, including those related to fraud.

b) Artificial neural networks which are software system that are based on processes of learning and remembering. They are used in classification such as a methodology developed for discriminating between two things based on similarities (Tarloy, 2011; 11A, 2014)

c) Expert systems: this is used to encode expertise for detecting fraud in the form of rules.

d) Pattern recognition: These are used to detect approximate classes, clusters, or patterns of suspicious behavior, either automatically or to match given inputs.

e) Machine learning techniques: This helps to automatically identify characteristics of fraud (Tarlor, 2011).

f) Link analysis: Link analysis is used to reveal underlying patterns hidden in a large data sets (Taylor, 2011; Thuruvad & Patel 2011; Wikipedia, 2014).

g) Audit interrogation tools: Audit interrogation tools can be used to highlight fraud, data anomalies, and patterns (Coderre, 1999).

h) Decision Trees: The core technology of decision tree tools are machine learning algorithms which automate the process of segmenting important features and ranges hidden in a data base. They are used to predict the probability of crime (Taylor, 2011; Thiruval & Patel, 2011).

2.2.3 Proactive Function

Proactive has been defined by dictionary as an, anticipation, forward-looking to deal with an expected change or difficulty. It is dealing with a problem as it props up. It is a way to prevent future problems.

The general functions of internal auditors is seen as that of identifying errors that have already occurred and reviewing procedures that are already in place. This after the fact" audit function does have its place. However, "future issues must also be addressed. Bullen, (1995) was of the opinion that by adopting a proactive approach internal audit function can directly address the causes of weakness that expose corporations to loss by fraud and theft and make impact.

Proper fraud risk management demands that internal audit adapt a proactive measure to combat fraud. This could be possible by implementing the set fraud risk framework to prevent and detect fraudulent and suspicious activities from all carders' of management. Internal audit function needs to let the employers and other stakeholders be aware that fraud is taken very serious in the organization and therefore cannot be tolerated at any level of management, (PWC, 2014).

Fraud control using proactive function requires the implementation of a number of key control strategies which contribute to an effective fraud control. The framework must have fraud detection that includes strategies to discover fraud as soon as possible. This should also, have fraud prevention strategies that was designed to prevent the occurrences of fraud from the start or to discover fraud as early as possible as it occurred. Also, fraud monitoring is one of the strategies that provide assurance that combined efforts are being accomplished in proactive function. Promoting accountability is also needed by providing information that demonstrates compliance with a specific fraud control strategies in the organization. Proactive is also required in fraud response which includes systems and processes that assist an entity to respond appropriately to an alleged fraud when it is found out, (Fabiani & Smith, 2014).

However, the changing role of internal audit to more proactive corporate role demands some independence. Monitoring internal audit independence is one of the numbers of critical factors. Lack of independence will compromise the work of internal audit proactive function. This will ensure that the Chief internal auditor do not report to the lower management level but to the required higher level of management. It is then expected that if internal audit becomes more proactive in fraud risk management matters, then there may be an expectation that the external audit can provide comfort about the effectiveness of risk management system, (Stein & Crawford, 2015).

Also internal audit proactive function in fraud risk control is not only concerned in stereotype kind of fraud detection but extends its function to improve the company's profile, (Ernst & Young, 2011; Stein & Crawford, 2015; KPMG, 2006). They stated that a proactive function of internal audit function focus on the most value-added activity such as participating and reporting in such matters that do not directly involve money

transaction. In this, the proactive work includes audit of non-financial information and the controls surrounding the production of such information. Among such are: (a) sustainability reporting where corporations are challenged with several issues to comply with in such complex sustainability standards. This could emerge especially where there is an increasing concern about the reliability of the information contained in the sustainability reporting. Internal audit gets involved as the sustainability moves up the audit committee agenda, internal audit takes a leading function in validating the information submitted for sustainability reports; (b) Another is reporting on issues not involving money directly such as press releases, data on key operational performance metrics and earning guidance. In this, the audit committee should decide with the management on what are the few key performance indicators that reveals the long-term value of the corporation. They should ensure on how the management communicates them to the market. Thus the internal audit proactive role is providing the audit committee with assessment of the quality of the processes and controls used to generate this information; (c) a more focused role in the risk process as a result that risk management has become management priority. Thus internal audit function is now more focused on auditing the risk processes and acting as a risk catalyst such as leveraging its holistic perspective on the corporation's key risks to initiate and influence the management discussions at the management level. Internal auditors are participating in project management office role on risk committees. They are bringing together various risk functions in the same place to ensure that parties are organised and that these parties are capturing key risks in the management line – this is also called managing the risk identification process.

There is also the role of ensuring that risk analysis is dynamic and in this the internal audit proactive function raise such complex issues regarding how the corporation's evolving business model affects its risk profile. At this the internal audit function need to challenge the audit committee individuals to leverage their experience to think about business model changes and how they could introduce new fraud risk management.

Other proactive function of internal audit in fraud risk management is a sharper focus on emerging risks. Here, emerging matters as innovations in information technology IT, such as cloud computing, the explosion of social media and mobile computing, have introduced a major business risks for corporations. In short, a recent Ernst & Young survey on this found that 60% of respondents perceived an increase on the level of fraud risk they face due to the increase of social networking, cloud computing and personal devices in the organization. Internal audit in its function is playing a significant role in testing corporation's IT systems and that of staff. The summery of the survey in (Ernst & Young, 2010) was that there is a tremendous amount of fraud risk associated with corporation's wide systems implementation. In other words, internal audit should have a seat at the table from the beginning to help identify the risks and to provide controls consultations. The areas where proactive functions are required are; major new products risks, international operations and corruption, business continuity, and crisis management, contractor due diligence, a greater advisory role in governance matters such as getting involvement in corporate governances, examination of management decision making process, advising on audit committee effectiveness such as (1) educating the audit committee (2) helping to shape audit committee charters and agenda (3) guiding executive on the state of audit committee. (Ernest & Young, 2011; Bullen,

1995; PWC, 2014; Fabiani & Smith, 2014; Stein & Crawford, 2015; Pacini, 2001; Ernest & Young, 2010; Kuenkaikaew & Rutgers, 2013; KPMG, 2016).

2.2.4 Ongoing Function

The word ongoing was defined as without break, cessation or interruption and without intervening time. International Standard for the Professional Practice of Internal Auditing (ISPPIA) suggests an ongoing internal audit function. Thus internal audit is encouraged to initiate a formal ongoing monitoring practice as part of the functions in risk management. It was stated by (Malaescu & Sutton, 2013), that it is a response to the increased demand for timely and assurance over the effectiveness of risk management and control systems and companies are moving towards a more automated control environment through the implementation of ongoing modules. Ongoing monitoring encompasses the process that management puts in place to ensure that the policies, procedures and business processes are operating effectively. This involves intelligent and efficient continuous testing of controls and risks that result in timely notification of gaps and weaknesses to allow immediate follow up and remediation. It also ensures that instances of error and fraud are typically significantly reduced, operational efficiency increased, and that bottom line results are through a combination cost savings and a reduction in over payments and revenue linkages, (Coderre, 2005; Aquinot, Kaya, Neshihan & Tez, 2014).

In adaption of this approach, (Aquinot et al, 2014) opined that it will help the internal auditors to develop a better understanding of the business environment and the key risks to the company to support compliance and drive business performance. They also said that, business suffer from fraud due to either loose or lack of internal control systems.

Establishing a fully operating internal control is a challenge task for every level of the hierarchy within the organization since it requires internal audit function to closely monitor every monetary and non-monetary transaction. It is one of the strategic ways to deal with fraud risks effectively.

It was agreed by (ISPPIA; Coderre, 2005; KPMG, 2016), that internal audit ongoing function should include a continuous monitoring of controls by management to be at the core of effective assurance strategies. Internal auditors will still ensure that management's activities are adequate and effective. The ongoing assurance framework is one of a combination of the activities performed by internal audit to independently evaluate: the state of the controls, risk management within the organization, and assessment of the management monitoring. It also includes regular risk assessment that ensures all activities on the control risk continuum. Here, (Coderre et al, 2005), stated that technology plays a key role in automating the identification of exceptions and anomalies, analysis of patterns within the digits of key numeric fields, analysis of trends, detailed transaction analysis against cut-offs and testing of controls.

Further, it includes risk assessment that identifies and assesses the levels of risk. Ongoing risk assessment identifies and assesses risk by examining trends and comparisons within a single process, as compared to its own past performance, and against other processes operating within the organization.

The ISPPIA stated that some of the following should be part of an ongoing internal audit function. (a) There should be an assessment processes to support adjustments to the audit plan as they occur. ISPPIA stated that an effective ongoing monitoring can be conducted by an assigned group or individual internal auditor in fraud control. An effective ongoing

process should include written standards to ensure consistent application of processes throughout the organization. This exercise should include results that should be documented through a combination of: periodic audit summaries, reporting, updated risk assessments. This is to substantiate that the process is operating as designed by the audit committee, and this has to communicate the critical issues identified through the monitoring processes.

Internal audit ongoing process should also include performance that should be documented in details in audit manual. According to (11A), the following should be considered in their performance. (1) Internal Audit Scope: this scope includes that during the audit planning process the internal audit function has to analyze the auditable entity's specific risks, mitigating controls, and level of residual risk. Also, information gathered during the audit phase should be used to determine the scope and specific audit steps that should be carried out to test the adequacy of the design and the operating effectiveness of the ongoing function.

(2) Internal Audit Work Papers: This is the documentations of the actual work performed, observed, analyzed and carried out. It is also a support for the conclusions of the audit results. The document should contain sufficient information regarding any scope or modification and waiver of issues not included in the final report.

(2) Audit Report: Ongoing monitoring internal audit function should have an effective process to ensure that issues are communicated throughout the entity such that issues are addressed timely. The audit report should include management's action to address any audit findings for the moment.

(3) Internal Audit Issue Tracking: Ongoing process of internal audit function in fraud risk management should also have effective processes to track and monitor open audit issues. Internal audit function should discuss and agree with the management on the level of work completed. Any work to close on issue of risk should be validated. Also, on higher risk issues, internal audit should perform and document substantive testing to validate that the issue has been resolved.

In their own opinion, (KPMG, 2006 and PWC 2003) suggested that ongoing process of internal audit function has the following four components that could be included in addressing fraud risk and these are: assessment, design, implementation and evaluation.

2.2.5 Interactive Function

Internal audit interactive function is where the audit function goes with the other key corporate governance players within the organization (i.e board of directors, senior management, audit committee, Chief audit executive CAE, External auditors), on the issue of fraud risk control. Within this, the internal audit function continues to have an internal controls focus which shifts its functions to evolve from compliance to a more interactive function (Bou-Raad 200; Ernst & Young 2008). The institute of the Internal Auditors (11A) includes that every internal auditor (1A) who belong to 11A members have to adhere to the mandatory guidance within International Professional Practice Framework (IPPF), 11A's Code of ethics and the International Standard for the Professional Practice of Internal Auditors (ISPPIA) on relation with corporate governance for effective function in fraud risk control.

Internal audit involvement correlates with more effective management of organizations fraud risk. This reveals a correlation between the involvement of internal audit function and overall business performance in response to fraud risk, digital innovation, financial

challenges, culture and compensation change. Interactive function also includes the role and responsibility of the audit board, management and committee as a primary responsibility participant in this process. The internal audit interactive function provides support and security to the board of directors and management to ensure that the likelihood of fraud is minimized.

The purpose why interactive function is included in fraud risk control was made known by (Dardevic & Dukic, 2015), they said that all employees in the organization regardless of their hierarchical level as well as persons outside the management commit fraud. In other words, sometimes fraud is committed to preserve workplace, achieve a prestigious position and advance in career. Therefore, fraud control should also involve senior management, Chief audit executive and external auditors in an organization. Some of these fraud scenarios might be installed by a proper establishment of an adequate interactive internal audit fraud risk control processes.

- The interactive function with the board of directors and the senior management:

It is the duty of the board of directors to ensure that senior management establishes and maintain an adequate, effective and efficient internal system within the organization. The board should also support and work with the internal audit function to discharge their duties effectively. Some of the interactive functions with the board are: (a) At least once a year, the board should review the effectiveness and efficiency of the controls based on the information provided by internal audit function. There should be a review of performance of internal audit function and independent external quality assurance review of internal audit function. (b) Senior management should assists to develop the framework that identify, measures, monitors and controls all risks faced by the organisation within which the internal audit functions. (c) They are also to ensure that

actions are taken in all findings and recommendations. (d) Senior management interacts with the IAF by informing the internal audit function of the new developments, initiatives of projects, products and operational changes and all the associated risks and finally, they are also to ensure that internal audit function has sufficient resources to carry out its planned and scope of functions.

-Interactive Function with Audit Committee

The audit committee oversees the internal audit function. Audit committee is responsible for establishing an appropriate internal audit function and its effective operations. The audit committee provides oversight to the internal audit function. The audit meetings should be held four times a year at a minimum as provided by 11A guideline. Annually, audit committee should review and approve internal audit's charter, budgets and staffing levels and the audit plan and the overall risk-assessment.

In other words, the audit committee and its chairperson should have an ongoing interaction with the Chief Audit Executive CAE from formally agreed meetings to remain current on any internal audit function concerns.

The Institute of Chartered Accounts of England and Wales (ICAEW, 2004) stated that the interaction of audit committee with the internal audit function requires some of these; a) Check and monitor and review the effectiveness of internal audit function; b) Audit results with a focus on areas rated less than satisfactory; c) Ensure that there is audit plan completion status and compliance with report issuance; d) Communicate audits plan changes, including the rationale for significant changes; e) Discuss the audits issue information ie Share information on higher-risk issues indicating the potential impact, root cause and remediation status; e) Get results of internal and external quality assurance

reviews; f) Drop Information on significant industry and institution trends in fraud risk controls and reporting of significant changes in audit staffing.

-Interactive function with the Chief Audits Executive CAE:

The CAE is responsible for the development and maintenance of a quality assurance and improvement program that covers all aspects of internal audit activity, and for continuously monitoring the effectiveness of the audit function. The CAE works with and effectively manage and monitor all aspects of audit work on an ongoing basis. Internal audit ongoing function had earlier been stated to include risk assessment of audit entities and elements, scope documents, audit programs, detailed audit procedures and steps and work papers, audit finding, and monitoring of the timely and effective resolution of audit issues. It is the duty of the chief audit executive to ensure that work rules are judiciously adhered to.

-Interactive Function with Statutory Auditors.

Interaction between IAF and Statutory auditors exits. Even though internal audit and statutory audit have different remits, statutory auditors have a legal obligation to report to the shareholders on the public financial statement and their focus, therefore, is on the historic financial data. But, to fulfill this obligation, they require a good understanding of the internal financial controls that lead to the preparation of the financial statements. In that respect, statutory auditing and internal audit function are complementary, and synergies exist between their activities. But overlaps or gaps in their work programmer may arise from a lack of coordination.

However 11A's International standards require that the chief audit executive shares information and coordinates activities with the statutory auditors to ensure that every aspect of the organization is covered and that there is a minimum of duplication of effort

of internal audit function IAF. Therefore, statutory auditors should exchange information frequently on the scope of the audit, the audit approach and the findings. Sometimes the audit committee should challenge these arrangements and assumptions. Their respective plans should be coordinated to ensure the best possible value in audit coverage while respecting the legal obligations of the statutory auditors.

Also, there should be a regular exchange on the results of their work, like sharing the reports of internal audit function or the management letters of the statutory auditors. All these will improve the synergy between these two participants in the governance process.

There are similarities in the two functions as enumerated by European Confederation of Institute of Internal Auditors (ECIIA, 20015). But, the internal auditor is better placed to provide assurance to the board and the executive management such as: a) Internal audit function has a permanent presence in the organization and has continuous access to executive management and the board; b) Internal audit function can adapt its internal audit plan quickly to the changed strategic objectives of the organization especially in developments in fraud risk issues ; c) Internal audit function can time its work to the needs of executive management or to the emergence of fraud risks; d) Internal audit function's scope is much larger than just the risks and internal controls around historical finical reporting; e) Internal audit function can identify and measure risks associated with operations before they end up in the financial reporting of the organization; and, f) Internal audit function can invest time in ensuring that recommendations on fraud risk management and internal control are actively followed-up.

2.3.1 Fraud Risk Management

Fraud risk management is defined as the systematic application of management policies, procedures and practices to the tasks of establishing the context, and to those of identifying, evaluating and treating risks (Hodges, 2000).

Anderson and Terp as in (Na Ranong & Phuenngam, 2009), defined fraud risk management as a process that should seek to eliminate, reduce and control risks, enhance benefits and avoid detriments from speculative exposures. The main objective of fraud risk management is to maximize the potential of success and minimize the probability of future losses. Thus the risk that becomes problematic can negatively affect cost, time, quality, quantity and whole system performance.

Fraud risk management is an area of paramount importance to any organization. The fact being that every entity is exposed to risks but an effective fraud risk management is necessary for the improvement of any business performance (Williams, 2002). The definition of fraud risk management give by Committee of Sponsoring Organization of Tradeway Commission (Coso, 2004) say that "…fraud risk management is a process, affected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives".

Fraud risk management is the process to manage the potential risks by identifying, analyzing and addressing them. The process can help also to reduce the negative impact and the emerging opportunities. This outcome help to mitigate the likely hood of risk occurring and the negative impact when it occurs.

From the definition, fraud risk management involves identifying, measuring, monitoring and controlling risks. It is to establish that those involved should have a clear view of fraud risk management and fulfill the business operational strategy and objectives.

2.3.2. Fraud Risk Management Framework

Fraud risk management framework circle is an essential element in meeting the corporate responsibility (PWC, 2013). Developing such a framework is a complex task that requires an understanding of (SASA No2, 2004) on fraud and corruption control. These frame work are:

Identify areas of high risk: Identifying high fraud risk areas is the first substantial steps in dealing with the problem. It should be done before any further analysis and assessment can be undertaken; b) Access the risks: Once an organization has identified its own risk areas, there has to be a fraud risk assessment; c) Involve all the staff: Here an electronic survey tool should be considered. This can be used across the organization, or at business unit or product-specific level using prevention, detection, response and remedy (Taylor, 2011).

2.3.3 Fraud risk Management of Prevention

These are some of the preventive controls that are designed by internal audit to help reduce the risk of fraud and misconduct from occurring in the first place (KPMG, 2006; 11A, 209; AICPA ,2009; ACFE, 2009).

-The leadership and governance/Board/Audit committee oversight play this role of implementation of controls to mitigate the risk of fraud and misconduct. They can delegate principal oversight for fraud and misconduct risk management to a committee (audit) with the responsibility (KPMG, 2006). Their duties should include some of the followings; (1) Reviewing and discussing issues raised during the organization's fraud

and misconduct risk assessment. (2) Reviewing and discussing with the internal and external auditors findings on the quality of the organization's antifraud programs and controls. (3) Establishing procedures for the receipt and treatment of questions or concerns regarding questionable accounting or auditing matters. (4) Senior Management Oversight which includes that the responsibility for the organizations fraud and misconduct risk management approach should be shared at senior management level to ensure that fraud and misconduct controls remain effective and in line with standards. There should be a high ethics and integrity set by chief executive to influence employee action.

The chief compliance officer should chair a committee of cross-sectional managers who shall do the followings: -Coordinate the organization's risk assessment efforts; -Establish policies and standards of acceptable business practices; Oversee the design and implementation of antifraud programs and controls; Report to the board and/or the audit committee on the results of the organization's fraud risk management activities. Other departments should also participate in the organization's antifraud strategy and oversee areas of daily operations in which risks arise. (KPMG, 2006; 11A, AICPA, ACFE, 2009).

Other prevention method in internal audit function includes some of these:

-Planning and conducting the evaluation of design and operating effectiveness of antifraud controls; Assisting in the organizations fraud risk assessment and helping draw conclusions as to appropriate mitigation strategies and reporting to the audit committee on internal control; assessment, audits, investigations, and related activities.

- Fraud and misconduct Risk Assessment: There should be a conventional entity-wide risk assessment, a fraud and misconduct risk assessment to help management understand the risks that are unique to its business, identify gaps or weakness in control to mitigate

those risks, and develop a practical plan for targeting the right resources and control to reduce risk.

-Code of Conduct: It is the code of conduct that defines the business acceptable unit of conduct and the overall control culture to all employees. A well designed code of conduct includes the following. 1) High level endorsement from the organization's leadership underscoring a commitment to integrity. 2) Simple concise and positive language that can be readily understood by all employee. 3) Topical guidance based on each of the company's major policies or compliance risk. 4) Practical guide on risk based on recognizable scenarios or hypothetical examples. 5) Virtually inviting formats that encourage leadership usage and understanding. 6) Ethical decision making tools to assist employee in making the right choices.

There has to be a designation of reporting channels by employee. These are:

-Employee and Third Party Diligence: An important part of an effective fraud and misconduct prevention strategy is the use of due diligence in the hiring retention and promotion of employee agents, vendors and other-third party. Due diligence starts at the beginning of an employment or business relationship and continues throughout.

2.3.4 Fraud Risk Management of Detection

Detective controls are designed to uncover fraud and misconduct when it occurs (KPMG, 2006; 11A, AICPA, ACFE, 2009).

Mechanism for Seeking Advice and Reporting: To establish a firm detective control, the oversight and senior management has to provide employees with multiple channels for reporting fraud and misconduct possibly by alerting their managers or designated human resources or compliance office. This is normally done through a telephone hotline made available. A well-designed hotlines typically include the following features. 1) It

should always be treated with confidentiality. 2) There should be anonymity towards the employee who does not want his identity disclosed. 3) The hotline should be available at any location and should not cost the employee. 4) It should be real time assistance. 5) Data management procedures:- The hotline operator has to use consistent protocols for gathering relevant facts and managing the hotline calls. 6) There has to be classification of financial reporting concerns. 7) The hotline should have audit committee notification. 8) A follow-up on non-notification as to be made to the employee periodically. 9) There should be a prominent publication of the hotline always as part of the code of conduct of the organization.

-Auditing and monitoring: Auditing and monitoring systems that are reasonably designed to detect fraud and misconduct are important tools that management can use to determine whether the controls are working as intended. The organization should carry on a depth auditing and monitoring that includes an activities relating to the nature and degree of the risk involved with highest issues receiving priority treatment.

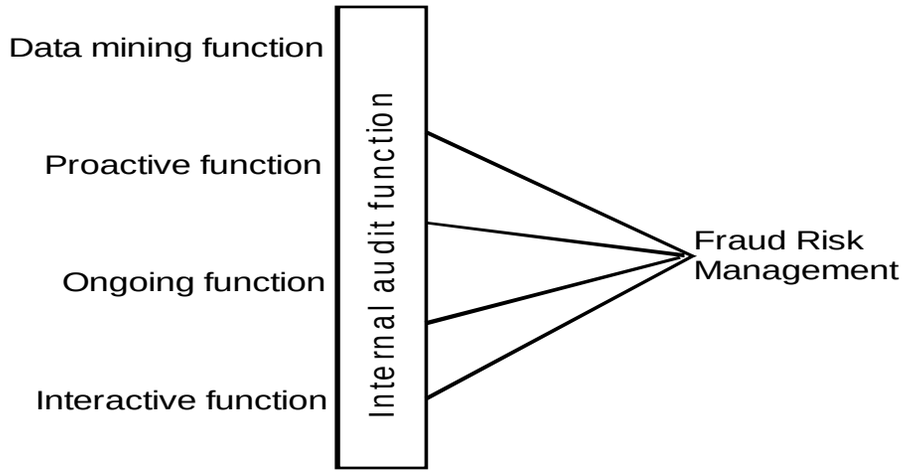
2.3.5 Fraud Risk Management of Response.

The response controls are set to take corrective action and remedy the harm caused by fraud and misconduct in an organization. (Taylor, 2011; KPMG, 2006; 11A, ACFE, AICPA, 2009). These includes; **(a) Investigation:** Potential fraud may come to the organisation's attention in many ways, including tips from the employees, customers of vendor, internal audit, process control identification, criteria audits or by accidents. What matters is that investigation should be performed in accordance with protocols approved by the board. A consistent process for conducting investigations can help the organization mitigate losses and manage risks associated with the investigation (11A, ACFE, AICPA, 2009). **(b) Conducting the Investigation/Enforcement:** The investigation team should

establish the investigation tasks and assign each task to the appropriate team members. Investigation method will normally include some of the following. 1) Interviewing all concerns externally, and internally; 2)Evidence collection from all internal documents; 3) Evidence collection from all external records; 4) Computer forensic examination; 5) Evidence analysis of the followings: a) Review and categorization of information collected, b) Computer assisted data analysis, c) developing and testing of hypotheses.

The investigation results should be reported to the proper authority. (c) **Corrective Action:** After the investigation had been completed, the organization will need to determine what action to take in response to the findings. The board, the audit committee and the external auditors should be notified of the material findings.

The four predicted application variables that this study investigated are diagrammatically shown below in figure 1



Predicted Variables That Are Applicable In Fraud Risk Management (Adopted From Weitzman, 2014)

2.4 Theoretical Frame Work

2.4.1 Fraud Theory

The views of many criminologist hold that crime cannot be divorced from the society within which it flourishes and consequently, many of the causes of crime can be

attributed primarily to sociological factors such as upbringing and interpersonal relationship. While some have the view that it is solely the motivation of the individual which is the relevant factor, showing that we all act alone and it is this which determines whether or not individual will be tempted into criminal acts (Taylor, 2011; Ramamoorti, 2008).

Another school of thought presented psychology of fraud as three factor, a supply of motivated offenders, the availability of suitable targets and the absence of capable guardians-control, systems or someone "to mind the store", so to speak Cohen and Fegulson as in (Duffield & Grabosky, 2001). This is consistent with the general explanation of White Collar Crime as published by (Edwin Sutherland, 1949) that crime is a choice and variation in crime is produced by variation in opportunities and in motivation Shower and Bryant as in (Ramamoorti, 2008). This presupposes that criminal opportunities are presented by those vulnerable environments and opportunistically interpretable scenario that individuals and groups see as offering attractive potential for criminal reward with little apparent risk of detection or penalty.

The aggregate rate of white collar crime varies directly with the supply of criminal opportunities and with the supply of individual and organization with the intensity, and severity of role enforcement (Shower, 1998). This theory relates that crime cannot be divorced from the society within which it flourishes. The theory also states that crime is caused by sociological factors such as up bring and interpersonal relationship. In order words, business flourishes within this society where fraud also flourishes and is managed by individuals of various sociological factors that could be motivated by inherent criminal acts (Taylor, 2011). This makes the understanding that internal audit function should not presume to divorce the idea of inherent fraud from both the senior and lower

management of the organization as they carry out day to day fraud risk management function. This theory also implies that sometimes organization provides vulnerable environments and scenarios that are attractive with little risk of detection and penalty.

2.4.2 Fraud Risk Management Theory

These words risk management is a formal part of decision-making processes within companies traceable to the late 1940 and early 1950's. There were two earlier strands of risk management practice that have more recently been integrated under the broader concept of enterprise risk management. One of these relate to the management of financial risks. Financial risk management began, as a formal system, at the same time as the development of financial derivatives products such as financial futures, option and swaps. Business continuation management extended the practice of contingency planning by requiring more comprehensive internal systems.

The corporate responses to the current threats provide a recent example of business continuation management in action. Both contingency planning and business continuation management approaches, however, were limited, since they presupposed that strategic choices had already been made and their role was continued to the effective implementation of their strategies (Dickinson, 2001; Deleoach, 2000; Doherty, 2000).

Classical decision theory presupposes the risk of a decision alternative in terms of variation in possible outcomes, in their likelihoods, and in their subjective values Arrow 1965 as in (Benearoch, Lichtenstein & Robinson, 2006). This view considers a decision maker to be passive in management of fraud risk as it assumes that all alternatives are given and their features cannot be changed to affect risk. By contrast, according to the behavioral school's view of fraud risk management, decision makers associate fraud risk management with a probability concept and with the magnitude of a bad outcome (March

& Shapira, 1987), but they do not treat uncertainty over positive good outcome as an important aspect of fraud risk management, Shapira as in (Benaroch et al ,2006). Moreover, bringing fraud risk under controls; is seen as entailing the active mastering of the environmental, for example, by negotiating uncertainty involving contracts or by delaying decisions, MacCrimmon & Weh Rung as in (Benaroch et al, 2006). The real option view sees fraud risk management to be a proactive process aimed at favorably skewing the variation in expected outcome by means of building the flexibility needed to respond to the occurrence of fraud risk with corrective action (Benaroch et al, 2002). In other words, risk management includes responding to the occurrence of fraud risk proactively, in consideration of external and internal fraud risk within the business environment with corrective action needs.

The theory relates to the topic because it brought the idea of financial risks and business continuation management and contingency planning of internal systems with current threats which management respond to via application of internal audit function variables. The internal audit risk management function is a response to both external and internal system threats. The theory further states that risk must be brought under control by an active mastering of the environments. This has to be done by negotiating uncertainty involving decisions. Therefore the real option view of the theory sees risk management to be a proactive process aimed to respond to the occurrence of fraud risk while they occur with corrective action which necessitated this study.

2.5 Discussion of Other Major Issues On Conceptual Frame work

2.5.1 The role of Audit Committee in Nigeria under the CAMD

The Company and Allied Matters Decree CAMD 1990 in section 259 (6) made a provision for objectives functions of audit committee that shall be as follows

(a) To ascertain whether the accounting and reporting polices of the company are in accordance with legal requirements and agreed ethical practices;

To review the scope and planning of audit requirement;

(b) To review the findings on management matters in conjunction with the external auditor and departmental responses thereon;

(c) To keep under review the effectiveness of the company's system of accounting and internal control;

(d) To make recommendations to the Board in regard to the appointment, removal and remuneration of external auditors of the company; and

(e) To authorizes the internal auditor to carry out investigations into any activities of the company which may be of interest or concern to the committee.

2.5.2 Provisions of Standards of the Internal Auditors.

There are provisions made by standards of the internal Auditors for internal audit functions based on the established principles of the profession and they tend to be fairly consistent despite some variation in style and the material covered.

According to Institute of Internal Auditors Code of Ethics (2014), the current standards of the Institute of Internal Auditors IIA are numbered (1000 to 2600).

2.5.3 Other Regulatory Provisions Assisting Internal Audit Function

To comply with professional standards there are other provisions that assist internal audit function to comply with the provisions of professionals standards. These provisions, help in the internal audit fraud risk assessment and is a process aimed at proactively identifying and addressing an organizations vulnerabilities to both internal and external fraud. These are: (American Institute of Certified Public Accountant AICPA Statement on auditing Standards No 99 and No 104-111; PCAOB Auditing standard no 8-15;

Sarbanes- Oxley Act of 2002; COSO Fraud Control model 1992; Foreign corrupt practices Act 1977.

The internal audit function in fraud risk management will become more firmly established as it responds quickly to new demand from significant regulatory and legislative mandates. These regulations particularly emphasizes on internal audit function in fraud risk control and the insurance of the Report of the national Commission of Fraudulent Financial Reporting RCFFR, 1977). Also the recent changes in the New York stock Exchange rules regarding the structure and components of the board of Directors of Listed Companies as well as the requirement for all publicly listed companies to have an internal audit function, and the ongoing calls for better organization governance (Ramamoorti, 2003; Loftus, 2011; BBVA, 2012)

2.6. Empirical Review.

The growing reliance by management and the audit committee on the internal Audit function as a critical part of good corporate governance and more specifically as an effective tools to fight fraud (Delloittee, 2010; Frank 2010; KPMG, 2008; Norman., Rose & Rose, 2010) makes the understanding of the role of the internal audit function in the context of fraud management an important area of research and practice. This study is an explorative study addressing an existing gap in the academic research to date on the Application of Internal Audit function in Fraud Risk Management (An Empirical Study).

Thus on the empirical review of this study (Abort, Brian, Susan & Garry, 2012) studied the role of the internal audit function in fraud risk management using related literature and online survey data. The results proved that the respondents perceived that the internal audit function has a significant role in all areas of fraud risk management. The study also concluded that the findings enhance the understanding of the IAF's current

roles and responsibilities with respect to fraud risk management. It was also found that the audit committees are also to inform management and board of directors/audit committee on setting IAF's scope of work in relation to fraud risk management including the importance of allocating adequate resources for the IAF to fulfill its responsibilities and challenges. The research further concluded that internal audit is currently under sourced to effectively achieve its aim.

In the same way, (Ernst & Young, 2012) conducted a global survey about evolving role of internal audit using questionnaire and found out that strong risk management has a positive impact on long –term earnings performance in organization. The findings can also be related to (PricewaterhouseCoopers, 2009; Norman et al, 2010) on the understanding of the role of the IAF in the context of fraud risk management.

A consolidated study was made by (Coetzee et al, 2009) on perceptions of the role of the internal audit function in respect of fraud risk management. Data was obtained by means of personal interviews with the senior management and the chairperson of the audit committee using electronic survey issued to the chief audit executives. The conclusions are that communication regarding risk issues is lacking. Although, the internal audit function's role is perceived as positive yet, the views of senior management and those of the chairperson of the audit committees differ substantially, and the two parties expect an increase in internal audit function involvement in the fraud risk management related issues.

At the same time (DeZoort & Harrison 2008) studied on an evaluation of internal auditor responsibility for fraud detection using data collected from six countries of Australia, Belgium, Canada, Mexico and US. On the overall, the internal auditors in the study reported moderate levels of responsibility for fraud detection and account participants

reported higher overall detection responsibility than anonymous participants. Perceived, responsibility for detecting fraud was higher in the misappropriation of assets case than in either the fraudulent financial reporting or corruption case. Also, (Schlenker, 1997) concluded from his study that responsibility is not identical to accountability as part of pressure put on internal auditors to external pressure. Similar findings were also made in (KPMG, 2003, 2006; ACFE, 2008).

A study was conducted by (Coram et al, 2011 using ANCOVA on the importance of internal audit in fraud detection. The results showed that organizations with an internal audit function are more likely to detect and report fraud than those that do not. Other researchers like (Carey, Tanewskip & Simmnet, 2000; Carcellor.,Hermenson & Raphunandan, 2005) made similar studies using an agency cost framework to illustrate the value relevance of the internal audit function. The conclusions were that the variables of size, debt or agency are not associated with presence of an internal audit function in an Australian family owned companies, internal and external audit are used as monitoring substitutes by these companies.

Another study made by US examined the size of internal audit budgets using percentages and regression analysis and found that they were positively related to company size; financial leverage, service or utility industries, inventory operating flows: and audit committee review of the internal audit budget (Carcellors et al, 2005). Results showed that internal audit budgets were negatively related to the percentage of internal auditing that was outsourced. The overall conclusion was that companies facing higher fraud risk will increase their organizational monitoring through internal audit providing evidence of the importance of the internal audit function.

Also, (Gramling., Malletta., Schneider & Church, 2004) made a literature review on the internal audit function with corporate governance. The outcome was that the role of an internal audit function was analyzed using the external auditors evaluation of its quality, determinants of its reliance decision, the extent of its work relied on by the external auditor and other aspects of the internal audit. This review shows that internal audit has been related to the perception of the external auditor and whether the external auditor utilizes the internal auditors work.

In their research, (Wallace & Kreutzfeldt, 1991) evaluated the work of internal auditor to know how well they detect errors within an organization. The research used none-parametric test regression analysis and found out that the number and magnitude of errors requiring adjustment by the external auditors have been found to be substantially lower for entities that had an internal audit department than those that did not.

In another studies, (Apostolou et al, 2001) evaluated the ability of internal auditors to perform fraud-related work. The study applied simple percentages and the findings were that external and internal auditors achieved a high level of consensus in their financial statement fraud risk rating suggesting that internal auditors are as aware as external auditors of where fraud is likely to be detected.

Two other researchers, (Church & McMillan, 2001) investigated on factors affecting internal auditors consideration of financial reporting during analytical procedures and comparing financial statements and discovered that when considering fraudulent financial reporting, internal auditors think that fraud is the reason for an unexpected difference in income. These studies have focused on the financial statement fraud and they were based on measuring perception and not application.

Fraud risk management cannot be achieved without corporate governance. The works of (Paape., George Panagiotis., Rani & Evanthia, 2003) investigated the relationship between internal audit and corporate governance using survey data collected form 15 European Union countries. The result of this research is the differences during internal auditors work and the perception of the role of internal auditors to corporate governance by country. Thus, there is a lack of internal audit and audit committee on 50 companies and business managers are unaware of the recommendation and regulations on corporate governance. Supporting the idea, (Godwin, 2003) surveyed on the same relationship by the use of simple t-test and found out that independence and accounting experience have a complementary impact on audit committee relation with internal audit.

Also (Leung., Cooper & Robertson, 2004) researched on the role of internal audit in corporate governance in Australia using questionnaires sent to internal auditors and directors of Australian financial Institutions. The findings were the fact that the culture and the support of the Board of Directors are key factors that directly affects internal audits effectiveness in fraud risk management.

Then, (Christopher, Sorens & Leung 2010) investigated a critical analysis of the independence of the internal audit function through its relationship with management and the audit committee. The significant threats identified included Chiefs Audit Executives CEA not reporting functionally to the audit committee; the audit committee not having sole responsibility for appointing, dismissing and evaluating the Chief Audit Executive, and not having all audit committee members or at least one member qualified in accounting.

But, (Sarens & Christopher, 2010) investigated between corporate governance, risk management and internal control practice. Survey data were sent to chief audit executives

in Australia and Belgium and used a simple statistical mean to analyze the data and the conclusions were that the weaker focus of the Belgian corporate governance guidelines on risk management and internal control is associated with less developed fraud risk management and internal control systems in Belgian companies than in Australian Companies.

More so, (George et al, 2013) performed a literature reviews on the assessment of corporate governance through internal audit function in fraud risk and concluded that internal audit plays a critical roles in corporate governance by providing a wide spectrum of assurance and consulting services. These researches have just centered on the relation of internal audit function with corporate governance only.

On interaction with executive, (Perrin, 2001) performed a survey in 2000 of approximately 130 executives, including both internal audit and other management executives and analyzed the survey using percentages. It was found that internal audit was involved in risk management committees working teams in 33 percent of the responding organizations and the management cooperation. But, (Walker Schlnker & Bartan, 2002) provided information about the role of internal audit in fraud risk management process with the executives through observations and found out that internal audit function assisted to identifying risks, facilitated risk workshops, integrated and aggregated information from the workshops, helped develop risk management processes, and generated risk reports.

However on interaction, (Beasley, Clune & Hermanson, 2005a) conducted a descriptive statistics on the adoption of fraud risk management by global organizations and on the specific role of internal audit function in fraud risk management. The results showed that 48 percent of the surveyed organizations have complete or partial risk management frame

work in place. The evidence of close interaction between internal audit and the Chief Risk Officer, as well as evidence of internal audit focus on coordinating risk management efforts among various parties, assisting with risk identification, suggesting control activities and monitoring the risk management effort among various parties, assisting with risk identification, suggesting control activities and monitoring the risk management process.

However on ongoing function, (Gramling & Myers, 2006) investigated internal audit's specific role in risk management for conformity with the appropriate internal audit role identified by the (11A, 2004). The outcome was that internal audit involvement in areas the 11A deemed "Core" activities for internal audit is moderate, involvement in area the 11A deemed "legitimate with safeguard" is limited moderate, and involvement in areas the 11A deemed inappropriate is limited. Thus the internal audit's risk management-related activities at many organizations appear fairly consistent with the 11A guidelines.

An investigation of (Colquitt, Huxt & Lee, 1999), by sending questionnaires to managers of 100 large and small organization probing into their risk management profile and discovered that large organizations are more likely to adopt integrated risk management processes than smaller organizations, but, (Bearsley.,Clume & Hermanson, 2005b) agreed in the same manner just as (Carcellor et al, 2005) is of the same view that this allow for greater internal audit involvement in risk management.

On enterprise fraud risk management, (Beasley, Clume & Hermanson, 2006) researched on the impact of enterprise risk management on the internal audit function. They used OLS regression model to address the research questions. The conclusion show that enterprise risk management is impacting the internal audit function and that the impact is greater when the organization has a more complete enterprise risk management

framework. Complete adoption is a significant undertaking and can provide numerous opportunities for internal audit involvement.

A review on internal auditor's role in the detection and prevention of fraud on a post SAS No 82 analysis was conducted by (Thomas & Clement, 2002). They employed non-parametric ANOVA and Kruskal Wallis to evaluate the effect and the results provided evident that internal auditors are moderately knowledgeable about 11A and AICPA standards for fraud. However, they are, at best, neutral with regard to acknowledging fraud detection and prevention as primary roles for themselves in the organization.

The findings of (KPMG, 1998; 1999) showed that internal audit function was involved in detection of approximately 43 percent of reported frauds with the external audit function and designed for the purposes of detecting misstatements due in part to fraud was involved in detection of only four percent of the reported fraud. Prior research made by (KPMG, 1994, 1995) found similar results with (Campbell & Lindsay's 1994), that internal auditors are frequently involved in detection of both management and employee fraud.

Internal audit function (Welch, Holmes & Strawser, 1996) surveyed (ACFE) regarding actual incidence of fraud with which they were familiar. They collected a total of 2,573 case of known fraud and found that organizations with internal audit functions were significantly more effective in detecting fraud than those without internal audit function. In an agreement, (Church et al, 2001) found that internal auditors are able to identify risk factors for fraud.

The institute of Internal Auditors (11A, WIPO 2014) stressed on the ethics and the code of conduct and standards on internal audit. On this regard (Heaston., Cooper & Frank, 1993) surveyed on internal audit ethics and found discrepancies between audit directors,

who felt the reporting of fraud to the Board of Directors was a serious ethical problem, and audit staff who felt it was unimportant.

Further function of internal audit, (Carnes & Keithley, 1993) investigated on whether the limited tenure of internal auditors hampers fraud detection using MANOVA and ANOVA for the analysis. Findings of the study indicated that the length of audit experience and auditors plans to continue practicing internal auditing as a carrier do affect their attitudes outcome which shows that 52% of employees reported that code of conduct are not taken serious. Also,

(Freiedberg, 1998) made an archival research on ethical aspects of internal auditing as it affects its function in Israeli. The findings pointed to the paucity of professional research into the important area of internal audit ethics on one hand, and on the lack of significant activities to implement the existing code of ethics in Israel and probably in many other countries, on the other hand and this affect its function.

The use of risk management principles in planning an internal audit engagement was conducted by (Coetzee & Lubbe, 2013). The conclusion was that the term risk-based internal auditing is fairly new, in that the terminology is used to describe the audit of the risk management strategy as well as the development of the internal audit function's annual plan, the chief audit executives are unsure how frequently the risk register is being updated with emergent risk which could involve internal audit function's activities and that internal auditors are still unclear about the differences between risk management and risk –based internal auditing as regards terminologies, methodologies and rule. On the same subject, (Dela Rose, 2008; Griffiths, 2006[(b)]), all researched in risk based management in internal audit function and came out with inconsistent results as made by (Coetzee & Lubbe, 2013).

The perceived effectiveness of internal audit function in fraud prevention was carried out by (Salameh et al, 2011). A survey of forty five executives was selected to gather information from the Jordan banking industry. The study found that respondents perceived internal audit units is effective in fraud prevention and that senior managers consider that in-house internal audit units are more effective in preventing fraud than outsourcings internal auditors.

Another research by (James, 2003) examined the effects of internal audit function structure on perceived financial statement fraud prevention in USA. The study found that users perceived greater financial statement fraud protection when internal audit function reports to the audit committee than when it reports to senior management. They also concluded that there is lack of evidence supporting enhanced user confidence resulting from outsourcing the internal audit function in fraud risk management.

An inconsistent result was found in relation to audit committee existence and the likelihood of financial statement fraud by, (Beashey, 1993; McMullen, 1996). However, audit committee effectiveness has been found to reduce the likelihood that companies are sanctioned for fraudulent financial reporting (Abbort, Parker & Park, 200). Also a positive relation was found between concentration of power in the hands of insider and the likelihood of issuing fraudulent financial statement (Dunn, 2004). In Australian perspective, a negative relation has been found between the proportion of independent directors and institutional investors and the likelihood of fraud, while a positive relation was found between duality chairman of the board and also the chief executive officer and the likelihood of fraud (Sharma, 2004). One observed difference from this study to others was that in measuring fraud (Sharma, 2004) used both financial statement fraud and misappropriation of assets.

However, (Radu, 2012) discussed on fraud risk, internal audit and environmental audit and found out that organization that has effective internal audit function in place are better than those organization that has not such a function as regards to fraud detection and prevention. As regards fraud prevention, (Omar & Abubakar, 2012) used achiever survey on fraud prevention mechanism of Malaysian government linked companies and also found out the same conclusion with (Radu, 2012; Coram, Ferguson & Moroney, 2006). Further, internal auditors responsibility for fraud detection was surveyed by these following authors as well (Collier, Dixon & Marston 1991; Farcane, Blidset & Popa, 2009; Mui 2009; Stribu et al 2009). They found similar answers that users put high expectation on auditors' duties of fraud prevention and detection. They also concluded lack of understanding among respondents of the statutory duties of internal auditors in fraud risk prevention.

Some challenges on internal audit function to prevent and detect fraud as discussed by fraud literature are difficult to detect for several reasons. This was seen in (Krambia-Kapardis, 2001) in his discussion on enhancing the auditor's fraud detection ability and concluded that perpetrators may be familiar with accounting procedures, and also have the ability to cover the fraud. He also found out that the time and budgetary constraints associated with audit results in external auditors increasing their reliance on management's representation of financial statement. The works of these (Bayon & Reinstain, 2001; Dycus, 2002; Grazioli, Jamal & Johnson, 2006) found out similar opinions that internal auditors lack adequate training in fraud nature and investigative methodology, and hence these have reduced their capability in fraud detection and management. In agreement, (Coetzee & Lubbe, 2013) also found lack of methodology in fraud risk management principles in planning internal audit engagement.

In the same dependency, (Garvious, 2007) found out that internal auditors can experience an agency problem of an inherent conflict of interest because they are investigating the party that paid for their services thus creating a built-in conflict for internal auditors.

The discussions of (Godwin –Stewont & Kent, 2006) on the use of internal audit function in fraud risk management using Australian Companies was analyzed using survey data. In the result, they found out that internal audit function plays a key role in monitoring a company's risk profile and identifying areas to improve in fraud risk management.

Other authors like (Gorden., Loeb & Tseng, 2009), studied on the enterprise risk management and firm performance but only based their study on contingency perspective and not on a wide fraud risk management, while (Vasile, Coitora & Mitran, 2012) also studied on fraud risk management in the financial and accounting activity and based their-results only on those financial and accounting risk not covering all the risk that are envisaged in organization. These two authors (Anuntaakalakul, 2010; Woods, 2009) centered their studies on risk management but not in relation with internal audit function but in other variables relating to management. These researchers (Beasley et al 2009; Coetzee & Fourie, 2009; Beaslie et al, 2012; Woods, 2009; Stoneburner,Goguen & Feringer, 2002) all researched on risk management but had varied results except that risk management help management achieve its objectives without establishing whether there are an established variables that assist internal audit function in achieving the fraud risk management objective.

The following (Salameh, Al-Weshah, Al-Nsour & Al-Hiyan, 2011) investigated alternative internal audit structure and perceived effectiveness of internal audit function

in fraud prevention. The methodology used simple questionnaires sent to fifteen banks in Jordan. A simple one-t-test, using mean, standard deviation, frequency and percentages were used to analyzed and test the hypotheses. The study found that respondents perceived internal audit units effect in fraud prevention. They also found that senior managers consider that in-house internal audit units are more effective in preventing fraud than outsourcing internal auditors.

In Nigeria, (Badara & Saidan, 2014) studied empirical evidence of antecedents of internal audit function effectiveness in fraud risk from Nigerian perspective. The data were obtained by questionnaires administered to internal auditors, audit committee and chairman of local governments using descriptive statistics and factor analysis. The result reveals the significant effect of the entire antecedents on the internal audit effectiveness in local government, which implies that for local government or other public sector to attain the effectiveness of their internal audit, such antecedents need to be given due consideration.

In addition, (Salamu & Agbeja, 2007), investigated on auditing and accountability in the public sector and concluded that internal audit functions in Nigeria are not effective.

In Nigerian perspective, (Osa-Erhabor & Ehiorobo, 2013) also investigated the role of internal audit function in effective management in public sector and concluded ineffective internal audit function in Nigeria.

In Tehran, (Kangarlovei, Motavasse & Moghammadzadah, 2013) studied the evaluation of internal audit effectiveness in Tehran stock exchange and concluded that internal audit function is an effective means of monitoring and promoting good system of good governance. Similarly, conclusions were made by (Belay, 2007), that internal audit function promotes good system of corporate governance.

All these, (Endaya & Hanefah, 2013; Chaveerung, 2011; Sahehi & Arianpour 2013) had similar conclusion indicating lack of factors that influence internal audit effectiveness and the possible interaction among them in fraud risk management. The following works on internal audit effectiveness were accessed (Omar & Baker 2012; Endaya & Hanefah; Thenfanis., Drogalis & Giovani, 2011; Domenic & Nonna, 2011; Intakhan & Ussahawanitchakit, 2010; Feizizadeh, 2012) several statistical methods like regression analysis, ANOVA, ANCOVA, simple percentages and achieved data were used to investigate many of the studies and some of the results showed internal audit function effectiveness and others ineffective especially those of the Nigerian perspective. Those that found internal audit effective were not focused on internal audit function effectiveness on fraud risk management. The findings and conclusions were at variance just as the various methods were used to analyze the study data.

On the methods of measuring the performance of internal audit function in fraud risk management (Aksoy & Kahyaogbu, 2013) measured internal audit performance for successful implementation in Turkey. The authors used 11A GAIN performance monitoring 2008 and found that 77 percent of all the respondents have a formal or informal performance monitoring and quality assurance program. They also applied 11A, GAIN Annual bench-marking study 2009 and concluded that the major performance metrics can be categorized in three set such as (a) stakeholder satisfaction (b) internal audit process and capability and (c) innovation related to audit staff and activities as a whole. In order to ensure the high performance of internal audit activity, 11A recommends standards, Code of ethics and also Quality Assurance (QA) services both applied internally and externally. These measurements were performed in Turkey but not in Nigerian perspective.

Global Internal Audit Survey was conducted by (Ernst & Young, 2007). They highlighted the findings on the survey made through internal audit executives representing 138 predominantly public companies representing membership in the Global Business week 1000, and the standard and poor's global 1200 from 24 countries, using companies having revenues of US 4 billion dollars. The results showed that half of the respondents (50%) do not track the value their internal audit function provided for the organization, while only 13% measure value based upon actual cost savings.

Two writers, (Arena & Azzone, (2009) studied organizational drivers of internal audit effectiveness considering new development in internal audit function and its central role in corporate governance and fraud risk. The data used for this survey were collected through questionnaire sent to 364 Italian companies, and 47% responded from the basis of data from 153 Italian companies. The results show that the effectiveness of internal audit in fraud risk is influenced by factors like (a) characteristics of the internal audit team (b) the audit process (c) The organizations links.

Bota-Avram, Popa and Stefanesco (2010) made achiever study on the methods of measuring the performance of internal audit function and concluded with the followings as the metrics used for measuring internal audit function: a) Using of Balance scorecard instrument; b) Using qualitative methods by realizing some satisfaction studies for the client of internal audit. One man objective being the identifying of the potential cause for the unhappiness of the clients; c) Implementation of some assurance quality program and the accountability to realize annual assessment of internal audit quality; d) Other instruments used for the measuring of internal audits effectiveness are informal reports for the management, different monitoring systems of a necessary time for fulfilling the audit missions and the quality audit report.

The study made by (Collier et al, 2001), was aimed to investigate where the responsibility for computer fraud prevention and detection reside within an organization and to examine the role of internal audit department in prevention and detection of computer in fraud risk management. They concluded that information services function is most commonly held responsible for computer fraud prevention and detection. Thus organizations do not consider computer fraud to be high priority matter in fraud risk management.

The study made by (Alleyne, Persaud, Greenidge & Sealy, 2010) investigated the use of audit techniques in detecting fraud especially in the stock and warehousing circle in Barbados. The study indicates that there is a moderate to high perceived effectiveness of standard and procedures in the detection of fraud in the stock and warehousing circle in Barbados.

While, (Thiruvadi & Patel, 2011) conducted a survey of data-mining techniques used in fraud detection and prevention and concludes that effective use of data mining techniques detect and prevent fraudulent activities and categorized four computer frauds where data mining tool can be employed: Management fraud; customer fraud; network fraud; and computer based fraud.

Then, (Gill & Gupta, 2009) researched on prevention and detection of financial statement fraud: a data mining approach and concludes that management fraud is a deliberate and wrongful act carried out of public companies using material misleading financial statement that cause damage to investors, creditors and the economic market.

Also (Kirkos., Spathis & Manolopoulos, 2007) conducted a research on data mining techniques for the detection of fraudulent financial statement. The study used a sample of 76 Greek manufacturing companies in order to inquire and draw an analogy between

the performances of the various factors that are associated with the financial statements fraud. Neural networks Decision tree and Bayesian belief networks were the data mining techniques employed and the input data was the published financial statement contained falsified indicators; Bayesian belief networks performed was found out to be the best with 90.3% correct classification of the cross validation procedure, Neural network had 80% success rate and decision tree model 73.6% success rate.

In another development, (Gill & Gupta, 2009) had a further study in which they used generic data mining framework for fraud prevention along with fraud risk-reduction for the financial statement fraud. The study divided data mining tasks into two groups of predictive tasks and descriptive tasks. Predictive data mining, along with machine learning helped in better fraud prevention, while performance evaluation of various data mining techniques using metrics such as error rate, information gain and Gini index for decision trees were employed.

Huan,Yan.,Yang and Hua (2008) conducted a research to assist auditors in identifying any possible fraud records and evaluating datasets by developing a fraud detection mechanism based on Zipf's law through simulation test and a case study. They used four key performance indicators, Audit Hit Rate, Bayers Audit Hit Rate, confusion matrix and the misclassification cost matrix. Finding showed that ZipF's mechanism could be identified by ZipF's Analysis and this is more effective than a 100% sampling

Kotsiantis., Kouthanakos., Tszolepis and Tompakos (2006), investigated the efficiency of the machine learning techniques in identifying firms that publish fraudulent financial statements. This they did by implementing a hybrid decision support system through combining algorithms that uses a stacking variant methodology. The data came from 164 non-financial Greek manufacturing firms listed, 41 of which had issued fraudulent

financial statement. The study variables were collected from the financial statements of the firms. Results from this experiment indicated that the falsification indicators and a small list of ratios largely determined the classification result in published financial statements.

Liou, (2006), investigated the similarities and differences between two models of fraudulent financial reporting detection and the business failure prediction that helped in identifying firms that procured losses. It aimed to find the effectiveness of the approach and the explanation variables using data mining algorithms such as regression logistic, neural network, and classification trees to construct detection/prediction models using data from Taiwan Economic Journal data bank and. Taiwan stock exchange corporation website. The financial variables were from 2003 to 2004. The findings show that the variables were significant in detecting fraudulent financial reporting and predicating business failures, logistic regression was considered the best of the three data mining algorithms.

Guo and Viktor (2008) researched on learning from skewed class multi-relation database. They focused the use of new strategy to address the imbalance in multi-relational data wherein one class in the target relation is higher than the others. The imbalances assist in diagnosing a disease or detecting a fraud case such as a credit-card fraud. Six benchmark data-sets were used for the experiment. The results indicated that imbalance in multi-relational method was better than other prevailing data mining algorithms in comparison, especially when there was a high class imbalance with regard to receiver operating characteristics curve and area under the curve.

Nonyelum and Chibueze (2009), employed the use of neural network technology and the rule-based components to develop credit-card fraud detection system using four clusters

of low, high, risk and high risk using the two staged models that is frequently used in fraud detection. They developed a model identifying the behavior of a cardholder and evaluating the transaction characteristic to detect fraudulent transactions was developed using the self-organizing map algorithm. Other several models were generated by applying the artificial neural network trained with the unsupervised learning methods. This experiment further indicated that generation was done to secure a correct result and minimize the wrongful classification in which genuine transaction is considered fraudulent.

Xu., Sung and Liu (2007) also used data mining algorithm on simulated and real data to create user profile for identifying customer behavior in detecting fraudulent transactions in an online system through a set of association rules. Anomalies were identified by comparing the incoming transaction of the user against that users profile based on his/her recent transaction. Conclusion is that the differences between the anomaly behavior and the profiled user behavior can be correctly interpreted by the proposed algorithm.

Graham & Patel (2006) also found in their studies that classification of network traffic helps to identity abnormal behaviors by detecting any derivations from the normal activity, (Kou., Peng., Chen & Shi, 2009) also examined network fraud and found out it is possible to use data mining-based network intrusion detection system and track the problem of solving the multi-class classification.

Becker., Volinsky and Wilks (2010) discussed different strategies and techniques used in the detection of the telecommunication-fraud history. They developed a fraud-management system to manage different types of fraud using call details, database required for storing data, fraud detection, algorithms fraud types and corrections and visualization cool that can help in diagnosis. (Liau et al, 2009) also examined the need

for an effective and automated system for network forensic. The experiment results indicated that 91.59% of the attack types could be classified by the system thereby providing understandable information of forensic experts.

Sanver and Karahoca (2009) also compared the different data mining techniques, benchmarked each technique and identified Adaptive Neuro Fuzzy Inference for telecom-fraud detection in Turkey. The results showed that it provided 97% of sensitively, 99% of specificity, where 98.37 of the instances were correctly classified.

On computer fraud detection (Koltler & Maloof, 2006) used machine learning and data mining to discover and classify malicious executables. The research selected executable which would appear undetected on a user's hard drive, without preprocessing or removing any obfuscation. The results showed that the boosted decision tree had an area under the ROC curve of 0.996, surpassing other models. Mukkamala., Sung & Abraham, (2005) showed that the ensemble of artificial neural network, SVM and Multivariate Adaptive Regression Splines, was superior to individual approach for intrusion detection in terms of classification accuracy. They used data from Massachusetts with five different classes of patterns. The results showed that 100% classification accuracies can be achieved if appropriate intelligent paradigms are chosen.

In their study (Hua., Patel & Zaven, 2009) proposed practical approaches for selecting and implementing organizational information security and presented three models for security business information system ISS offensive model, ISS defense model and sati guard model. He concludes that these help system security and prevent the breaches respectively.

Also, (Patel & Zaven, 2010) came out with risk-assessment model to assess the financial damages resulting from these cube attacks. On the use of business intelligence tools to

detect fraud (Wang & Yang, 2009) found out an increase in the use of data mining to detect fraud, but also lamented an overall underutilization.

Burnaby, Howe and Muehlman (2013) made a review of the extent of the use of business intelligence to detect fraud by internal auditors. They came out with the following as regard the use of data mining: 15% use relational reporting; 13% use online analytical processing for fraud risk management; while others respondents complained that all the tools suggested were deficient and some noted that they use MS Access and the rest stated that they monitored email looking for transmission of credit card numbers.

Muhammed, Ghanbari and Einakian (2014) researched on using Data mining to detect fraud of internal audits by application of fraud deductive methods. The result shows that data analysis technology enables auditors and fraud examiners to analyze an organization's business data to gain insight into how well internal controls are operating and to identify transactions that indicates fraudulent activity or the highest risk of fraud.

Finally, (PWC, 2011) surveyed on Global Economic Crime, Cyber crime (digital fraud) and reported that 45% indicated rising cybercrime fraud risks; 40% indicate that it is damaging reputation; 40% did not have capability to detect and prevent cyber crime; 56% said the most serious fraud was an inside job and senior executives made up almost 50% who did not know if a fraud occurred and no indication of internal audit commitment in the cyber fraud risk management.

2.7 Summary of the Review and the Gap

The most globally acceptable definition of internal audit function within our conceptual framework by the Institute of Internal Auditing (11A) is that internal audit is an independent objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives

by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance process.

Fraud risk management in essence is the systematic application of management policies, procedures and practices to the tasks of establishing the context, and to those of identifying, analyzing evaluating and treating fraud risk (Hodges, 2000).

Internal audit functions in fraud risk management also comprise fraud prevention, detection/identification, response which includes corrective action and remedy (PWC 2013; KPMG, 2006; 11A, ALPA ACFE, 2009).

Four internal audit function variables were found through the several literatures as applicable in fraud risk management and they are data-mining function, proactive function, ongoing function and interactive function.

We found from the review that different statistical methods and various literature review methods were employed by various authors. The review also indicated that the global accounting scandals and the recent corporate collapse have reduced the credibility of external auditors and the stakeholders shift their blame on management who in turn hopes that the application of internal audit function would address fraud risk management with corporate governance structure in order to solve the problems.

The review also showed that few studies were made on this within the emerging economies of Africa. In others words, the literature indicated that there is a dearth of researches that focus on the application of internal audit function in fraud risk management generally and especially in Nigerian context. Many of the available studies considered the application of internal audit function in fraud risk management being utilized by external auditors (Carcello.,Hermanson & Raphunandam, 2005), or consideration given only to corporate governance, board or internal audit effectiveness,

or attention given only to the financial statement fraud using perception, or internal audit function focusing on unexpected difference in income as a signal for fraud (Apostolou, Hassel, Webber & Summers, 2001; James, 2003; Shalameh., Al-Wesh., Al –Nsou & Al-Hiyari, 2011; Church & Macmillan,2001).

There was also, an inconclusive and inconsistent results that were observed from the application of internal audit in various studies made on risk based management by internal audit function (Dela Rose, 2008; Griffiths, 2006; Coezee & Lube, 2013).

Also, lack of methodology in risk based management in internal audit function was seen in the application by (Coetzee & Lube, 2013; Krambia-Kapandia, 2011). The findings of (Dittenholer, 2001; Buhove & Groff, 2013) proved an application but there was not a clear methodology and the result gave only recommendations to internal audit function while (Abushaiba & Zaindden, 2012) measured performance on internal audit function but not in fraud risk management. Majority of the studies did not consider specifically the application of internal audit function with a clear methodology in fraud risk management.

In Nigeria, researches by (Salamu & Agbeja , 2007; Badara & Saiden, 2014; Osa-Erhabor & Ehiorobo, 2013) found out that application of internal audit function in risk management in Nigeria is not effective. Although, these researches applied internal audit function in fraud risk management in public sectors and local governments, yet, their findings somehow was limited by the unsystematic approach adopted.

Very few researchers made use of some of these variables such as the use of data mining tools; proactive function; ongoing function and interactive function in fraud risk management. If these tools are considered in the application of internal audit function in fraud risk management, they will make internal audit function realize its full objective of combating fraud risk. Therefore this study applied these variables to see how it would

bridge these gaps and ensured that they were applied in all aspect of internal audit function in fraud risk management by understanding and incorporating all these required variables.

We carried out this study in the Nigerian perspective, using Nigerian firms that are susceptible to fraud risk in their everyday operations and also considering the Nigeria's peculiar economic environment and the obvious challenges. We believe that the application of the results will improve internal audit function in fraud risk combat. The study adds to the existing literature in internal audit function in fraud risk management in Nigerian perspective.

This study, sort to bridge the gap of the knowledge, by a systematic search for, and review of the factors that have been found by scholars of academic literatures on internal audit function in fraud risk management. This study will also make contributions to knowledge such that would be valuable, due to its wealth of literature on internal audit function in fraud risk management that have not yet been systematically explored and reviewed in respect of internal audit function IAF in fraud risk management FRM. The need for this research arose to fill this gap (Protivit, 2012; Frank, 2004; KPMG, 2013; Deloite, 2010), through an extensive search for, and a systematic review of internal audit function variables which have been found by academic scholars that are available on academic literatures on internal audit function IAF in fraud risk management FRM. The results are shown in the coming chapters.

CHAPTER THREE
METHODOLOGY

3:1 Introduction

This section focused on the structure of the study. That is the methodology used for collecting and analyzing the needed data.

3:2 Research Design

In this study, a simple survey research design was employed to elicit information from respondents to address the four objectives of the study on application of internal audit function in fraud risk management in Nigerian banks. The reason for the choice of a simple survey research design is to find the potentials of the application of internal audit function in fraud risk management in banks through the perception of those who have stake in banking industry.

3:3 Population of the study

The population of banks in Nigeria was 21 as of April 2017. The numbers of banks studied were selected in a balloting through systematic sampling technique. The names of all the banks were represented in a paper and reshuffled, after which fifteen papers where picked that made up the sample size of the banks for the study (Uzoagulu, 1998). The population element of the study consists of the internal auditors, accountants and fraud auditors in each of the banks of interest in this study. Questionnaire was used to collect data from these banks, (refer to appendix seven). The outcome indicated that the total population of internal auditors, fraud auditors and accountant from the fifteen banks used for this study is 668 as described in the table below:

Table 1: Population of the Study made up of the internal audit staff, fraud audit staff and accountant staff in each of the 15 Banks used for the study

S/N	Description of Institution	Internal Audit Staff	Fraud Audit Staff	Accountants	Total
1.	Bank A	3	5	16	24
2.	Bank B	3	4	30	37
3.	Bank C	5	9	53	67
4.	Bank D	2	3	40	45
5.	Bank E	4	6	44	54
6.	Bank F	1	2	8	11
7.	Bank G	2	3	21	26
8.	Bank H	3	5	50	58
9.	Bank I	1	1	14	16
10.	Bank J	3	8	77	88
11.	Bank K	8	10	41	59
12.	Bank L	1	2	15	18
13	Bank M	6	7	58	71
14.	Bank N	2	3	76	81
15.	Bank O	1	2	10	13
		45	**70**	**553**	**668**

Source: Primary Data sourced from the Banks by the Researcher using Questionnaire.

3.4. Sample and Sampling Technique

The researcher employed Taro Yamane's formulae to determine the sample for the study.

The formula is given as:

$$n = \frac{N}{1+N\,(e)^2}$$ where,

n = Sample Size

N = Population Size (668)

E = Level of Significance (0.05)

1 = Constant.

Using the formula, therefore, we have:

$$\text{Sample Size} = \frac{668}{1+668(0.05)^2} = \frac{668}{669(0.0025)} = \frac{668}{1.67} = 400.$$

Therefore, the sample size for this study is 400 respondents (accountants, internal and fraud audit staff). Each of the 15 chosen commercial /deposit money banks represents a sample frame and the 400 determined sample size is distributed among these institutions as follows:

Table 2: Distribution of sample size among the 15 Banks studied.

S/N.	DESCRIPTION OF INSTITUTIONS	SAMPLE SIZE FOR EACH INSTITUTION	
1.	Bank A	24/668 x 400 =	14
2.	Bank B	37/668 x 400 =	22
3.	Bank C	67/668 x 400 =	40
4.	Bank D	45/668 x 400 =	28
5.	Bank E	54/668 x 400 =	32
6.	Bank F	11/668 x 400 =	6
7.	Bank G	26/668 x 400 =	16
8.	Bank H	58/668 x 400 =	35
9.	Bank I	16/668 x 400 =	10
10.	Bank J	88/668 x 400 =	52
11.	Bank K	59/668 x 400 =	35
12.	Bank L	18/668 x 400 =	11
13	Bank M	71/668 x 400 =	42
14.	Bank N	81/668 x 400 =	49
15.	Bank O	13/668 x 400 =	8
		Total Sample Size =	**400**

Source: Researcher's Proportion of the 400 sample size to each of the banks' population

3:5 **Sources of Data**

This study made use of questionnaires which were used to collect primary data that were answered by fraud audit staff, internal audit staff and accountant staff. The first questionnaire was divided into two different sections. Section 1 asks question about the personal data of the respondents while section 2 was used to elicit information from the respondents to address the four objectives of this study. This section of the questionnaire is based on Likert Scale response format of Strongly Agree (5 points), Agree (4 points), Strongly Disagree (3 points), Disagree (2 points), and Undecided (1 points).

The researcher distributed the questionnaire to the respondents and others were distributed through agents. He collected some by himself, while others were collected through his agents and the rest through mails.

The second questionnaire was a structured interview of yes or no responses. This was conducted with the various internal auditors of the banks. The internal auditors were met one on one to find their various opinions on whether there is or not an application of internal audit function variables in their bank's fraud risk management. There was a greater response of Yes than No. This is highlighted during the discussions of the findings. The interview format is included in the appendixes.

The third questionnaire was used to collect the population of employed staff of internal auditors, fraud auditors and accountants from each of the fifteen banks studied. The sample is also included in the appendixes.

3:5 **Methods of Data Collection**

Only questionnaires correctly filled and returned were used for analysis. In order to determine the degree of respondents' position in each of the variables of interest, normal values were assigned to the options in each variable as has been stated above, that is 5, 4,

3, 2, and 1. A cut off was determined by finding the mean of the nominal values assigned to the options in each variable using the formula: $\overline{X} = \frac{\sum X}{n}$, where,

$\overline{X}$ = Mean,

X = the score,

n = number of items.

Thus we have $\overline{X} = \frac{5+4+3+2+1}{5} = \frac{15}{5} = 3$. Our decision rule, therefore, is that any mean within 3.0 and above was considered as significant by the respondents, while a mean that is below 3.0 is taken as not significant.

To further strengthen the empirical analyses and test the posited hypotheses, ANOVA was employed to test the equality or otherwise of the perceptions of the three categories of staff, namely, the fraud auditors, the internal auditors and the accountants on the application of internal audit function as an instrument for fraud risk management in Nigeria Banks. SPSS statistical analyses software was employed to carry out the ANOVA analyses.

3:6 Procedures for Data Analysis

3:6:1 Data Analysis

Here described the data analyses that were used to examine the data and answer the research questions.

Likert Scale was used to measure the extent of the respondents' agreement on each variable factor. Descriptive statistics of percentage, mean and standard deviation were applied in the study.

To further strengthen the empirical analyses and test the posited hypotheses, ANOVA was employed to test the equality or otherwise of the perceptions of the three categories

of staff, namely, the fraud audit staff, the internal audit staff and the accountant staff on the application of internal audit function as an instrument for fraud risk management in Nigeria Banks. SPSS statistical analyses software was employed to carry out the ANOVA analyses.

3:6:2 **Validity of the instrument**

Validity has been defined as the degree to which a method or instrument is able to measure what the researcher intends to measure.

This research used both face and content validity to check whether the instrument covered what were required and the appropriateness of the measuring instrument on the study. The appropriateness of the face and content was validated by the researcher's supervisor and other experts (Uzoagulu, 1998). This was certified to be used to carry out the study

3:6:3 **Reliability of the Instrument**

Reliability of the instrument was established. Reliability is defined as the consistency of repeated measurements taken under similar conditions (Nunally, 1967; Cronback, 1951). The Cronback Alpha correlation of items calculated yield, 0.852 which is very high above the minimum stated by Cronback. The table of the reliability of the instrument of the study is found in appendix, (See appendix 2).

3:7:1 ANOVA Analysis.

This research applied parametric analyses, within which analysis of variance (ANOVA) was also applied. This was used to analyze and test the hypotheses of the study and the mean perceptions of the fraud audit staff, internal audit staff and the accountant who were the respondents. The application of ANOVA was denoted by the formula

$$\Sigma = V_b \int = \frac{Vb\ between\ group\ Varance}{Vw\ within\ group\ variance} = \frac{\int B^2}{w^2}$$

Where V_1 or $\int_j^2$ = the variance of the scores for all the groups combined into one composite group known as the total group $\int_w^2$ or V_w = the mean values of the variance of each group computed separately known within groups of variance

$V_{ß}$ or $\int_w^2$ 1 ($\int_w^2$ - $\int_w^2$ = the difference between the total groups variance and within group variance.

3:8 Justifications for Method of Data Analysis Applied In the Study

1.) Parametric techniques of data analysis

One of the reasons why the research used parametric data analysis is that it allows for independence of score (Uzoagulu, 1998; Jerry, 2013). The collection of the data for the study was based on the responses of the respondents' independent perception. There was no influence of scores. Parametric techniques data analyses are required when the scores assume independence (Uzoagala, 1998; Jerry, 2013; Amir, 2008; Kerlinger, 1997).

2.) One way ANOVA analysis method.

This research applied one way Analyses of Variances ANOVA because the perception outcomes for each group were normally distributed with a common variance. The error I.e., deviations of individual outcomes from the population group means were assumed to be independent. ANOVA analysis is suggested as one of the powerful and the appropriate statistical techniques for testing significance of sample means between three or more groups (Uzoagulu, 1998; Elaine & Seaman, 2007; Dimitra, 2016).

(3**) Likert Scale method**

The research applied Likert scale analysis as one of the method applicable to data collection when it is coded strongly agree, Agree, etc. or when the respondent are required to state the extent of agreement or disagreement. Parametric test is also one of the appropriate statistical techniques that could be used to analyze Likert Scale responses, (Sullivan & Anthony, 2003).

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4:1 Introduction

This chapter is focused on the presentation and analysis of the respondents and their responses to the instrument. The response data set from this study met with the assumptions of parametric techniques. This data presentation and analyses are presented in this section as follows:

Outcome of the Questionnaire Instrument

Table (3) Questionnaire Responses

Items	**Number**	**%**
Total administered instrument	400	100
Instrument not returned	169	42
Returned but invalid	18	5
Valid copies returned	213	53
Total		100

Source: Researchers report of instrument survey, 2016

The report from the table 3 above showed that 400 questions were distributed, and 213 (53%) were returned valid, while 169 (42%) were not returned and 18 (5%) were also returned but were invalid due to irregularities found in the responses

4.2.1 Frequencies and Percentages of Respondents Demography

Table 4 Frequency distribution or Gender status of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	116	54.5	54.5	54.5
	Male	97	45.5	45.5	100.0
	Total	213	100.0	100.0	

Source: Researchers report on Gender survey, 2016.

Report from table 4 indicated that the frequency distribution of male respondents were 97 (45.5%), while the female frequency distribution were 116 (54.5%). There were more female responses than male respondents

Table 5 Frequency Distribution of Job Description

	Frequency	Percent	Valid Percent	Cumulative Percent
internal auditor	41	19.2	19.2	19.2
fraud auditor	52	24.4	24.4	43.7
Accountant	120	56.3	56.3	100.0
Total	213	100.0	100.0	

Source: Researchers report on Job Description survey, 2016

Job description survey report in table 5 depicts a frequency distribution of 41 (19.2%) of internal auditors 52 (24.4%) of fraud auditors and 120 (56.4%) of Accountant that responded to the study.

Table 6 Frequency Distribution of Academic qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HND	83	39.0	39.0	39.0
	BSc	42	19.7	19.7	58.7
	MSc	39	.9	.9	59.6
	MBA	47	22.1	22.1	81.7
	PhD	2	18.3	18.3	100.0
	Total	213	100.0	100.0	

Researcher's Analysis from Field Work, 2016.

Table 6 above showed the academic qualification of the respondents. The frequency distribution of those with HND was 83 (39%), BSC, 42 ((19.7%), MSC 39 (18.3%), MBA 47 (22.1%) and PhD 2 (0.9%).

Table 7 Frequency Distribution of Years of Work Experiences

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 years or less	68	31.9	31.9	31.9
	6-10 years	63	29.6	29.6	61.5
	above 10 years	82	38.5	38.5	100.0
	Total	213	100.0	100.0	

Source: Researchers Report on Years of Work Experience Survey,2016

The information on the table 7 shows that 68(31.9%) of the respondents have 5 years or less work experience in their job, 63 (29.6%) have 6-10 years work experience and 82 (38.5%) have 10 years and above work experience within their fields.

Table 8. Frequency Distribution of Professional Membership.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ICAN	31	42.3	42.3	42.3
	ANAN	56	26.3	26.3	68.5
	AIB	13	6.1	6.1	74.6
	ACCA	23	10.8	10.8	85.4
	Others	90	14.6	14.6	100.0
	Total	213	100.0	100.0	

Source: Researchers report on professional membership survey, 2016

From the above table 8, professional membership distribution of frequency and percentage of responses were Others 90(42.3%), ANAN 56 (26.3%), AIB 13 (6.1%), ACCA 23 (19.8%) and ICAN 31(14.6%). This shows that there were more of ICAN member respondents than other professional members.

Table 9 Frequency Distribution on Job Specification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Auditors	124	58.2	58.2	58.2
	Accountants	89	41.8	41.8	100.0
	Total	213	100.0	100.0	

Source Researcher's report on Industry specification survey, 2016

Analysis of table 9 above indicates that 124 (58.2%) are in the bank audit are among the respondents while a total of 89(41.8%) responses are Accountants within industry. Thus there were more respondents from banking accounting staff than from their auditing staff.

4.3 Research Question One Analyses

Question 1: To what extent do you agree that the application of internal audit data mining tool combats fraud risk in banks?

Table 10 Extent of Respondents agreement that data mining audit interrogation is a tool that combats fraud risk in banks.

Job description	To what extent do you agree that data mining function controls fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	2	1	2	17	19	41
	4.9%	2.4%	4.9%	41.5%	46.3%	100.0%
Fraud auditor	0	1	7	25	19	52
	.0%	1.9%	13.5%	48.1%	36.5%	100.0%
Accountant	3	8	4	48	57	120
	2.5%	6.7%	3.3%	40.0%	47.5%	100.0%

Source: Researcher's responses analysis using Likert scale, survey, 2016.

Responses above show that only, 2 internal auditors representing the frequency mode of 4.9% and the accountants who disagreed that data mining tool combats fraud risk, and that 3(2.5%) accountant also disagreed while no fraud auditor disagreed. The extent of disagreement represented 2.4% for internal auditors and 1.9% for fraud auditors, but with a higher 6.7% represented from accountants. The undecided opinions represented the mode of 4.9% of internal auditors, 13.5% of fraud auditors and a lesser 3.3% for accountants. The respondents who rated agreed and strongly agreed that data mining control fraud risk were as follows: Internal auditors had a frequency mode of agree and strongly agree of 41.5% and 46.3% respectively. The fraud auditors' responses also showed a high percentage mode of 48.1% and 36.5% respectively for both "agreed and strongly agreed". But, Accountants' responses had a high rating mode of 40% and 47.5% for "agreed and strongly agreed respectively. Fraud auditors had a higher understanding of "agreed" opinion with a mode of 48.1% that data mining audit interrogation is a tool that combats fraud risk in banks.

Table 11 Extent of Respondents Agreement that neural network as a data mining function combats fraud risk in banks

Job description	To what extent do you agree that neural networks as data mining function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
internal auditor	1	2	6	18	14	41
	2.4%	4.9%	14.6%	43.9%	34.1%	100.0%
fraud auditor	1	2	11	27	11	52
	1.9%	3.8%	21.2%	51.9%	21.2%	100.0%
accountant	3	10	18	55	34	120
	2.5%	8.3%	15.0%	45.8%	28.3%	100.0%

Source: Research's response analysis in Likert scale Survey, 2016

Respondents' opinion from table 11 above showed how confident they are that neural networks is a data mining tool that combats fraud risk. The extent of the high rating on

"agreed" and "strongly agreed" by the respondents revealed their conviction within the three job descriptions. Internal auditors who "agreed" had 43.9%, "strongly agreed" 34.1% and fraud auditors who "agreed" had 57.9%, strongly agreed scored 21.2% while the Accountants who "agreed" had a rating frequency mode of 45.8% and strongly agreed had 28.3%.. These all had a higher rating indicating their confident in neural network as being able to control fraud risk. Those that stood on the "undecided" position had 14.8%, 21.2% and 15% among Internal and Fraud auditors and Accountants respectively.

Table.12 Extent of respondent's agreement that machine learning techniques is a data mining tool that combats fraud risk in banks.

Job description	To what extent do you agree that machine learning techniques as data mining function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
internal auditor	1	0	5	22	13	41
	2.4%	.0%	12.2%	53.7%	31.7%	100.0%
fraud auditor	1	4	5	25	17	52
	1.9%	7.7%	9.6%	48.1%	32.7%	100.0%
accountant	3	4	14	59	40	120
	2.5%	3.3%	11.7%	49.2%	33.3%	100.0%

Researcher's Response Analysis Using Likert Scale, 2016.

Analysis above indicated that 53.7% of internal auditors agreed, and 48.1% of fraud auditors also agreed, while 49.2% accountants also agreed that data mining machine learning techniques combats fraud risk. Internal auditors who strongly agreed were 13 with 31.7% mode and fraud auditors were 17 with 32.7% mode, while accountant were 40 representing 33.3% who stated strongly agreed. Internal auditors who stood in undecided position showed 12.2% and fraud auditors showed 9.6% while accountant had 11.7%. The responses of strongly disagreed showed internal auditors with 2.4%, fraud auditors had 1.9% and accountant scored 2.5%, while disagreed respondents showed 0%,

7.7% and 3.3% respectively for internal auditors, fraud auditors and accountants respectively.

Table13. Extent of the agreement of the respondents who stated that data mining algorithm technique is a tool that combats fraud risk in banks.

Job description	To what extent do you agree that data mining algorithm techniques combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
internal auditor	1	3	6	16	15	41
	2.4%	7.3%	14.6%	39.0%	36.6%	100.0%
fraud auditor	1	0	13	22	16	52
	1.9%	.0%	25.0%	42.3%	30.8%	100.0%
accountant	1	6	14	60	39	120
	.8%	5.0%	11.7%	50.0%	32.5%	100.0%

Source: Researchers response analysis using Likert Scale, survey, 2016.

Analysis above indicated that 39% 0f internal auditors agreed and 42.3% of external auditors and 50% of accountants agreed also that data mining algorithm techniques is a tool that combats fraud risk. Internal auditors who strongly agreed were 15 with 36.6% mode and fraud auditors were 17 with a mode of 30.8%, while accountants had 39 responses representing 32.5% of those who strongly agreed. The internal auditors who stated undecided were 6 representing 14.6%, and fraud auditors were 13 representing 25%, while accountants also had 14 with 11.7%. Respondents who strongly disagreed was only one internal auditors with 2.4%, one fraud auditors representing 1.9% and one accountants with 5%. The rest who stated disagreed were 3 internal auditors representing 7.2%, and nobody disagreed among fraud auditors, while 6 accountants with 5% also disagreed.

Table14: Extent of the agreement of the respondents that data mining business intelligence is a tool that combats fraud risk in banks.

Job description	To what extent do you agree that data mining business intelligence techniques combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	1	3	4	16	17	41
	2.4%	7.3%	9.8%	39.0%	41.5%	100.0%
Fraud auditor	2	1	4	26	19	52
	3.8%	1.9%	7.7%	50.0%	36.5%	100.0%
Accountant	3	2	8	56	51	120
	2.5%	1.7%	6.7%	46.7%	42.5%	100.0%

Source: Researchers response analysis using Likert Scale, survey, 2016.

Reports on table 14 above revealed that internal auditors had strongly agreed rate of 2.4%, disagreed position of 10.3 with 7.3%, undecided opinions were 4 with (9.8%), agreed responses had 16 representing 39% and strongly agreed responses were also 17 with 41.5%. Further, fraud auditors who strongly agreed were 2 responses with 3.8%, one person disagreed with 1.9%, undecided responses had 4 with 7.7% mode, agreed responses were 26 with 50% and strongly agreed responses were up to19 representing 36.5%. Accountants who responded strongly disagreed totaled 3 with 2.5%, while disagreed opinions had a total of 2 with 1.7%, undecided total score were 8 with 6.7%, agreed respondents had a total of 56 responses with 46.7% and strongly agreed rate of 54 with 42.5% mode. From the table showing the scores, accountants had more stand that data mining business intelligence techniques is a tool that combats fraud risk in banks.

Table 15 Extent of the agreement of respondents that data mining link analysis techniques is a tool that combats fraud risk in bank.

Job description	To what extent do you agree that data mining link analysis techniques combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
internal auditor	2	2	3	18	16	41
	4.9%	4.9%	7.3%	43.9%	39.0%	100.0%
fraud auditor	1	3	4	27	17	52
	1.9%	5.8%	7.7%	51.9%	32.7%	100.0%
accountant	2	4	13	51	50	120
	1.7%	3.3%	10.8%	42.5%	41.7%	100.0%

Source: Respondents Responses Analysis in Likert scale survey, 2016.

From the table above, 2 internal auditors with 4.9% mode strongly disagreed that data link analysis techniques combats fraud risk, another 2 respondents disagreed with a corresponding 4.9%, 3 respondents representing 7.3% stated undecided, 18 responses indicated agreed with 43.9%, while 16 respondents strongly agreed with 39%. Fraud auditors who strongly disagreed was only one with 1.9%, 3 persons disagreed with 5.8% mode, 4 respondents who indicated that they were undecided had 7.7%, and 27 respondents agreed with a corresponding 57.9%, while strongly agreed persons were 17 with 32.7%. The accountants' positions seemed stronger having a total strongly agreed response of 50 represented by 41.7%, agreed responses of 51 with 42.5% and a high rate of undecided response of 13 with 10.8%. The rest of the accountants had a total of 2 responses with a corresponding 1.7% who strongly disagreed and 4 disagreed opinions corresponding to 3.3% that data mining link analysis techniques combats fraud risk in banks.

4.3.2 Individual and group means scores and standard Deviations using question one.

Reinstate Question I: To what extent do you agree that the application of internal audit data mining tool combats fraud risk in banks?

Table 16: Individual and group mean and standard deviation scores on data mining functions as a tool that combats fraud risk in Nigeria bank.

Variables	Internal Auditors			Fraud Auditors			Accountants		
	Mea	Std	N	Mea	Std	N	Mean	Std	N
Data mining audit interrogation	4.35	0.75	41	4.13	0.87	52	4.06	0.95	120
Data mining Neural Net works	4.30	0.91	41	3.85	1.30	52	4.85	0.60	120
Data mining machine learning	4.12	0.94	41	3.97	1.19	52	4.93	0.10	120
Data mining Algorithms	4.05	0.96	41	3.91	1.01	52	4.90	0.16	120
Data mining Business Intelligence	4.22	0.80	41	4.07	0.99	52	4.07	0.98	120
Data mining link analysis	3.97	1.06	41	4.17	0.85	52	4.01	0.99	120
TOTAL	**4.15**	**0.90**		**4.00**	**1.04**		**4.33**	**0.60**	

Source: Researchers analysis from survey, 2016.

Information from table 16 above showed that all the mean scores of the respondents were above 3.00 which is the mean score acceptance limit set for the study. Accountants scored the highest mean of 4.43 with the least standard deviation of 0.10 indicating that data mining machine learning is one of the main variable tools that combats fraud risk in banks. Fraud auditors had the least mean scores of 3.85 with the highest standard deviation of 1.30.

If you compare the mean of the various groups within this job description, you will notice that accountants had the highest mean scores of 4.33 and the smallest standard deviation of 0.60 indicating homogeneity in agreement among them than the other groups (Uzoagulu, 1998; Albelson, 1985). Fraud auditors scored second with a mean of 4.16 and a standard deviation of 0.90 showing that the score are tightly clustered around the mean

(Bartz, 1963). The standard deviation of the internal and fraud auditors and accountants do not differ much in variability (Bartz, 1963). In order words, the individual persons within the three groups of job description were united in their opinion that internal audit data mining function combats fraud risk in banks. The opinion of the three groups of job description did not differ much in the mean and standard deviation.

4.3.3 Research Question II Analyses

To what extent do you agree that the application of internal audit proactive function combats fraud risk in banks?

Table 17. Extent of respondent's agreement that internal audit proactive function combats fraud risk in banks.

Job Description	To what extent do you agree that involvement in more financia reporting as internal audit proactive function positively controls fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
internal auditor	0	3	2	19	17	41
	.0%	7.3%	4.9%	46.3%	41.5%	100.0%
Fraud auditor	0	2	4	29	17	52
	.0%	3.8%	7.7%	55.8%	32.7%	100.0%
accountant	2	4	10	54	50	120
	1.7%	3.3%	8.3%	45.0%	41.7%	100.0%

Source: Researcher's response analysis survey, 2016.

Both internal and fraud auditors did not record respondents who strongly disagreed that internal audit proactive function combats fraud risk. There were 2 respondents of accountants with 1.7% mode who strongly disagreed. But disagreed opinion had 3 respondents from internal auditors with a corresponding 7.3%, 2 respondents having 3.8% from fraud auditors and 4 respondents of accountants having 3.3%. Those who stated undecided were as follows: 2 internal auditors having 4.9%, 4 fraud auditors having 7.7% and accountants having 8.3%. This result showed that those who agreed

were more than those who strongly agreed. Internal auditors who agreed to the subject matter were 19(46.5%), while those who strongly agreed were 17(41.5%). Fraud auditors who agreed had a total of 29 with 46.3%, while those who strongly agreed had a total frequency of 17 with 32.7%. Further, accountants who agreed were more than internal and fraud auditors who agreed. From the analysis they had 54 responses corresponding with a frequency of 45% and strongly agreed total of 50 with 41.7%. These indicated that more respondents believed that internal audit involvement in more financial reporting i.e. sustainability and none financial communications as internal audit proactive function combats fraud risk.

Table 18 Extent of Respondents agreement that focus on risk processes as internal audit proactive function combats fraud risk in banks.

Job Description	To what extent do you agree that focus on risk processes as interna audit proactive function positively controls fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	1	3	5	16	16	41
	2.4%	7.3%	12.2%	39.0%	39.0%	100.0%
Fraud auditor	0	2	6	32	12	52
	.0%	3.8%	11.5%	61.5%	23.1%	100.0%
Accountant	4	6	9	53	48	120
	3.3%	5.0%	7.5%	44.2%	40.0%	100.0%

Source: Researcher's responses analysis with Likert scale survey; 2016.

The analysis above showed that accountants had more assertion that focuses on risk process such as IT management, analysis and corporation risk as a proactive internal audit function combats fraud risk. Accountants who responded agreed were 53 representing 44.2% and strongly agreed responses were 48 representing 40%. Fraud auditors who agreed had a total of 32 respondents representing 61.5%, while internal auditors who agreed came up to 16 representing 39%. Internal auditors who agreed and

those who strongly agreed had an equal rating of 16 representing equal 39%. Undecided respondents were 5 internal auditors representing 12.2%, 5 fraud auditors representing 11.6% and 9 accountants representing 7.2%. Both strongly disagreed and disagreed were 1 internal auditor representing 2.4% and 3 representing 7.3%, fraud auditors had nobody who strongly disagreed but had 2 disagreed persons representing 3.8%, while 4 accountants strongly disagreed with 3.3% and had 6 disagreed respondents representing 5%.

Table 19 Extent of Respondents agreement that focus on emerging risk such as IT risk is an internal audit proactive function that combats fraud risk.

Job Description	To what extent do you agree that focus on emerging risk such as IT risk etc as internal audit proactive function positively controls fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	2	2	3	22	12	41
	4.9%	4.9%	7.3%	53.7%	29.3%	100.0%
Fraud auditor	0	3	8	24	17	52
	.0%	5.8%	15.4%	46.2%	32.7%	100.0%
Accountant	3	9	9	52	47	120
	2.5%	7.5%	7.5%	43.3%	39.2%	100.0%

Source: Researcher's response analysis with Likert scale, survey 2016.

Responses from the above table revealed the extent of respondents believe that focus on emerging risk such as IT risk, as internal audit proactive function combats fraud risk. Internal auditors who strongly agreed were 12 representing 29.3% and 32 fraud auditors who had 32.7%, while accountants had 47 responses with a corresponding 39.2%. Internal auditors had a total of 22 representing 53.7%, fraud auditors 24 representing 46.2% and accountants were 52 representing 43.3%. The undecided opinion were 3 internal auditors with a frequency of 7.3% and fraud auditors who had 3 respondents had a mode of 15.4% while accountants had 9 responses with a mode of 7.5%. Further,

internal auditors who strongly disagreed were 2 responses with 4.9%, while those who disagreed were 2 persons with a corresponding 4.9%. Fraud auditors had zero strongly disagreed and 3 persons who disagreed with a corresponding 5.8%. Accountants who strongly disagreed were 3 represented by 2.5% and those who disagreed were 9 persons represented by 7.5%.

Table 20 Extent of respondent agreement that advisory roles and decision making processes as internal audit proactive function combats fraud risk.

Job Description	To what extent do you agree that advisory roles and decision making processes as internal audit proactive function positively combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	3	3	3	16	16	41
	7.3%	7.3%	7.3%	39.0%	39.0%	100.0%
Fraud auditor	2	2	4	18	26	52
	3.8%	3.8%	7.7%	34.6%	50.0%	100.0%
Accountant	3	6	8	53	50	120
	2.5%	5.0%	6.7%	44.2%	41.7%	100.0%

Source: researcher's response analysis with lacer survey 2016.

Respondents' opinions from the table above showed that there were more opinions on strongly agreed. Internal auditors were 16 represented by 39% and fraud auditors had 26 opinions corresponding to 50%, while accountants were 50 corresponding to 41.7%. Those who agreed were as follows: Internal auditors 16, represented by 39%, fraud auditors had 18 with 34.6%, accountants had 53 with a 44.2%. Undecided responses by internal auditors were 3 with a 7.3% and fraud auditors had 4 represented by 7.7%, while accountants got 3 with a total of 8.7%. The internal auditors who indicated strongly disagreed and disagreed had an equal response of 3 representing 7.3%. Fraud auditors also had an equal response of 2 with a corresponding 3.8% respectively for strongly agreed and disagreed opinions.

4.3:3 Individual and group means and standard deviations scores on internal audit proactive function using question two

Reinstate Question II: To what extent does the application of internal audit proactive function combats fraud risk in banks?

Table 21 Individual and group mean and standard deviation scores of respondents on internal audit proactive function.

Variables	Internal auditors			Fraud Auditors			Accountants			Total		
	Mea	Std	N	Mean	Std	N	Mea	Std	N	Mea	Std	N
Involvement in more finical reporting –sustainability and none financial reporting	4.27	0.81	41	4.20	0.86	52	4.01	0.98	120	4.16	0.88	213
Focus on risk processes such as management, analysis and corporate risk	4.13	0.95	41	4.40	0.84	52	3.69	1.01	120	3.95	0.93	213
Focus on emerging risk such as IT risk, new product risk international operations and corruptions etc	4.22	0.83	41	4.00	0.97	52	4.05	0.97	120	4.07	0.92	213
Advisory roles and decision making processes	3.88	1.11	41	4.24	0.83	52	4.02	0.99	120	4.05	0.98	213
TOTAL	**4.12**	**0.93**		**4.21**	**0.87**		**3.94**	0.98				

Source: Researchers response analysis from survey, 2016.

The mean responses of the fraud auditors showed 4.21 and the standard deviation was 0.97, internal auditors' mean was 4.12 with a standard deviation of 0.93, while Accountants had a mean of 3.94 with a standard deviation of 0.98. It was only the mean of the various groups that differed a little, though they fall within the acceptance range of above 3.00. But the standard deviations of the three job groups indicated just a little variability showing that majority of the scores were tightly clustered around the mean (Bartz, 1963). Therefore, the groups have homogeneity in their various individual and group opinions that data mining proactive function combats fraud risk.

4:3:4 Research Question III Analyses.

To what Extent do you agree that internal audit ongoing function combats fraud risk in banks?

Table 22 Extent of Respondents agreement that assessment processes support audit plan and design as an internal audit ongoing function that combats fraud risk in banks.

Job Description	To what extent do you agree that assessment processes to support audit plan and design as internal audit ongoing function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	3	2	2	11	23	41
	7.3%	4.9%	4.9%	26.8%	56.1%	100.0%
Fraud I auditor	1	2	6	25	18	52
	1.9%	3.8%	11.5%	48.1%	34.6%	100.0%
Accountant	3	4	4	57	52	120
	2.5%	3.3%	3.3%	47.5%	43.3%	100.0%

Source: Researcher's response analysis with Likert scale survey 2016.

Respondents opinion of strongly disagree from the table above showed that internal auditors had 3 responses representing 7.3% and fraud auditors had one responses representing 1.9% while accountants had 3 persons with a corresponding 2.5%. Disagreed respondents were 2(4.9%) for internal auditors, 2(3.8%) for fraud auditors and 4(3.3%) for accountants. Those who stated undecided were 2 persons representing 4.9% for internal auditors, 6 respondents representing 11.5% for fraud auditors, while accountants had 4 responses representing 3.3%. Respondents who agreed stood as follows: internal auditors got 11 responses representing 26.8% and fraud auditors got 25 responses representing 48.1%, while accountants had 52 responses corresponding to 43.3%. Internal auditors who strongly agreed had the highest frequency of 56.1% with 23 responses and followed by the fraud auditors who had 18 responses representing 34.6%,

while accountants followed in the opinion of strongly agreed with the highest responses of 52 representing 43.3%.

Table 23 Extent of Respondents agreement that periodic audit summaries and reporting as internal audit ongoing function is a tool that combats fraud risk in banks.

Job Description	To what extent do you agree that periodic audit summaries and reporting as internal audit ongoing function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	1	1	1	11	27	41
	2.4%	2.4%	2.4%	26.8%	65.9%	100.0%
Fraud auditor	2	5	3	19	23	52
	3.8%	9.6%	5.8%	36.5%	44.2%	100.0%
Accountant	3	1	9	51	56	120
	2.5%	.8%	7.5%	42.5%	46.7%	100.0%

Source: Researchers responses analysis with Likert Scale, Survey, 2016.

Only 1 respondent with 2.4% strongly disagreed as an internal auditor. But fraud auditors had 2 respondents represented by 3.8%, while accountants were 3 responses represented by 2.5%. One fraud auditor represented with 2.4% disagreed, 5 fraud auditors represented by 9.6% also disagreed, while 1 person represented by 8% from accountants disagreed on the subject matter completely. Undecided respondents stood as follows: internal auditors got a person represented by 2.4%, fraud auditors had 3 respondents represented by 5.8% and accountants got the highest undecided respondents of 9 persons represented by 7.5%. Again, 11 internal auditors represented by 28.8% agreed that periodic audit summaries and reporting is an internal audit ongoing function that controls fraud risk in bank. 19 fraud auditors represented by 26.9% and 51 accountants represented by 42.5% also agreed on the subject matter. But there were more people who stated strongly agreed than other opinions. These were 27 internal auditors represented by 56.5%, and 23 fraud

auditors represented by 44.2% and finally 56 accountants represented by 46.7% frequency.

Table 24 Extent of Respondents agreement that updated risk assessment as internal audit ongoing function that combats fraud risk in banks.

Job Description	To what extent do you agree that updated risk assessment as internal audit ongoing function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	3	5	2	17	14	41
	7.3%	12.2%	4.9%	41.5%	34.1%	100.0%
Fraud auditor	2	3	5	23	19	52
	3.8%	5.8%	9.6%	44.2%	36.5%	100.0%
Accountant	2	5	8	55	50	120
	1.7%	4.2%	6.7%	45.8%	41.7%	100.0%

Source: Researchers responses analysis with Likert scale survey, 2016.

Internal auditors who strongly agreed were 14 persons represented by 34.1% frequency. Fraud auditors got 19 respondents represented by 38.5%, while accountants had 50 respondents represented by 41.7%. Also, internal auditors who agreed came up to 17 responses represented by 41.5%. Then, the fraud auditors who agreed were 23 opinions represented by 41.5%, while 55 accountants with 45.8% agreed as well. Undecided rating were 2(4.9%) by internal auditors, 5(9.6%) rated for fraud auditors, while 8(6.7%) came from the accountants. Strongly disagreed and disagreed responses were 3(7.3%), 5(12.2) respectively for both internal auditors and fraud auditors. Those who strongly agreed were 2(3.8%) and disagreed respondents were 3(3.5%) as well.

Table 25 Extent of Respondents agreement that audit performance of scope, work papers, reporting and tracking as internal audit ongoing function combats fraud risk in banks.

Job Description	To what extent do you agree that audit performance including scope, work papers, report and tracking as internal audit ongoing function combats fraud risk in banks				
	disagree	undecided	agree	strongly agree	Total
Internal auditor	5	5	18	13	41
	12.2%	12.2%	43.9%	31.7%	100.0%
Fraud auditor	1	4	26	21	52
	1.9%	7.7%	50.0%	40.4%	100.0%
Accountant	2	7	63	48	120
	1.7%	5.8%	52.5%	40.0%	100.0%

Source: researcher response analysis with Likert scale, survey, 2016.

18 internal auditors represented by 31.7% firmly agreed that audit performance that includes covering the scope, work papers, reporting and tracking is an internal audit ongoing function that controls fraud risk. 26 fraud auditors represented by 50% agreed in the same matter. 63 accountants represented by 52.5% also agreed, and 13 internal auditors representing 31.7% strongly agreed, 21 fraud auditors representing 40.4% also strongly agreed, while 48 accountants having 40% strongly agreed, but 5 persons having 12.2% out of the 41 internal auditors declared undecided and 7 accountants with corresponding 5.8% stated undecided. Internal auditors who disagreed were 5 opinions representing 12.2%, fraud auditors who also disagreed was only 1 person representing 1.9%, while accountants who disagreed were two persons representing 1.7%. Therefore, the respondents who strongly disagreed, who disagreed and those who stated undecided were insignificant when compared to those who agreed and those who strongly agreed that audit performance of scope, work papers, reporting and tracking is an internal audit ongoing function that combats fraud risk in banks.

4.3.5. **Individual and group means and standard deviations scores in internal audit ongoing function in fraud risk using question three.**

Reinstate Question III: To what extend do you agree that the application of internal audit ongoing function combats fraud risk in banks?.

Table 26 Individuals and groups mean and standard deviation scores in internal audit ongoing function in fraud risk in Nigeria bank.

Variables	Internal Auditors			Fraud Auditors			Accountants			Total		
	Mean	Std	N	Mean	Std	N	Mean	Std	N	Mean	Std	N
Assessment processes to support audit plan and design	4.10	0.92	41	4.19	0.93	52	4.60	0.41	120	4.30	0.75	213
Period audit summaries, and reporting	4.15	0.88	41	4.24	0.86	52	4.35	0.27	120	4.25	0.76	213
Updated risk assessment	3.85	1.03	41	4.09	0.96	52	4.03	0.98	120	0.99	0.99	213
Audit performance which includes scope, work papers report and tracking	4.00	0.96	41	4.20	0.88	52	3.98	1.11	120	4.06	0.98	213
TOTAL	**4.03**	**0.95**		**4.18**	**0.90**		**4.24**	**0.77**				

Source: Researchers response analysis from survey, 2016.

The mean and standard deviation scored from the above table showed homogeneity in mean scored but differences in standard deviations. Group of internal auditors had a mean of 4.03 with a standard deviation of 0.95; the group of fraud auditors had the mean of 4.18 and a standard deviation of 0.90, while the group of accountants had a mean of 4.24 and a standard deviation of 0.77. The standard deviations scores of the individuals showed differences in variability. But, the standard deviation of each group has a small value within the group that suggested a little variability thus, showing that majority of the scores of individual respondents scores were tightly clustered around the group mean

(Bartz, 1963). Therefore, the mean scores indicated that each group accepted that internal audit ongoing function is a tool that combats fraud risk in banks.

4.3.6 Research Question IV Analysis:

To what extent do you agree that internal audit Interactive function combats fraud risk in banks?

Table 27 Extent of Respondents agreement that internal audit interactive function with senior management and executive is a tool that combats fraud risk in banks.

Job Description	To what extent do you agree that internal audit function interacting with senior management/executives as internal audit interactive function that combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	2	1	3	21	14	41
	4.9%	2.4%	7.3%	51.2%	34.1%	100.0%
Fraud auditor	0	2	1	29	20	52
	.0%	3.8%	1.9%	55.8%	38.5%	100.0%
Accountant	2	2	8	42	66	120
	1.7%	1.7%	6.7%	35.0%	55.0%	100.0%

Source: Researcher's response Analysis with Likert scale, survey, 2016.

Responses above showed that internal and fraud auditors and accountants agreed that internal audit interacting with the management and executive combats fraud risk. Greater number of fraud auditors agreed on the matter and they had a frequency mode of 29(55.8%) which was more than scores of internal auditors who had a mode of 21(51.2%) to come second while accountants came third with a frequency mode of 42(35%). On the other hand, the accountants scored more on strongly agreed with a frequency mode of 66(55.00) than the internal and the fraud auditors who scored a frequency mode of 14(34.1%) and 20(38.5) respectively. On the other hand, 8 accountants representing 6.7% stated undecided, while 3 internal auditors with 7.3% and one fraud auditor with 1.9% respectively stated undecided. Internal auditors who had a frequency mode of 2(4.9%) and 1(2.4%) frequency mode stated strongly disagreed and

disagreed respectively. Fraud auditors who strongly agreed had a frequency mode of 0(0%) and those who disagreed had 2(3.8%). The opinions of accountants on strongly disagreed and disagreed were also represented by a frequency mode of 2(17%) and 2(1.7%) as well.

Table 28 Extent of Respondents agreement that internal audit interacting with the audit committee combats fraud risk

Job Description	To what extent do you agree that internal audit function interacting with the audit committee as internal audit interactive function function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	2	5	2	14	18	41
	4.9%	12.2%	4.9%	34.1%	43.9%	100.0%
Fraud auditor	1	4	4	30	13	52
	1.9%	7.7%	7.7%	57.7%	25.0%	100.0%
Accountant	3	3	6	61	47	120
	2.5%	2.5%	5.0%	50.8%	39.2%	100.0%

Source: Researcher's response Analysis with Likert scale, survey, 2016.

From the above table, internal audit interacting with the audit committee combats fraud risk. The results show 14 internal auditors represented by 34.1% and 30 fraud auditors represented by 57.7%, while 61 accountants represented by 50.8% all agreed on the subject matter as well. Further, 2 internal auditors representing 4.9% and 4 fraud auditors representing 7.7% and 6 accountants representing 5% stated undecided on the subject matter.

The other opinions of 5 internal auditors representing 12.2% and 4 fraud auditors representing 7.7% and 3 accountants representing 2.5% also categorically disagreed with the opinion while 4 internal auditors representing 4.9%, while one of the fraud auditors representing 1.9% and 3 accountants representing 2.5% strongly disagreed on the subject matter.

Table 29 Extent of Respondents agreement that internal audit interacting with the chief audit executive (CAE) combats fraud risk in banks

Job Description	To what extent do you agree that internal audit function interacting with the chief audit executive as internal audit interactive function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	1	1	6	18	15	41
	2.4%	2.4%	14.6%	43.9%	36.6%	100.0%
Fraud auditor	0	3	8	24	17	52
	.0%	5.8%	15.4%	46.2%	32.7%	100.0%
Accountant	3	6	11	61	39	120
	2.5%	5.0%	9.2%	50.8%	32.5%	100.0%

Source: Researchers response analysis with Likert scale, survey, 2016.

The analysis above revealed that 15 internal auditors representing 36.6% and 17 fraud auditors representing 32.7% and 39 accountants representing 32.5%, all declared that they strongly agreed that internal audit interacting with Chief Audit Executive controls fraud risk in bank. Again, 18 internal auditors representing 43.9%, and 24 fraud auditors representing 46.2% while 61 accountants representing 60.8% agreed on the opinion. Further, 6 internal auditors representing 14.6%, and 8 fraud auditors representing 15.4%, while 11 accountants, declared undecided on the matter. Furthermore, an internal auditor representing 2.4%, and 3 fraud auditors representing 5.8 and 6 accountants representing 5% disagreed. Finally on the matter, one internal auditor with 2.4% and 3 accountants with 2.5% strongly disagreed on the opinion, while there was no fraud auditor who strongly disagreed.

Table 30 Extent of respondents' agreement that internal audit interacting with external auditors combats fraud risk in banks.

Job Description	To what extent do you agree that internal audit function interacting with the fraud auditors as internal audit interactive function combats fraud risk in banks					
	strongly disagree	disagree	undecided	agree	strongly agree	Total
Internal auditor	2	1	5	17	16	41
	4.9%	2.4%	12.2%	41.5%	39.0%	100.0%
Fraud auditor	2	2	4	27	17	52
	3.8%	3.8%	7.7%	51.9%	32.7%	100.0%
Accountant	2	5	6	48	59	120
	1.7%	4.2%	5.0%	40.0%	49.2%	100.0%

Sources: researcher response analysis with Likert scale, survey, 2016.

The table above revealed that 16 internal auditors representing 39%, and 17 fraud auditors representing 32.7% and 59 accountants representing 49.2% strongly agreed that internal audit function interact with the fraud auditors to control fraud risk in bank. Also, 17 internal auditors representing 41.5%, and 27 fraud auditors representing 51.9% and 48 accountants representing 40% agreed that internal audit function interact with the fraud auditors to control fraud risk in bank. Those who stated undecided were 5 internal auditors representing 12.2% and 4 fraud auditors representing 7.7% and also, 6 accountants representing 5%. One internal auditor representing 2.4% and 2 fraud auditors representing 3.8% and also 5 accountants representing 4.2% disagreed on the matter. Further, 2 internal auditors representing 4.9%, and 2 fraud auditors representing 3.8% and finally 2 accountants representing 1.7% strongly disagreed that internal audit function interacting with fraud auditors combats fraud risk in banks.

4:3.7 Individuals and groups mean and standard deviation scores in internal audit interactive function using question four.

Reinstate Question IV: To what extent do you agree that internal audit interactive function combats fraud risk in banks?

Table 31 Individual and group means and standard deviations scores in internal audit interactive function in Nigeria banks.

VARIABLES	INTERUAL AUDITORS			FRAUD AUDITORS			ACCOUNTANTS			TOTAL		
	Mean	Std	N	Mean	Std	N	Mean	Std	N	Mean	Std	N
The senior management	4.15	0.92	41	4.37	0.78	52	4.35	0.69	120	4.28	0.80	213
The Audit committee	4.05	0.98	41	3.96	0.99	52	4.66	0.27	120	4.31	0.85	213
The chief Audits Executive (CAE)	4.03	0.97	41	4.09	0.99	52	4.33	0.75	120	4.22	0.90	213
The external Auditors	4.96	0.09	41	4.11	0.90	52	4.01	0.98	120	4.36	0.65	213
TOTAL	**4.31**	**0.74**		**4.13**	**0.92**		**4.33**	**0.67**				

Source: Researchers response analysis from survey, 2016.

Respondents mean and standard deviation analysis above revealed that internal auditors had the highest mean of 4.96 and the lowest standard deviation of 0.09. The group mean of internal auditors was 4.31 with a standard deviation of 0.74 and fraud auditors had a group mean of 4.13 with a standard deviation of 0.92, while accountants had a group mean of 4.33 with a standard devotion of 0.67. But the group who had the highest mean score was the accountants. They also had the lowest standard deviation of 0.67 showing that they had a more homogeneity in their agreement on the subject matter than the rest of the other groups. The scores of internal auditors and fraud auditors also revealed a very small value of standard deviation showing a little variability. Therefore, the mean and standard deviation do not differ in variability among the groups opinion showing that internal audit interactive function controls fraud risk in banks.

4:4. Hypotheses Testing.

There were four hypotheses formulated for this study. This very section will test these hypotheses for the study. It was stated in chapter 3 that ANOVA Parametric Statistical Techniques would be used to test the hypothesis, (Stephen, 1994; Diagostino, 1990).

Hypotheses 1

H_1: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether Application of internal audit data mining tool is a significant factor in the management of fraud risk in Nigerian banks

Decision Rule:

If the p value observed is less than 0.05 i.e. p value < 0.05; then it is significant.

But if the P value is greater than 0.05 i.e. P value > 0.05 it is not significant. Therefore if P value<0.05 then reject the Ho1. But if P value > 0.05, Accept Ho1.

Table 32 ANOVA Hypothesis 1

		Sum of Squares	df	Mean Square	F	Sig.
To what extent do you perceive that data mining tools combats fraud risk in banks	Between Groups	5.101	4	1.275	0.04	.0.97
	Within Groups	177.528	208	.854		
	Total	182.629	212			
To what extent do you perceive that neural networks as data mining tool combats fraud risk in banks	Between Groups	8.705	4	2.176	0.37	.0.69
	Within Groups	184.601	208	.888		
	Total	193.305	212			
To what extent do you perceive that machine learning techniques as data mining tools combats fraud risk in banks	Between Groups	4.295	4	1.074	0.15	.0.86
	Within Groups	165.648	208	.796		
	Total	169.944	212			
To what extent do you perceive that data mining algorithm techniques combats fraud risk in banks	Between Groups	5.277	4	1.319	0.23	.0.79
	Within Groups	160.253	208	.770		
	Total	165.531	212			
To what extent do you perceive that data mining business intelligence techniques combats fraud risk in banks	Between Groups	2.996	4	.749	.0.57	.0.78
	Within Groups	170.112	208	.818		
	Total	173.108	212			
To what extent do you perceive that data mining link analysis techniques combats fraud risk in banks	Between Groups	1.220	4	.305	.0.25	.0.78
	Within Groups	178.555	208	.858		
	Total	179.775	212			

Source Researches Analysis of Data from field work

The ANOVA output of SPSS demonstrated that all the P values of 0.97, 0.69, 0.86, 0.79, 0.56 and 0.78 were more than the significance of 0.05 which was chosen as a base for the study. The overall P value is 0.775. Applying the decision rule P value 0.775 > 0.05, we therefore reject the null hypothesis and accept the alternate hypothesis that the application is significant in fraud risk management and further conclude that there is no significant

difference among the perception of internal auditors, fraud auditors and accountants that internal audit data mining tool is significant in combating fraud risk in banks.

Hypotheses 11

H_2: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether Application of Internal audit proactive function significantly combats fraud risk in Nigerian banks,

Decision Rule

If the p value observed is less than 0.05 i.e. p value < 0.05; then it is significant.

But if the P value is greater than 0.05 i.e. P value > 0.05 it is not significant. Therefore if P value <0.05. Reject the Ho.

But, if P value > 0.05. Then, Accept Ho.

Table 33 ANOVA Hypothesis 11

		Sum of Squares	D f	Mean Square	F	Sig.
To what extent do you perceive that involvement in more financial reporting as internal audit proactive function positively combats fraud risk in banks	Between Groups	10.916	4	2.729	0.06	.0.95
	Within Groups	133.995	208	.644		
	Total	144.911	212			
To what extent do you perceive that focus on risk processes as internal audit proactive function positively combats fraud risk in banks	Between Groups	4.382	4	1.096	0.20	.0.82
	Within Groups	178.923	208	.860		
	Total	183.305	212			
To what extent do you perceive that focus on emerging risk such as IT risk etc as internal audit proactive function positively combats fraud risk in banks	Between Groups	4.549	4	1.137	0.22	.0.80
	Within Groups	191.657	208	.921		
	Total	196.207	212			
To what extent do you perceive that advisory roles and decision making processes as internal audit proactive function positively combats fraud risk in banks	Between Groups	6.177	4	1.544	0.36	.0.36
	Within Groups	212.311	208	1.021		
	Total	218.488	212			

Source: Researchers Analysis of Data from field work.

The output of ANOVA using SPSS gave the valued of P as 0.95, 0.82, 0.80 and 0.36 with the overall value of 0.733 at a significance of 0.05.Then, applying the decision rule. P value 0.733 > 0.05, we therefore conclude with the decision rule and reject the null hypothesis and accept the alternate hypothesis that the application is significant in fraud risk combats and thus declare that there is no significant difference among the perception of internal auditors, fraud auditors and accountants that internal audit proactive function significantly combats fraud risk in banks.

Hypothesis 111

H_3: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether Application of Internal audit ongoing function is a significant factor in combating fraud risk in Nigerian banks,

Decision Rule

If the p value observed is less than 0.05 i.e. p value < 0.05; then it is significant.

But if the P value is greater than 0.05 i.e. P value > 0.05, it is not significant. Therefore if P value < 0.05. Reject the Ho3.

But, if the P value > 0.05. Then, accept Ho3.

TABLE 34: ANOVA Hypothesis 111

		Sum of Squares	Df	Mean Square	F	Sig.
To what extent do you perceive that assessment processes to support audit plan and design as internal audit ongoing function combats fraud risk in banks	Between Groups	3.184	4	.796	.0.0.53	0.59
	Within Groups	187.727	208	.903		
	Total	190.911	212			
To what extent do you perceive that periodic audit summaries and reporting as internal audit ongoing function combats fraud risk in banks	Between Groups	7.070	4	1.768	0.45	.0.08
	Within Groups	176.460	208	.848		
	Total	183.531	212			
To what extent do you perceive that updated risk assessment as internal audit ongoing function combats fraud risk in banks	Between Groups	3.097	4	.774	.0.23	.0.09
	Within Groups	207.832	208	.999		
	Total	210.930	212			
To what extent do you perceive that audit performance including scope, work papers, report and tracking as internal audit ongoing function combats fraud risk in banks	Between Groups	4.413	4	1.103	0.51	.0.08
	Within Groups	113.850	208	.547		
	Total	118.263	212			

Source: Researchers analysis of data from field work, 2016

The output of ANOVA using SPSS gave the valued of P as 0.59, 0.08, 0.09 and 0.08 and the overall p value of 0.21 at 0.05 significance. Applying the decision rule for the study P value 0.21> 0.05, we therefore reject null hypothesis and accept the alternate hypothesis that the application is significant in fraud risk combats and therefore we conclude that there is no significant difference among the perception of internal auditors, fraud auditors and accountants that internal audit ongoing function is a significant factor in the combating of fraud risk in banks.

Hypothesis iv:

H_4: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether Application of Internal audit interactive function significantly combats fraud risk in Nigerian banks.

Decision Rule

If the p value observed is less than 0.05 i.e. p value < 0.05; then it is significant.

But if the P value is greater than 0.05 i.e. P value > 0.05, Then, it is not significant.

Therefore if P value <0.05. Reject the Ho4.

But, if P value > 0.05, Then, Accept Ho4.

Table 35: ANOVA Hypothesis iv

		Sum of Squares	df	Mean Square	F	Sig.
To what extent do you perceive that internal audit function interacting with senior management/executives as internal audit interactive function combats fraud risk in banks	Between Groups	1.464	4	.366	.521	0.720
	Within Groups	146.085	208	.702		
	Total	147.549	212			
To what extent do you perceive that internal audit function interacting with the audit committee as internal audit interactive function combats fraud risk in banks	Between Groups	2.990	4	.748	.0.048	.0.73
	Within Groups	186.305	208	.896		
	Total	189.296	212			
To what extent do you perceive that internal audit function interacting with the chief audit executive as internal audit interactive function combats fraud risk in banks	Between Groups	5.219	4	1.305	0.636	0.970
	Within Groups	165.861	208	.797		
	Total	171.080	212			
To what extent do you perceive that internal audit function interacting with the external auditors as internal audit interactive function combats fraud risk in banks	Between Groups	4.850	4	1.213	0.385	0.740
	Within Groups	182.060	208	.875		
	Total	186.911	212			

Source: Researchers Analysis of Data from field work

ANOVA analysis using SPSS gave the P values as follows 0.720, 0.730, 0.970 and 0.740. Then the overall P value is 0.79. Applying the decision rule where the P value 0.79 > 0.05, we therefore reject the null hypothesis and accept the alternate hypothesis and conclude that the application is significant in combating fraud risk and conclude that there is no significant difference among the perception of internal auditors, fraud auditors

and accountants that the application of internal audit interactive function significantly combats fraud risk in banks.

4:5 Discussions of Findings

Discussions of the findings of the study are hereby presented.

Hypothesis 1:

H_1: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether Application of internal audit data mining tools is a significant factor in the management of fraud risk in Nigerian banks

Findings: After the analysis, the testing of the hypothesis showed that the null hypothesis was rejected, i.e. the alternative was accepted. Data mining is significant in combating fraud. In other words, the respondents perceived that the application of internal audit data mining function is significant in combating fraud risk.

Discussion:

Table4:4:1 showed that the null hypothesis was rejected. This is a proof that the respondents accept that the application of data mining tool combats fraud risk. In other words, they were united in both individual and group perception on the subject matter. Any observed difference in their opinions was due to chance (Uzoagulu, 1989).

The result does not in any way differ from the findings of (Alleyme, Persaud, Greenidge & Searly, 2010; Thiruved & Patel, 2011; Gill & Gupta, 2009; Kotsiantis, Kouthanakos,

Tszolepis & Tompakos, 2006; Guo & Victor, 2008) who found that application of data mining detect and prevent fraudulent activities.

This result also differ from the conclusion of (Gill & Gupta, 2009), who applied data mining tool only on fraudulent financial reporting and (Liou, 2006) who also applied it only on fraudulent financial reporting and loss on production.

Other factors that made the application of data mining tool effective in fraud risk management that were agreed by both the individual and the group opinions, stated that the application would have to include; data mining audit interrogation, data mining neural networks, data mining machine learning techniques, data mining algorithms, data mining business intelligence and data mining link analysis.

This findings do not differ in any form from the opinion of (Nonyelum & Chibueze, 2009), who found that data mining neural network detect fraud direction and (Xu, Sung & Liu, 2007), who also found out that data mining algorithm detect fraudulent transaction.

The findings do not differ from the findings of (Graham & Patel, 2006; Sanver & Karahova, 2009; Kolther & Maloof, 2006; Burnaby, Howe & Muehlman, 2013) who also agreed with the result that application of data mining combats fraud risk.

It is stated that this finding, by the perceptions of respondents that the application of internal audit data mining tools, when applied in fraud risk, combats fraud risk, is therefore not misleading, (Muhammed, Ghambari & Einakian, 2014; Burnaby, Howe & Muehlman, 2013; Wang & Yang, 2009).

If we discuss this finding considering the mean and standard deviation scores of the individual and group responses on the items within the data mining tools, we will see that they were very high. Their mean scores were found to be above the study chosen limit of 3.0. Also, the standard deviations were reducing significantly to proof harmony in both the individual and group responses. However, considering the result of the Likert Scale analysis findings in all the items within the data mining; showed that respondents had greater opinions of ‘‘strong and strongly agreed’’ opinions of responses.

To support this result, the outcome of the interviews with the actual internal auditors of the various banks showed that if banks apply all the data mining tool variables in fraud risk management they assist to combat fraud in their daily transaction.

The literature reviews, also, indicated that the application of data mining is significant in fraud risk management. As we consider it along with one of the findings of (Kirkos, Spathis & Manolopoulos, 2007), we see that the application of data mining-neural networks had 80% success in detection of fraud. The finding of (Lious, 2006) also agreed that the application of data mining algorithms specify how to solve identified fraudulent financial reporting in audit and predicting business failures. It was concluded in (Nonyelum & Chibueze, 2009), that the application of neural networks helps to detect fraudulent transaction and the wrongful classification in which genuine transaction is considered fraudulent.

There are others, for instances, (Xu, Sung & Liu, 2007) who were of the opinion that data mining algorithm identifies customer behaviour in detecting fraudulent transaction in an

online, then, (Fraham & Patal, 2006), also, found that audit interrogation can identify abnormal behaviors by detecting any derivation from normal activity.

Further, (Koltler & Maloof, 2006) suggested that machine learning can discover and classify malicious executables; more so (Mukkamala, Sung & Abraham, 2005), agreed that neural networks can be a good intrusion detection in terms of classification accuracy, while (Wang & Zaven, 2009; Patal & Zaven, 2010; Burnaby, Howe & Muechlmen, 2013; Muhammed, Ghanbari & Einakian, 2014; Sanver & Karahoca, 2009), all suggested that the application of data mining combats fraud.

Hypothesis 11

H_2: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether Application of Internal audit proactive function significantly combats fraud risk in Nigerian banks,

Findings:

The findings of the study after the analysis and the testing of the hypothesis showed that the null hypothesis was not upheld, i.e. was rejected. This implied that the respondents perceived categorically that the application of internal audit proactive function is significant in combating fraud risk in banks.

Discussions:

Table 4:4:2 depicted that the null hypothesis was rejected by the respondents. Any observed difference in their opinion was due to chances (Uzoagulu, 1998).

The findings in respect of the hypothesis two is in consonant with the findings of (Sinason, Hillison & Pacini, 2001; Ernest & Young, 2010; Kuenkaikaew & Rutgers, 2013) who were of the opinion that the application of proactive function ensures that fraud risk analysis is dynamic and that transactions are blocked prior to fraudulent executions.

Also, this findings support the views of (Bullen, 1995) that internal audit function in fraud risk should not be seen as identifying errors that have already occurred and reviewing the procedures that are already in place but, should be a focus on addressing the future issues that causes weakness that exposes corporations to fraud, theft and profit increase.

The opinion of (Ernest & Young, 2011) also agreed with the finding that the application of proactive function extends more than the normal audit function.

This finding may be attributed to several factors, some of which are inherent in the operations of the application of proactive function as perceived by the respondents and also stated in (Ernest &Young, 2011). Some of these factors includes more involvement in non-financial reporting matters such as sustainability and non-financial reporting; a sharper focus on emerging risks such as information technology risks, new product risks, international operations and corruption, business continuity and crises management; a greater advisory role in governance matters through involvement in cooperate governance, through examination of management decision making processes and by advising an audit committee effectiveness in (a) educating the audit committee, (b) helping shape audit committee charters and agenda (c) guiding the executives on how to present the audit committee (Kuenkaikaew & Rutgers, 2013; KPMG, 2006).

In further discussion, we found that all the individual and group mean scores were all very high above 3.0 study limits. Also the Likert analyses had high percentages of agreed and strongly agreed responses in the tables to support the subject matter.

The information we got from the interview showed that banks do actually apply these proactive variable factors in fraud risk management. We also found out that two of the banks were of the views that their own banks do not emphasize on some of these variable factors namely: the management of the identification processes set in place and also that they do not ensure that there is a dynamic risk analysis in fraud risk management. Very few also suggested that internal audit is not given freedom to examine every aspect of business initiation and this could give way to fraud. They also agreed that their management do not permit the internal audit function to examine the management decision processes in the organizations.

There are emphasis that have been laid on some literatures that suggested that advising the audit committee effectiveness such as training and improving them in the fraud risk management and examining the management decision processes in the organization are some of the key areas to proactively manage fraud risk (Ernst & Young, 2011; Basel Committee, 2012). In agreement, (Dionne & Searly, 2010), described some of the key several areas audit committee could become more effective especially in fraud risk combats. One of the key areas is educating the audit committee and communicating to them the vital part of what they do and some important areas and some changes in the fraud risk management strategies. Internal audit proactive function helps to slope audit committee charter and agenda by coordinating with all the parties in the company and gathering all the information they want to project for the year and keep track of the

agenda and distribute them to everyone. This cannot be achieved where the internal auditors are not given freedom to intimate the audit committee by the management provisions.

Further, the statement of (Ernst and Young, 2009) was that internal audit function should ensure that the risk assessment identifies those risks that are presenting the most significant risk and communicating them appropriately. Part of the advisory management decision role was to facilitate risk management decision across the organization. It was also agreed in (IIA 2011, Global Internal Audit Survey, 2011) that internal audit function understood fraud risk management concepts and the value preposition better than most employees and is the bases for allowing them to function without restriction. The survey, therefore, further agreed that the chief Audit executive (CAE) should in the proactive function, educate the audit committee and management on the values of effective fraud risk management.

Furthermore, Ernst & Young, 2006; IIA, Global Survey, 2009), also agreed that internal audit proactive function should get more involvement in corporate governance processes and procedures that includes ethics and strategies. Internal audit function should ensure good governance proactively. Some of the advisory roles that were agreed are involvement in corporate governance processes, examination of management decision making and advising the audit committee effectiveness. These were considered as a strong means of proactively managing fraud risk. But, the result of the interview with the internal auditors of the banks revealed that they do not give room for that and thus they do not accept that this very variable factor is a means of combating fraud proactively.

Hypothesis III

H_3: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether Application of Internal audit ongoing function is a significant factor in combating fraud risk in Nigerian banks,

Findings:

After the analysis, the testing of the hypothesis showed that the null hypothesis was not upheld, .i.e. it was rejected. This was an indication and evidence that the respondents unanimously perceived that internal audit ongoing function is a tool that combats fraud risk in banks.

Discussions:

The findings from table 4:4:3 revealed that the null hypothesis was not accepted because the application is significant. The perception of the respondents did not vary significantly that the application of internal audit ongoing function is significant in combating fraud risk. Any observed difference in their opinion was due to chances (Uzoagulu, 1989).

The findings revealed that the application of internal audit ongoing function will have to include among other things such as: (a) assessment processes to support adjustment to the audit plan which will include effective monitoring in other to ensure consistent application of processes brought by the organization (b) periodic audit summaries and rearing (c) updated risk assessment and adhering to other factors which included internal audit scope, internal audit work papers, audit report and issue tracking (Malaesca & Sulton, 2013).

It was observed from this finding: that the application of internal audit ongoing function is significant in fraud risk management, also agreed with the opinions of (PWC, 2003; KPMG, 2006; Albrecht & Romney, 1987; Carnes & Keithley, 1993).

Further, this finding is also in agreement with the findings of (Eden & Morriah, 1996) who stated that the application of ongoing function of internal audit helps to detect weakness in management operations and provides a basis for correcting deficiencies that have eluded the first line of defense before those deficiencies become uncontrollable or exposed in the external auditors report.

Let us see the result from the mean, the standard deviation and the interview outcome. The individual and group mean were above the accepted limits of the research and likewise their standard deviation was tending very small as an evidence of uniform agreement on the subject matter.

Internal auditors also agreed during the interviews that if this is given full application in the banks' operations it will ensure fraud combats. Majority opinions of the interviewed internal auditors responded "Yes" that their operation follow a strict adherence to laid down rules in fraud risk management; while they also agreed that their function ensure that there is a timely communicated audit report; issuing assessment processes, supporting and ensuring that risk assessment is updated and ensuring that there is always audit performance that covers audit plan and design. Majority also said "Yes", that the areas that could constitute a major weakness to fraud risk combats in banks, is not completely complying with strict adherence to laid down rules in fraud risk management.

In the various policy statement, made by various (11A), the emphasis have been that ongoing internal audit function in fraud risk management should comply with all policies, procedures, rules, guidelines, directives, laws and regulation that are applicable to audit function. The IIA also, stated that internal audit should have a good relationship with audit committee and function with or in independence, objectivity and professional proficiency. Thus any shift from the application as seen from the interview suggestions could mar with the objective of combating fraud risk.

Hypothesis IV

H_4: There is a significant difference in the perception of internal auditors, fraud auditors and accountants on the question of whether application of internal audit interactive function significantly combats fraud risk in Nigerian banks.

Findings:

The result of the analysis showed that the testing of the null hypothesis was not accepted. This was the evident that the respondents perceived that the application of internal audit interactive function significantly combats fraud risk, when it is applied in banks' fraud risk management.

Discussions:

The result of table 4:4:4 was significant and evidenced that there was no significant difference from the respondents' opinion. Thus, the response that the application of internal audit interactive function is significant in combating fraud risk in banks, did not change based on their individual and collective perceptions. Any observed difference in their opinion was due to chance (Uzagulu, 1989).

From their various perceptions this result attested that the application of internal audit interacts with: (a) senior management to establish, maintain internal system, and reviews, develop frame work; ensure actions on new development on risk and provide sufficient resources (b) with the audit committee to install appropriate effective internal audit function that reviews, focuses on audit plan, significant industry and higher risk issues (c) with the chief audit executive (CAE) to produce quality assurance and improvement on all risks assessment program.(d) and with the external auditors to produce synergy on both internal and external risk management and internal control systems.

The findings do not agree with the opinion of (Hutchinson & Mazlina, 2009); Abbot, Daughert, Parker & Garry, 2015) who suggested a different variable that interact with internal audit function in the management of fraud risk.

But, findings on internal audit interactive function with directors to combat fraud risk, agrees with the views of (Bou-Read, 2000; Ernest & Young, 2008; IPPF) and also the findings of interactive function with the audit committee tally with the suggestions of (ICEW, 2004; Gramling,Malleta,Schneider & Church,2004; Paape, George, Panagiotes, Rani & Evanthia, 2003; Godwin, 2003:Christopher, Sorens & Leueng, 2010; Perrin, 2001; Baesley, 1993; McMullen,1996).

Also, the findings of internal audit interactive function with the chief audit executive (CAE) do not differ from the findings of (Leung, Cooper & Robertson, 2004; Saren & Christopher, 2010; George et al, 2013; Beasley, Clune & Hermanson, 2005a; Sharma, 2004) who agreed that internal audit combats fraud risk with an effective interaction with the chief audit executive.

There is no significant difference with the findings that: internal audits interact with the external audits to produce synergy on both internal and external risk management and also internal control systems as seen in the findings of the following authors; (Malaesca & Sulton, 2013; Wallace & Kreutzfeldt, 1991; Apostolou et al, 2001; KMG, 1999; Krambia-Kapardis, 2001; Curam et al, 2011). Therefore, the findings that the application of internal audit interactive function being perceived as an effective tool of fraud risk combats is not misleading from the above references.

From another dimension, internal audit interaction with the Chief Audit Executive (CAE) to ensure quality audit performance in all fraud risk management, had, both the group and the individual mean scores above 3.00 and the standard deviation reduced significantly to show uniform acceptance that the application of this interactive function combats fraud risk. The opinions during the interviews indicated that there is an application of interactive function by the various banks.

In literature, a strong relationship with the audit committee was strongly suggested by (PWC, 2015) to be effective in fraud risk management and at this, they agreed that many audit committee find value in ensuring that there is an open line of communication between the committee and the internal audit function. Therefore, companies require the head of internal audit to report directly to the audit committee, rather than to management and this represent the best practice in fraud risk combats.

The audit committee chair and the head of internal audit function should have regular contact outside audit committee meetings. The audit committee should also encourage a positive relationship between internal audit and external auditor, to ensure effective relationship between them in realization of fraud risk combat objective.

But, the entire findings contradict the findings of some research (Badara & Saiden, 2014; Salamu & Agbeja, 2007) who found out that internal audit function in fraud risk management is not effective. This could be as a result of the information of the interviews with the internal auditors, who have a different opinion that some of these variables, which we found their application to be significant in combating fraud risk in banks, are not practically applied in fraud risk management in the establishment that was studied.

4:6. Summary of the Findings

The findings of this study revealed that all the answer to the four questions which were asked during the study had greater percentage of strongly agreed and agreed responses from the respondents. All their mean scores were high and above the research chosen limit point of (3.00). Also, their various standard deviations were so small to show homogeneity in their agreement such that they did not differ much in their mean perception scores: therefore they unanimously perceived that the application of internal audit function combats fraud (Bartz, 1963).

The four research hypotheses formulated were tested. Result of the four hypothesis indicated that there were no significant difference in the perception of the respondents in all the variables suggested in the study objectives. In other words, the internal auditors, fraud auditors and accountants perceived that the application of internal audit data mining tools combats fraud risk in banks. They view it that the application is an effective tool in combating fraud risk in banks. Also, the respondents perceived that proactive function is an effective tool to combats fraud in banks.

Further, they perceived that internal audit ongoing function could be used as a tool that combats fraud risk in banks. Finally, they perceived that internal audit interactive function could combats fraud risk in banks as well.

The information from the interviews with the actual internal auditors of the various banks suggested that many of the banks do apply these key variables that could tackle fraud risk.

Somehow, the results differ from the earlier findings of some researches (Bardara & Saisen, 2014; Salamu & Agbaia, 2007) who found that the application of internal audit function in fraud risk is not effective. This reason could be that their study was carried out on a different industry instead of banking industries.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

This research was conducted to bridge the gap in the scarcity of academic studies and knowledge in the area of the application of internal audit function IAF in fraud risk combats. This was done by applying a systematic search for and empirical reviews of the factors and variables that have been found by scholars of academic literatures that are applicable in fraud risk combats that have not yet been systematically explored and reviewed in respect of this study.

The populations of the study were made up of 21 commercial/money deposit banks, out of which 15 banks were chosen based on systematic sampling techniques selected through balloting (Uzoagulu, 1998). The population records of 668 were made up of elements of internal audit staff, fraud audit staff and accountant staff in each of 15 banks in Enugu banking Zone. Taro Yamane's formulae were applied to determine the sample size of the study which gave a total number of 400 sample size for the study. The valid responses from the returned instrument used for the analyses to guide this study were 213 respondents. Likert Scale was used to analyze the responses in strongly agreed, agreed, strongly disagreed, disagreed, and undecided. Descriptive statistics of percentages, mean and standard deviation were applied on the respondent's demography, mean and standard deviation. ANOVA parametric analysis was employed to test the four hypotheses of the respondent's perceptions.

The study results revealed that all null hypotheses tested were rejected and the alternate hypotheses were accepted. The perceptions of the respondents were that: applications of internal audit data mining tools are significant in combating fraud risk in banks. But this data mining tools would have to include data mining audit interrogation, neural networks, machine learning, algorithms, business intelligence and link analysis.

In the second hypotheses, the respondents also perceived that the application of internal audit proactive function in fraud risk management is significant in combating fraud risk. But, such application of the proactive function would have to include (a) getting involved in a more financial reporting, sustainability and none financial reporting, (b) focus on risk processes such as management, analysis and corporate risk (c) focus on emerging risk such as IT risk, new product risk, international operations and corruption, business continuity, crises management and contractor due diligence (d) greater advisory role and decision making processes.

The respondents also perceived in the third hypotheses that: internal audit ongoing function is significant in combating fraud risk in banks. From their perception, the ongoing function must have to include (a) assessment processes to support audit plan and design, (b) periodic audit summaries and reporting, (c) updated risk assessment and (d) audit performance which included scope, work paper, reporting and tracking issues.

Their perception in fourth hypotheses also showed that interactive function is significant in combating fraud risk and this involves a consolidated effort of internal audit team working with the senior management, the audit committee, the chief audit executive (CAE) and the external auditors.

These findings were not at variance with the findings of other researchers in the similar studies.

The interviews with the main internal auditors of the various banks suggested that majorities of these variables are in application in various Nigerian banks fraud risk management.

Our study findings also suggest that internal audit function in fraud risk management in Nigeria could be significant in fraud risk combats in contrast to earlier finding of (Bandara & Saidan, 2014, Salam & Agbaja, 2017), if only these objective variables which are perceived to be significant are properly applied in fraud risk management in banks.

5.2 Implications of the Findings

The results of this study have a far-reaching implication for banks, business owners, future entrepreneurs, other financial institutions etc. From the findings, we point out that special attention has to be directed towards the four identified variables that were perceived to have significant effect in fraud risk management. This is viewed to prevent fraud and prevent entities from collapsing or having distress periods. Therefore, banks and other financial institutions should be aware from the findings that there are several things to be considered as found in the variables factors. These things should be considered not only in the operations of the existing business plans but also in getting involved in new ventures and loan applications.

Several business entities have collapsed both in Nigeria and elsewhere due to improper fraud risk management (Onogun, 2009; Adedeji, 2005; Osisioma, 2012; Owolabi, 2010;

Adeyemi, 2012; Robu, Chesan, Mironiuc & Cap, 2012). But, in the analysis of the study, it was found that data mining audit interrogation, neural networks, machine learning techniques, algorithms, business intelligence and link analysis were perceived as tools that are combined with other factors to combat fraud risk. These views were supported in the findings of various literatures on internal audit function in fraud risk management (Alleyne, Persuade, Greenidge & Searly, 2010; Thiruvad & Patel, 2011; XU, Sung & Liu, 2009). In other words, entities that hope to stand the chance of surviving distress will possibly have to curb fraud by trying to incorporating some or all of the suggestions of this study in the management of their fraud risk factors. The whole factors of the variables are perceived to be important and applicable in fraud combats and banks should try to apply them

It was perceived that internal audit proactive function positively contributes to fraud risk managements. Internal audit proactive function was perceived to include: propelling managements of corporations to get involved by proactively delving in the future affairs of business management by expanding their visions for expansion in profit maximization instead of digging in for fraud in the day to day business activities. Therefore it suggested that entities should get involved in more (a) Financial reporting, sustainability and none financial communications, (b) focus on risk processes such as its management, analysis and corporate risk, (c) focus in emerging risk such as IT risk, new product risk, international operations and corruption.

Further, it was found that the mean score indicated a higher agreement that internal audit ongoing function combats fraud risk. Internal audit ongoing function in fraud risk management was perceived to be significant in the testing of the hypothesis. This implies

that entities should try to see how to inculcate internal audit ongoing function in their fraud risk management. Several literature findings are of the opinions that internal audit ongoing function combat fraud risk (Albrecht & Romney, 1987; Carnes & Keithley, 1993; PWC, 2003; KPMG, 2006).

Finally, the findings from this study have increased the understanding of how internal audit variables and its factors could influence fraud risk management and increase: business survival and profit maximization. Therefore, the implication for entities is to translate the findings into business practice. But, care must be taken in the application of these findings, because these are only academic research finding, that have not been fully implemented in real business life.

5.3 Conclusions of the study

The major findings of this study serve as a basis for making the following conclusions.

1. There is, indeed a paucity of academic studies that have applied a systematic empirical review that had been specifically centered on internal audit function in fraud risk management. Thus our study found four variables that were perceived to be significant in combating fraud risk in banks by our three group of respondents (fraud auditors, internal auditors and accountants), these are:
2. Internal audit data mining tools variable is significant in combating fraud risk in banks,
3. Internal audit proactive function variable is significant in combating fraud risk in banks,

4. Internal audit ongoing function variable is significant in combating fraud risk in bank,
5. Internal audit interactive function variable is also significant in combating fraud risk in banks.
6. Some of the findings of this study have agreed with the findings of several other researchers in the similar field and some findings of some researchers did not completely agree with the findings of this study.

5.4 Recommendations

This study makes the following recommendations based on the findings:

i. Application of internal audit function in fraud risk management can be brought down to the grassroots of every management cadre by ensuring that a functioning internal audit is put in place,

ii. Banks and other financial institutions that are susceptible to more fraud risk factors are encouraged to adapt and fully try to apply these four discovered internal audit function and their variable factors that are perceived by this study to see if their application could significantly impact their own fraud risk management,

iii. Companies will have to ensure that internal audit function in fraud risk management, should no longer be based on traditional function of discovering frauds from audited paper works and accounting records but should include an ongoing function that support audit plan design, period audit summaries, reporting, updated risk assessment and audit performance that track an ongoing fraud, and fraud intentions,

iv. Every entity that desires to survive the present economic depression should broaden their horizon in internal audit fraud risk management processes and include proactive function in their approach to fraud risk combats. This would ensure that management get more involved in sustainability, international operations, business continuity, focus on emerging risk and more focus on other emerging business areas,

v. Finally, every corporation will have to ensure that there is an effective fraud risk management in internal audit function by embracing the internal audit interactive function with senior management, audit committee, chief audit executive and the external auditors,

5.5 Current Research Contributions

The followings are considered as the current contributions of this study.

a. This study found four variables and gave a construction of a new conceptual framework that showed how internal audit combats fraud risk in banks. Formerly, the conceptual framework of some available researches on the subject matter did not provide holistic approach to fraud risk management and many of them were focused in one aspect of fraud risk management. But, the conceptual framework of this study suggested a broad view that covered more aspect of internal audit function in fraud risk management.

b. This research brought about the qualitative study of management of fraud risk by selecting, quantifying and measuring the key identified variables that are perceived to combating fraud risk.

c. The study also in its contributions, have indeed bridged the gap of the paucity of academic studies and provided a systematic empirical reviews of literatures covering internal audit function variables in fraud risk management which may also serve as a reference to other researchers.
d. Lack of methodology in application of fraud risk principles in planning internal audit function was found by (Coetzee & Lubee, 2013; Bayon & Reinstain, 2001; Grazioli, Jamal & Johnson, 2006). But, the methodological contribution of this research is found on the design, comparative methods, systematic techniques and systematic analysis that were employed in the study.
e. Finally, it provided a more understanding of the various application factors that combats fraud risk through the suggestions of the research findings, implications, and recommendations. These would also serve as a guide to business growth and entity sustainability.

5:6 Suggestions for Further Study

We suggest here that further study can be carried out on the same topic application of internal audit function in fraud risk management choosing a different industry instead of banking. The study can be conducted in a manufacturing industry to see whether it be perceived significant in combating fraud risk in the industry.

Another study can also be carried out to determine the impact of internal audit function in fraud risk management instead of the application.

REFERENCES

Abbott, L.J., Parker, S. & Park Y. (2000). The effect of audit committee activity and independence on corporate fraud. *Managerial Finance* 26(11): 55-67.

Abbott, L. J.,Brian, D., Susan, P. & Garry, F. P. (2015). Importance of independence and competence. *Accounting Research Journal Vol. 54 no 1 March 2016, USA.*

Abushaiba, 1. A., & Zainuddin, Y. (2012). Performance measurement system design, competitive capability and performance consciences. *A Conceptual like International Journal of Business and Social Science* 3(11), 184-193.

Abushaiba, I.A., & Zainuddin, Y. (2012). Performance measurement systems in central and eastern europe: A synthesis of the empirical literature, pp: 88-103.

ACC, (2013). Detecting and preventing fraud with data analytics.

ACFE. (2010). Report to nation (RTTN). Online @ http://www.acfe.com /rttn.aspx.

Ahmad, N., Othman, R., & Jusoff.(2009). The effectiveness of internal audit in Malasian public sector. *Journal of modern Accounting and Auditing*, 5(9), 784-790.

AICPA. (2005). Fraud and the responsibilities of the audit committee: An overview.

Aksoy, T. & Kahyaoglu, S. (2013). Measuring the internal audit performance: Tips for successful implementation in Turkey. *American International Journal of Contemporary Research*, 3(4). 71-82.

Albrecht, W.S., Albrecht, C.D., Albrecht, C.C. & Zimbelmain, M.F. (2011). Fraud examination. 4th Edn. *South Western Cengale Learning Manson, Ohw.*

Abelson, R.I (1985). *Statistic as principled argument: Hillsondale, NJ Erlbaum isbn 0-8058-0528-1*

Allen,E.I & Seaman, C. A. (2007). Quality Progress. 2007, July edition.

Allyne, P.,Persaud, N., Greenidge, D & Sealy, P.(2010). Perceived effectiveness of fraud detection and procedures in astock and warehousing cycle: Addition evidence from Babados. Managerial Auditing Journal 25(6), 553-568.

Anderson, D., Francis, J.R. & Stokes, D.J. (1993). Auditing, directorship and the demand for monitoring. *Journal of Accounting and Public Policy*, 12(4). 353-375.

Anuntakalakul, A. (2010). The achievement in risk management and governance of public sector organization in thailand: The empirical evidence of internal auditing efforts. *EABR & ETLO Conference Proceedings Dublin. Ireland, pp*:99-104.

Anyanwu, F.A. (2002). Introduction to insurance. *Cremo Publishers 67 Doughas Road, Owerri.*

Apostolou, B.A., Hassel, J.M., Webber, S.A. & Summers, G.E. (2001). The relative importance of management fraud risk factors. *Behavioral Research in Accounting* 13:1-24.

Arena, M. A. & Azzona, G. (2009). Identifying organization drivers for internal audit effectiveness. *International Journal of Auditing* (13),43-69.

Badara, M.S., & Saidin, S. Z. (2014). Empirical evidence of antecedent of internal audit effectiveness from Nigerian perspective. *Middle-East Journal of Scientific Research* 19(4), 460-471.

Bayon, M.E. & Reinstein, A. (2001). A systematic views of fraud explaining its strategies, anatomy and process. *Critical Perspective on Accounting,* 12(4): 383-465.

Bartz, A. E. (1963). Elementary statistics method for educational measurement. *Burges: Burgess Pub. Co.*

Beasley, M.S. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review* 71 (4), 443-465.

Beasley, M.S., Clume, R. & Hermanson, D.R. (2006). The impact of enterprise risk management on the internal audit function. *The Accounting Review*

Beasley, M.S., Clune, R. & Hermanson, D.R. (2005a). E.R. M.A. status report. *Internal Auditor*. pp. 67-72.

Beasley, M.S., Clune, R. & Hermanson, D.R. (2005b). E.R.M. an empirical analysis of factors associated with the extent of implementation. *Journal of Accounting and Public Policy*. (24), 423-531.

Becker, R.A., Volinsky, C., & Wilks, A.R. (2010). Fraud detection in telecommunications: History and lessons learned. *Technometrics* (52*)*,20-33.

Belay, Z. (2007). A study on effective implementation of internal audit function to promote good governance in the public sector.

Belloli, P. (2006). Fraudulent overtime. *The Internal Auditor 63* (3), 91-95.

Benaroch, M., Lichtenstein, Y., & Robinson, K. (2006). real options in information technology risk management: An empirical validation of risk option relationship management. *Information System Research Centre, Quarterly* 30 (4), 827-564.

Bologna, G.J. & Linduist, R.J. (1987). Fraud auditing and forensic accounting: New tools and techniques. *New York John Wiley & Sons* .

Bota – Avram, C., Popa, L., & Stefanescu, C. (2010). Methods of measuring the performance of internal audit.

Boynton, W.C., & Kell W.G. (1996). Modern auditing. 6th *Edition,USA John Willey * Sons Inc.,* pp: 839.

Brandon., & Mueller. (2006). The influence of client importance on juro evaluation of auditor liability. *Behavioral Research in Accounting,* (18)1-18.

Buhovac, A.R., & Groff, M.Z. (2012). Contemporary performance measurement systems in central and eastern european: A synthesis of the empirical literature pp. 88-103.

Burnaby, S., Howe, M., & Muehlmann, B. (2013). Detecting fraud in the orgnaization: An internal audit perspective. *Journal of Forensic & Investigative Accounting* 3(1),195 -233.

Campbel, K. W., & Foster, J.D. (2007). The narcissism self: Background, an extended agency model, and ongoing controversies.

Campbell, W.K., Rudich, E., Sedikudes, C. (2002). Narcissism, self-esteem, and the positivity of self views: Two portrait of self-love. *Personality and Social Psychology Bulletin 28*(3), 958-68. Online dot: 10.1177/01461677 202286006. http:// dx.doi.org Accessed5/4/2014 1.03. pm.

Carcelllon, J.V., Hermanson, D.R. & Raghunandan, K. (2005). Factors associated with U.S. public companies investment in internal auditing. *Accounting Horizon* 19(2), 69-84.

Carey, P., Subramania, N. & Ching, K.C.W. (2006). Internal audit outsourcing in australia. *Accounting and Finance* 46(1), 11-30.

Carnes, K.C. & Keirthley, J.P. (1993). Does the limited tenure of internal auditors hampa fraud detection. *Business & Professional Ethics Journal 12*(3), 3-29.

Carpenter, T.D. (2007). Audit team brainstorming, fraud risk identification and fraud risk assessment: Implication of SAS no 99. *The Accounting Review* 82(5), 1119-1140.

Castanberia, N., Rodrigues, L.L., & Craig, R. (2010). Factors associated with the adoption of risk based internal auditing. *Managerial Auditing Journal*, 25(1), 35-39.

Chaveerug, A. (2011). The role of accounting information system knowledge on audit effectiveness of cpas in Thailand. *Journal of Accounting-Business and Management* 20(1),46-58.

Christopher, J., Sarens, G. & Leung, P. (2009). A critical analysis of the independence of the internal audit function: Evidence from australia. *Accounting, Auditing & Accountability Journal* 22(2), 200-220.

Church, B.K., McMillan, J.J. & Schneider, A. (2001). Factors affecting internal auditors consideration for fraudulent financial reporting during analytical procedures, auditing. *A Journal of Practice & Theory* 20(1), 65-50.

CIMA. (2009). Fraud risk management: A guide to good practice. *Chartered Institute of Management Accountants.*

Coderre, D.(2010). The changing face of internal audit. *Treasury Board of Canada's Secretariat*

.

Coderre. D. R. (2005). Continous auditing:Implications for assessment, monitoring, and risk assessment. *www. Searchsecurity.com/Beridview. 20/3/2014*

Coetzee, P. & Lubbe, D. (2013). The use of risk management principle in planning an internal audit engagement. *African Journal of Business Management*, 3(13). 959-968

Coetzee, P., & Fourier, H. (2009). Perception on the role of the internal audit function in respect of risk. *African Journal of Business Management*, 2(09). 959-968.

Coetzee, P., Coetzee, G.P. & Fourie, H. (2009). Perception on the role of the internal audit function in respect of risk. *Economics & Management Science*.

Cohen, A. & Sayag, G.L. (2010). The effectiveness of internal auditing: An empirical examination of its determinants in israeli organizations. *Australian Accounting Review* 54 (2), 3.

Cohen, J., Krishmamoorthy, G. & Wright, A. (2002). Corporate governance and the audit process. *Contemporary Accounting Research*, 19(4): 573-594.

Cohen, J. (1989). Statistical power analysisfor the behavioural research sciences. *2nd Edition Hillson, NJ. Erlbaum.*

Collier, P., Dixon, R. & Marston, C. (1991). The role of internal auditors in the prevention and detection of computer fraud. *Public Money & Management* 11(4), 53-61.

Colquitt, L.L., Huyt, R.E. & Lee, R.B. (1999). Integrated risk management and the role of the risk manager. *Risk Management and Insurance Review*(2*)*, 43-61.

Companies and Allied Matter Decree CAMD, (1990). With the Amendment.

Cooper, D. & Schindler, P. (2003). Business research methods (8th Ed). *New York: McGraw hill Comp.*

Cooper, R., & Schindler, S. (2006). Business research methods and data. *New Delhi, Mcgraw-Hill Publishing Company Ltd.*

Coram, P. Ferguson, C. & Moroney, R. (2011). The importance of internal audit in fraud detection.

Coram, P., Ferguson, G. & Moroney, R. (2008). Internal audit, alternative internal audit structure and the level of misappropriation of assets fraud. *Accounting and Finances*, 48(4), 543-559.

CPA. (2011). Employee fraud: A guide of reducing the risk of employee fraud and what to do after a fraud is detected. *Published by CPA Australia Ltd CAN 008392452.*

Cronback, L. J. (1960). Essentials of psychological testing. New York: *Harper and Brothers Publishers.*

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52, 281-302.Retrieval from doi: 10.1037/h0040957 15/6/14.*

David, S., William, H & Carl, P. (2001). The government internal auditors role in implementing SAS 82. *Journal of Public Budgeting Accounting and Finance pg 512*

Dela Rosa, S. (2008). How to effectively review your organization's risk management process. *Johannesburg, Institute of Internal Auditors Training Programme.*

Deloitte. (2010). The changing role of internal audit. (*Accessed Online Lahttp:// www. Deloitte.com/view/in. June 2013).*

Deloitte. (2010). The inside story: The changing role of internal audit in dealing with financial fraud, deloitte london, Online @ http:.//www.deloitte.comm/assets/DcomUnitedkingdom/local/620/Assets /Document/ services/CF/Uk CF Deloitte internal Audit Fraud Survey 2010 pdf (accessed June 15th 2013).

Deloitte. (2012). The *Internal Audit fraud Challenge; Prevention, protection, Detection* (*Accessed Online Lahttp:// www. Deloitte.com/view/in. June 2013).*

.

Dezoort, T., & Harrison. (2008). The effects of fraud types and accountability pressure on audit fraud detection responsibility and brainstorming performance. *Working paper.*

DeZoort, T., & Harrison, P. (2008). An evaluation of internal auditor responsibility for fraud detection. *The Institute of Internal Auditors Research Foundation.*

DeZoort, T. Harrison, P.,& Taylor, M. (2006). Accountability and auditors' materiality judgments: The effects of differential pressure on conservatism, variability, and effort. *Accounting, Organizations and Society* 31 (415), 373-390.

D'agostino, R. B., Belanger, A., & D'Agostino R. B., Jr. (1990). A suggestion for using

powerful and informative tests of normality. *The American Statistician, 44, 316-321*.

Dikinson, G. (2011). Enterprise risk management: Its origins and conceptual foundation. *The general papers on risk and Insurance Issues and Practice 26*(3): 360-366. Online @ http://www.jstor.org/stable/41952578 (Accessed 24/04/ 2014, 11:00.

Dimitra, D. (2016). Joost. *De Winter Retrieval Deft, University of Technology.*

Dittenhofer, M. (2001). Internal auditing effectiveness: An expansion of present methods. *Management Auditing Journal*, 16(8), 443-450.

Dominic, S.B.S., & Nonna, M. (2011). The internal audit function: perception of internal audit roles, effectiveness and evaluation. *Management Auditing Journal* 26(7), 605-622.

Dordavic. M, & Dukic. T, (2015). Contribution of internal audit in the fight against fraud. *Facaulty of Economics, University of NIS Serbia*.

Duffield. G., Grabosky, P. (2001). The psychology of fraud. *Australian Institute of Criminology, Trends and Issues.*

Dunn, P. (2004). The impact of insider power on fraudulent financial reporting. *Journal of Management* 30(3), 397-412.

Durtschi, C., Hillison W., & Pacini, C. (2004). The effective use of benfords law to assist in detecting fraud in accounting data. Journal of forensic Accounting pp. 17-34.

Dycus, D.E. (2002). Auditing for fraud. In Association of Certified Fraud Examiners Training Seminar. *Association of Certified Fraud Examiners . Available Fac.. (Accessed on May 2014).*

Ebad, E.S. (2011). Internal auditing function: An *Exploratory Study from Egyptian Listed Firms. International Journal of Law and Management* 53(2),108-28.

Ebimobowei, A. & Kereotu, O.J. (2011). Role theory and the concept of audit expectation gap in south-south, nigeria. *Current Research Journal of Social Sciences* 3(6) 445-452.

Endaya, K.E. & Hanefah, M.M. (2013). Internal audit effectiveness: an approach proposition to develop the theoretical framework. *Research Journal of Finance and Accounting* 4(10), 92-202.

Enofe, A.O., Mgbame, C.J., Osa-Erhabor, V.E. & Ehiorobo, A.J.(2013). The role of internal audit effectiveness management in public sector *Research Journal of Finance and Accounting* 4(6), 162-168.

Ernest & Young. (2007). Global internal audit survey: A current state analysis with insight into future trends and leading practices. (Accessed online at www. Theia.org// download cfm? File=31923.

Ernst & Young. (2008). Escalating the role of internal audit: *Ernst & Young Global Internal Audit Survey.* (Accessible online @ http>//www.eg.com/global /content.nst /Internation/AABS. Advisory-Escalating the role of Internal audit June 2013).

Ernst & Young. (2012). The evolving role of internal audit: A proactie catalyst (Accessed online at www. Theia.org// download cfm? File=31923.

Fabiani. T, & Smirth. C, (2014). Strategic proactive fraud risk management and scenario assessment, *ACFE.*

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statisticalpower analysis program for the social, behavioral, and biomedical sciences. *Behaviorresearch methods, 39*, 175-191.

Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice, 40*, 532.

Friedberg, A. (1998). Ethical aspect of internal auditing. *Journal of Business Ethics* 17(8), 895-904.

Gavious, I. (2007). Alternative perspective to deal with auditor's agency problem. *Critical Perspective on Accounting*, 18(4), 451-467.

George, D., Panagirotis., Rania, V., & Evanthia, K. (2013). Assessment of corporate governance via internal audit.

Gbegi, D.O. & Adebisi, J.F. (2013). The new fraud diamond model: How can it help forensic accountants in fraud investigations in nigeria. european journal of accounting, auditing and finance research *1(4)*, 129-138.

Gbanbari, M.K. & Einakiam, M. (2014). Using data mining to detect frauds of internal audits. *Proceedings of 9th International Business and Social Science Research conference 6-8 January, Novotel World Trades Centre, Dubai. UAE.*

Ghoshi, M. (1993). Internal audit function and role of accounting education. *Economic and Political Weekly* 28 (48), M169-M171-M173-M176.

Gill, N.S. & Gupta, R. (2009). Prevention and detection of financial statement fraud: A data mining approach. *Journal of System Manager* (7),55-68.

Glein, N.I. (2004). CIA review part 1: Internal audit role in governance, risk and control 11th edition. *Florida, Glein Publication.*

Glein, N.I. (2004). CIA Review part ii: conducting the internal audit engagement, florid 11th edition. *Glein Publication.*

Godwin-Stewart, J., & Kent, P. (2006). The use of internal audit by australian companies. *Managerial Auditing Journal* (*2)* 18-101.

Goetzee, P.G. (2004). The effect of the hiv/aids on the control environment: An internal audit perspective. *University of Pretoria.*

Goodwin, J. (2003). The relationship between the audit committee and the internal audit function: Evidence from australia and new zealand. *International Journal of Auditing* 7(3), 263-278.

Gorden, L.A., Loeb, M. P. & Tseng, C. (2009). enterprise risk management and firm performance: a contingency perspective. *Journal Accountancy Public Policy (28*), 301-327.

Graham, J., & Patel, S. (2006). Internet-Based security monitoring and control for utility companies and process plants: Data technology review. *International Journal of Business IT* (*3),*28-33.

Gram, P., Ferguson, C., & Moroney, R. (2006). The value of internal audit in fraud detection.

Gramling, A.A., Maletta, M.U., Schneider, A. & Church B.K. (2004). The role of the internal audit function in corporate governance: A synthesis of the extent internal auditing literature and direction for future research. Journal of Accounting Literature *(23),* 194-244.

Gramling, A.A. & Myers. P. (2006). The role of internal audit function in enterprise wide risk management. *Working Paper.*

Grant Thornton. (2008). Managing fraud risk: The audit committee perspective.

Gray, I., & Manson, S. (2000). The audit processes, principles, practice and case, 2nd edition, *U.S. Thomson Learning.*

Grazuoli, S., Jamal, K., & Johnson, P.E. (2006). Cognitive approach to fraud detection. *Journal of Forensic Accounting* (*7)*,65-88.

Griffiths, D. (2006a). Risk-based internal auditing: An introduction, 15/03/2006, version 2.0.3. Online from http://www.internalaudit.biz/supporting-pages/ resources htm (assessed 15 May 2014).

Griffiths, D. (2006b). Risk-based internal auditing: Three views on implementation, 15/03/2006, version 1.0.1. Online from http://www/internalaudit. bit/sup-porting-pages/resources. htm. (Accessed 15 May 2014).

Guo, H. & Viktor, H./L. (2008). Learning form skewed class multi-relation database,. *Fundamental Information* (*89*),69-94.

Guy, D. M., Alderman, W.C., & Winters, A.J. (1996). Auditing, 4th edition, *U.S. The Dryden Press.*

Hamilton, D. I., Gabriel, J. M.O. (2012). Dimension of fraud in nigeria quoted firms. *American Journal of Social and Management Sciences.*

Heaston, P, H., Cooper, R. W. & Frank, G. L. (1993). The ethical environment of the internal auditor. *Internal Auditor* (June),18-23

Hodges, A. (2000). Emergency risk management. *Risk Management* 2(4), 7 – 18. *Published by Palamgrave Macmillan* .

Hoffman, V.B. (1997). Discussion of the effects of sas no 82 on auditors attention to fraud risk factors and audit planning decisions. *Journal of Accounting Research,* Vol. 35,99-104.

Hua, J., Patel, S. &Zaven, J. (2009). Securing business information system from cyber-attacks. *Journal Digital Business (3),*35-53.

Huang, S.M., Yen, D.C., Yang, L.W. & Hua, J.S. (2008). An investigation of zipf's law for fraud detection. *Decision Support System (46),*70-83.

Huang, H.W. & Thiruvaid, S. (2010). Audit committee characteristics and corporate fraud. *International Journal of Public Information System, (6*),71-82.

Hutchinson, M. & Zain, M. M. (2009). Internal audit quality, audit committee independence, growth opportunity and firm ownership and control. *University of Tech. Brisborn*

Ibrahim El-Sayed L.L. Bad. (2011). Corporate governance practice and auditors client acceptance decision: Empirical evidence.

Igbataya, S.(2011). The challenges of the global economic, crisis and nigerian's financial markets stability. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)* 2(6), 497-503.

Imemda, S. (2014). Is there a conceptual difference between theoretical and conceptual framework. J. *SOC. SCi*, 38 (3), 185-195.

11A. (2007). Balanced scorecard approach to internal auditing: GAIN bench marking.

11A. (2010). Measuring internal audit effectiveness and efficiency:IPP-Practice guide. *The Institute of Internal Auditors.* . Online @ www.theiia.org/guidance/ quality/9[a] manual -6th-edition.

11A. (2009). Gain global audit information network, knowledge report. . Online @ www.theiia.org/guidance/ quality/9[a] manual -6th-edition.

11A. (2009). GAIN, measuring internal audit performance, knowledge report. . Online @ www.theiia.org/guidance/ quality/9[a] manual -6th-edition.

11A.(2009). Annual benchmarking study. . Online @ www.theiia.org/guidance/ quality/9[a] manual -6th-edition.

11A. (2010). The 11A's quality assessment manual for internal audit activities. Online @ www.theiia.org/guidance/ quality/9[a] manual -6th-edition.

11A., AICPA., ACFE. (2009). Managing the business risk of fraud: a practical guide. Online @ www.theiia.org/guidance/ quality/9[a] manual -6th-edition.

.

Institute of Internal Auditors Birmingham Chapter BBVA. (2012). Fraud and internal audit: Current views, examples, and resources. Online @ www.theiia.org/guidance/ quality/9[a] manual -6th-edition.

Institute of Internal Auditors . (2009a). Global technology audit guide: Fraud prevention and detection in an automated world, *Altamonte Springs, FL.*

Institute of internal Auditors IIA. (2004). The role of internal auditing in enterprise-wide risk management. *Global Headquarters 247 Mariland Avenue Sydneys.*

Intakhan, P. & Ussahawanitchakit, P. (2010). Roles of audit experience and ethical reasoning in audit professionalism and audit effectiveness through a moderator of stakeholders pressure: An empirical study of tax auditors in thailand. *Journal of Academy of Business and Economics* 10(5), 1-15.

James, K.L. (2003). The effects of internal audit structure on perceived financial statement fraud prevention. *Accounting Horizons* 17(4), 315-327.

Kangarlouei, S.K., Motavasse, M., & Mohammadzadeh, V. (2013). Evaluation of internal audit effectiveness in tehran stock exchange. *International Journal of Advances in Management and Economics* 2(1), 77-82.

Kaplan, R.S., Norton, D.P. (1996). Using balance scorecard as a strategic managerial system. *Harvard Business Review* pp, 75-85.

Karagiorgos, T., Drogalas, G., Christodoulou, P., & Pazarskil, M. (2010). Conceptual framework, development trends and future prospects of internal audit: Theoretical approach.

Karmbia-Kapardis, M. (2002). Enhancing the auditor's fraud detection ability: An interdisciplinary approach. Available Online at http:/www. Peterlang.com/ index.cfm? Event. Cst.ebook.datasheet & id = 21612 (Assessed may 2014).

Kassem, R., & Higson, A. (2012). The new fraud triangle model. *Journal of Emerging Trends in Economics and Management Sciences* 3(3), 191-195.

Kaya, C. T. & Tez, N. E. (2014). Implementing the efficatious functioning IIA system in coping with fraud: A closer look at proposed continous auditing structure set forth by aguinot. *International Journal of Research in management and Business Studies 1(1) Jan.- March, 2014*

Keete, S.A. (2011). Covering the bases, risk assessment and legal issues at a cross roads: How risk management can save capitalism ,*ACFE*.

Kirkos, E.C., Spathis, C. & Manolopoulos, Y. (2007). Data mining techniques for the detection of fraudulent financial statement. *Expert System Application* (32), 995-1003.

Koletar., J.W. (2003). Fraud exposed: What you don't know could cost your company millions. *New Jessey John Willey & Sons Inc. Hoboken* .

Kolter, J.Z., & Maloof, M.A. (2006). Learning to detect and classify malicious exactness in the wild. *Journal of Machine Learning Research* (7*)*, 2712-2744.

Konrath, L.F. (1996). Audit concepts and application 3rd edition. *USA West Publishing Company* pp. 730.

Kothari. C.K. (2004). Research methodology methods and techniques. *New Delhi, New Age Int. Publishers.*

Kotsiantis, S., Koumanakos, E., Tzehepis, D., Tampakas V. (2006). Forecasting fraudulent financial statement using data mining. *International Journal of Computational Intell.* (3*)*, 104-110.

Kou, G., Peng, X., Chen, Z. & Shi, Y. (2007). Multiple criteria mathematical programming for multi-class classification in network intrusion detection. *Information Society* (179), 371-381.

KPMG. (2003). Leveraging data analytics and continuous auditing processes for improved audit planning, effectiveness and efficiency. Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

KPMG, L.L.P. (1994, 1995, 2013, 2014). Fraud survey. *Montvale, N.J; KPMG.* Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

KPMG, LLP. (1994. 1993). Fraud survey. Montvale. Available Online at http:/www. Peterlang.com/ index.cfm? Event. Cst.ebook.datasheet & id = 21612 (Assessed may 2014).

KPMG, LLP. (1999, 1998). Fraud survey. *Montvale, N.J.* Available Online at http:/www. Peterlang.com/ index.cfm? Event. Cst.ebook.datasheet & id = 21612 (Assessed may 2014).

KPMG. (2006). Fraud risk management: Developing a strategy for prevention, detection and response. Available Online at http:/www. Peterlang.com/ index.cfm? Event. Cst.ebook.datasheet & id = 21612 (Assessed may 2014).

KPMG. (2007). The evolving role of the internal auditor: Value creation and preservation from an internal audit perspective. Available Online at http:/www. Peterlang.com/ index.cfm? Event. Cst.ebook.datasheet & id = 21612 (Assessed may 2014).

KPMG. (2016). Top ten key risk in 2016: Banking and capital market. *Retrieval @(kpmg.com May 2017).*

Kraemer, H. C. & Theimann, S (1987). How many subjects? Statistical power analysis in research. *Newbery Park CA. USA.*

Lee, T., Alip, A., & Gloeck, J.D. (2008). A study of auditors' responsibility for fraud detection in malasia, southern african. *Journal of Accounting and Auditing Research* (8), 27-34.

Leshem, S., & Trafford, V. (2007). Overlooking the conceptual framework. *Innovation in Education and Teaching International* 44 (1), 93-105.

Leung, P., Cooper, B.J. & Roberson, P. (2004). The role of internal auditors in corporate governance and management, *Melboume Rmild Publishing*

Lewis, D., Joseph, S.C., & Roach, K.Q. (2011). The implications of the current global financial economic crisis on integration: The Caribean experience.

Liao, N., Tain S. & Wang, T. (2009). Network forensics based on fuzzy logic and expert system. *Computer Communication* (32) 1991-1892.

Liou, F. M. (2006). Fraudulent financial reporting, detection and business failure prediction models: A comparism. *Management Auditing Journal* (23), 650-662.

Loftus, L. (2011). Internal audits role in fraud prevention and detection. Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

Luehlfing, M.S., Daily, C.M., Philips, T.J., & Smith, L.M. (2003). Cyber crimes intrusion, detection and computer forensic. *Internal Auditing* 18 (5), 9-13.

Magid, A., Ferdinand, A.G., Judy, S.U.T. (2001). An analysis of hong kong auditors perception of the importance of selected red flag factors in risk assessment. *Journal of Business Ethics* 32 (3), 263-274.

Malaesca, I. & Sutton, S. G. (2013). The reliance of external auditors on internal audit use of continuous audit.

Marden, R., & Edward, R. (2005). Employee fraud in the casino and gaining industry. *Internal Auditing* 20 (3), 21-30. Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

Martin, A.G. (2013). Fraud risk assessment. Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

Martin, M.J., & Markus, A. (2009). A systematic framework for risk visualization in risk management and communication 11 (20), 67-89.

Mihret, D. G., James, K., & Joseph, M.M. (2010). Antecedents and organizational performance implications of internal audit effectiveness: Some propositions and research agents. *Pacific Accounting Review* 22 (3), 224-252.

Mihret, D.G., Yismaw, A.W. (2007). Internal audit effectiveness: An ethiopean public sector: Case study. *Managerial Auditing Journal* 22 (5), 470-484.

Muhammed, K., Ghambari, M. (2014). Using data mining to detect frauds of internal audit. *Proceedings of 9th international business and social sciences research conference Dubai UAE*

Mui, G. (2010). Factors that ,impact on internal auditors, fraud detection capabilities. *A Report for the Institute of Internal Auditors. Australia.* Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

Mukkamala S., Sung, A.H., & Abraham, A. (2005). Intrusion detection using an ensemble of intelligent paradigms. *Journal of Network Computer Application* (28), 167-182.

Mukkamala S., Janoski, G. & Sung, A. (2002). Intrusion detection using neural networks and support vector machines. *Proceedings of IEEE International Joint Conference on Neural Network* pp. 1702-1707.

Murphy, K. R & Myors, B. (2003). Statistical power analysis: A sample and general model for traditionaland modern hypothesis tests. *2nd Edition,Lawrence Eribean Associates*

Na Ranong, P. & Phuenngam, W. (2009). Critical success factors for effective risk management procedures in financial industries. *A Study from the Perspective of the Financial Institutions in Thailand.*

Namee, M.D., & George, M. (2008). Risk management: The internal auditors paradigm. *Florida Institute Of Internal Auditors Research Foundation.*

Nunnally, J. C., Bernstein, I. H., & Berge, J. M. F. (1967). *Psychometric theory* (Vol. 2): NewYork, NY: McGraw-Hill.

Nonyelum, O.F., & Chibueze, I. H. (2009). Credit card fraud detection using artificial neural networks with a rule-based components *KFAI University Journal of Science Technology* (5), 40-47.

Norman, C.S., Rose, A.M., & Rose, J.M. (2010). Internal audit reporting lines, fraud risk decomposition, and assessing of fraud risk. *Accounting, Organizations and Society* 35 (5) 546-557.

Nwana, O. C. (1981). Introductory to educational research. *Ibadan: Heinemann educational books ltd.*

Nzewi, U.C. (2004). Financial and investment analysis. *Onitsha Noben Press Ltd.*

Obazee, J. O. (2012). Financial reporting council (FRC): A vehicle for improving corporate financial reporting in Nigeria.

O'Connell, J.J. (1977). Now tools for risk management research. *The Journal Issues and Practices* 1(1), 16-20 Online@ http://www.jstorrorg/stable/ 41942935./ Accessed April; 2014.

Omar, N., and Abubakar, K.M. (2012). Fraud prevention mechanisms of malasian government linked companies: An assessment of existence and effectiveness. *Journal of Modern Accounting and Auditing 8*(1), 15-31.

Orogun, W. (2009). Bank distress in history. *Nigeria, Burning Pot Com-Burning Port.Com.*

Osisioma, B. C. (2012). Prevention in nigeria : Applying the forensic accounting. Three-Day workshop on the effective accounting officer in the current financial challenges. *University of Portharcourt* 2012.

Osisioma, B. C. (2012). Combating fraud and white collar crime: Lessons from Nigeria. *2nd annual fraud & corruption African summit* 2012.

Osisioma, B. C. (2012). Nigeria transition to international financial reporting standards: Challenges and implications.

Owolabi, A.I. (2012). Best practices for internal control roles and audit efficiency. *Being a paper Presented by ICAN president at 2012 Annual Retreat of the Internal Control and Audit Division Fidelity Bank Plc.*

Owolabi, S.A. (2013). Fraud and fraudulent practices in Nigeria banking industry. *African Review 4*(3), 24-256.

Patel, S. & Zaveri, J. (2012). A Risk assessment model for cyber attacks on information systems. *Journal of Computation* (5),352-359.

Passmore, D. L., & Baker, R. M. (2005). Sampling strategies and power analysis. *Research in organizations: Foundations and methods of inquiry*, 45-56.

PCAOB. (2007). Auditing standard no. 5: An audit of internal control over financial report that is integrated with an audit of financial statements.Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

Penton J. (2014). The role of data analytics in fraud prevention. Online at www.sopac.org.au /Document-Library/fac. (Accessed on May 2014).

Pickett, S.H. K. (2005). The essential handbook of internal auditing. *London: John Willy and Sons Ltd.*

Pickett. S.H.S., Pickett. J. (2005). Auditing for managers: the ultimate risk management tool. *London: John Willey and Sons, Ltd.*

Pornupatham, S. (2006). An empirical examination of earnings management, audit quality and corporate governance. *Thailand.*

Practice Advisory 1210. A2-1. (2006). Auditors responsibilities relating to fraud risk assessment, prevention, and detection. Interpretation of standard 1210az from the international standard for the professional practice of internal auditing, *Revised 4/27/2006*.

PricewaterhouseCoopers. (2010). State of internal audit profession, (Accessed online @ http://www.pwc.com /us/en/ Internal-audit/Publications/2010-study-internal – audit-profession htm/June 2013).

PricewaterhouseCoopers. (2003). Building a strategic internal audit function: A ten step frameworks. . (Accessed online @ www. Knowledge leader.com. vol. vi June 2013).

Protivit, Knowledge Leader. (2010). Internal auditing around the world: Profiles of technology-enabled internal audit functions. *@ Leading International Companies, Protivit knowledge leader*. (Accessed online @ www. Knowledge leader.com. vol. vi June 2013).

Protivit. (2013). Internal audit capabilities and needs survey report. . (Accessed online @ www. Knowledge leader.com. vol. vi June 2013).

PWC. (2011). Global economic crime survey (gecs) Online @ http://www.pwc.com/gx/en/weconomic-rime-survey/index. jhtm *5th June 2014l.*

PWC. (2004). The emerging role of internal audit in mitigating fraud and repudiating risk. . (Accessed online @ www. Knowledge leader.com. vol. vi June 2013).

Kurkos, E., Spathis, C. & Manolopoulos, Y. (2007). Data mining techniques for the detecting of fraudulent financial statements. *Expert System Application* (32), 995-1003.

Radu, M. (2012). Corporate governance, internal audit environmental audit-the performance tools in romanian companies. *Accounting and Management Information Systems 11* (1), 112-130.

Rammamoorti, S. (2008). The psychology and sociology of fraud: integrating the behavioral sciences component into fraud and forensic accounting curricula. *Issues in Accounting Education* 23 (4), 521-533.

Rammamoorti S. (2003). Internal auditing: history, evolution, and prospects. *The Institute of Internal Auditors Research Foundation.* Online @ http://www.pwc.com/gx/en/weconomic-rime-survey/index. jhtm *5th June 2014l.*

Reding, K.F., Sobel, P.J., Anderson, U.L., Head, M.J., Ramamoorti, S. & Salamaslck. (2007). Internal auditing: Assurance & consulting services. *The Institute of Internal Auditors Research Foundation, Altamonte Spring, FL*.

Robu, Loan-B., Chesan, Lonela –C., Mironiac, M., & Carp, M. (2012). Empirical study on the assessment of the auditors responsibility regarding the risk of financial fraud. *Communication of IIBIMA, Vol. I.*

Rousseau, D. M. & Tijoriwala, S .A. (1998). Assessing psychological contracts issues, alternatives and measures. *Journal of Organisational Behavior* vol. *19.*

Rousseau, D .M & Mclean, P. J. (1993). The contract individuals and organizations. *Research On Organisational Behavior* (15), 1-43.

Saad, E, B. & Cedric, L. (2009). Why are auditors over blamed in accounting fraud. Online @ http://www.pwc.com/gx/en/weconomic-rime-survey/index. jhtm *5th June 2014l.*

Salameh, R., Al-Weshah, G., Al-Nsour, A. & Al-Hiy- ari, A. (2011). Alternative internal audit structure and prevention: Effectiveness of internal audit in fraud prevention: Evidence from jordan banking industry. *Canadian Social Science* 7(3), 40-50.

Salawu, R. S. & Agbeja, O. (2007). Auditing and account ability in the public sector. I*nternational Journal of Applied Economics and Finance* 1(1), 45 -54.

Samciukas, M., & Iyer. (2013). A short guide to fraud risk: Fraud resistant and detection. *Edited by Helenne Doody*.

Sanver, M. & Karahoca, A. (2009). Using fraud detection: An adaptive neuro-fuzzy inference system in mobile telecommunication networks. *Journal of multiple-valued Logic Soft Compute* (155), 155-179.

Sarens, G. & Christopher, J. (2010). The association between corporate governance guidelines and risk management and internal control practices evidence from comparative study. *Management Auditing Journal* 25 (4), 288-308.

Selehi, M., & Azary, Z. (2008). Fraud detection and audit expectation gap: Empirical evidence from iranian bankers. *International Journal of Business and Management* 3 (10), 65-77.

Service Matters. (2013). Adding value: The new role of internal audit. . (Accessed online @ www. Knowledge leader.com. vol. vi June 2013).

Sharma, V.D. (2004). Board of directors characteristics: Institutional ownership and fraud: Evidence from australia, auditing. *A Journal of Practice & Theory* 23 (3), 105. Online @ http://www.pwc.com/gx/en/weconomic-rime-survey/index. jhtm *5th June 2014l.*

Shortreed, J., Fraseer, J., Purdy, G., & Schanfied, A. (2012). The future role of internal audits in enterprise risk management. . (Accessed online @ www. Knowledge leader.com. vol. vi June 2013).

Shu, L., Mina, P., Mark, V., Bardthan, I.R. (2001). The role of the internal audit function in the disclosure of materials weakness. *The Accounting Review* 86 (1), 287-323.

Silverstone, H., & Sheetz, M. (2005). Forensic accounting and fraud investigations. . (Accessed online @ www. Knowledge leader.com. vol. vi June 2013).

Siripan, K. & Rutgers. (2013). The predictive audit framework. *The State University of New Jersey*. Online @ http://www.pwc.com/gx/en/weconomic-rime-survey/index. jhtm *5th June 2014l.*

Sonnier, B.M., Lasser, S.S., & Lasser, W.M. (2012). An examination of the influence of audit firms size and industry specialization on juror evaluation of liability. *Journal of Forensic Investigative Accounting* vol. 4(1).

Staciokas, R, & Rupsys, R. (2005). Application of internal audit in enterprise risk management. *Engineering Economics* 2(42). Online @ http://www.pwc.com/gx/en/weconomic-rime-survey/index. jhtm *5th June 2014l.*

Stephens, M. A. (1974). EDF statistics for goodness of fit and some comparisons. *Journal of the American Statistical Association, 69*, 730-737.

Stein, W. & Crawford, M. (2015), The changing role of internal auditor. *Glasgow Caledonian University. Journal of Finance and Management in Public Service vol.4(244).*

Stoneburner G., Goguen., Feringa, A. (2002). Risk management guide for information technology systems. *Recommendations of the National Institute of Standards and technology, Special Publication*.

Stribu, D., Moraru, M., Farcane, N., Blidset, R., & Popa, A (2009). Fraud and error in auditors' responsibility levels. *Annales University Apulensis Series Occonomica,* 11(1),5.

Sulivan, G. M., & Anthoney, R. A. (2013). *J. Grad . Med. Educ. Dec 5(4) 541-542*

Taylor, J. (2011). Forensic accounting. *England, Ft Prentice Hall*.

The Institute of Chartered Accountants of England and Wales (ICAEW), (2004). The internal audit function guide for audit committee. online@ http://www.the iia.org.

The Institute of Internal Auditors, 11A. (2014). Internal audit quality assessment presented to world intellectual property organization. online@ http://www.the iia.org.

Theofanis, K., Drogals, H., Giovanis, N. (2011). Evolution of the effectiveness of internal audit in greek hotel business. *International Journal of Economics Sciences and Applied Research* 4 (1), 19-34.

Thiruvadi, S., & Patel, S.C. (2011). Survey of data-mining techniques used in fraud detection and prevention. *Information Technology Journal*, (10) 710-716.

Thomas, C.W. & Clement, C.E. (2002). The internal auditor's role in the detection and prevention of fraud: A post-sas no 82 analysis. online@ http://www.the iia.org.

Truman, E.M. (2009). The global financial crises: Lessons learned and challenges to developing countries. *Remarks at the Eighteenth Cycle of Economics Lectures, Banco De Guatemate.*

Tucker, R.R., & Kasper, J. (1998). Pressures for change in environmental auditing and in the role of the internal auditor. *Journal of Management Issues* 10 (3), 340-354.

Turner, J. L., Mock, T.J., & Srivastava, R. P. (2003). An analysis of the fraud triangle. online@ http://www.the iia.org 20/5/14

Unegbu, A. O., & Kida, M.I. (2011). Effectiveness of internal audit as instrument of improving public sector and management sciences *2*(4), 304-309.

United Nation. Conference on Trade and Development. 2010. Responding to the challenges posed by the global economic crisis to debt and development finance. *United Nations New York General.*

Uzoagulu, A.E. (1998). Practical guide to writing research project report in tertiary institutions. *Enugu, John Jacob's Classic Publishers Ltd.*

Vasile, E., Croitora, I. & Mitran, D. (2012). Risk management in the financial and accounting activity. *Internal Auditing and Risk Management Annual* 1 (25), 13-24.

Walker, P.L., Shelnkir, W.G. & Barton, T.L. (2002). E.R.M: Putting it all together. *Altamonte Springs, FL, Institute of Internal Auditors Research Foundation.*

Wallace, W. & Kreutz Feldt, R. (1991). Distinctive characteristics of entities with an internal audit department and the association of the quality of such departments with errors. *Contemporary Accounting Research* 7 (2), 485-512.

Wang, J. & Yang, J.G.S. (2009). Data mining techniques for auditing attestation function and fraud detection. *Journal of Forensic & Investigative Accounting* 1 (1).

Welch, S., Holmes, S. A. & Straver, R. H. (1996). The inhibiting effect of inernal auditors on fraud. *Internal Auditing* 12 (2), 23-32.

Williams, E.J. (2002). The impact of globalization on internal auditors: The evolution of internal auditing. *Brigham Young University*. online@ http://www.the iia.org 20/5/14

WIPO (2010). evaluation of internal audit function. *WIPO General Assembly, thirty-Ninth 20th Extraordinary Session Geneva*. online@ http://www.the iia.org 20/5/14

Wolfe, J.B. (2012). Effective data mining for financial service companies. *The 11A Research foundation report. Third Quarter.* online@ http://www.the iia.org 20/5/14

Woods, M. (2009). A contingency theory perspective in the risk management control system within birmingham city council. *Management Accounting Research* (20), 69-81.

XU, J., Sung, A.H., & Liu, Q. (2007). Behavior mining for fraud detection. *Journal of Research and Practice Information Technology* (39), 3-18.

Ziengenfuss, D. E. 2000. Measuring performance. *The Internal Auditor* 57 (1), 36-40. online@ http://www.the iia.org 20/5/14

APPENDIX 1

QUESTIONNAIRE

Ugwu Ikeckukwu .V.
Dept of Accountancy
Nnamdi Azikiwe University
Awka, Anambra State
08058687142.
February, 2016.

Dear Respondent,

Topic: "Application of Internal Audit Function in Fraud Risk Management-An Empirical Study"

This study is part of my work for the award of doctoral degree in accountancy. I plead with you to assist me in completing this questionnaire for this study. I will treat the information provided confidentially. Tick your opinion and comment where necessary.

I therefore appreciate your kind urgent response to this. Thanks.

Instructions:

i) Please tick (√) in your opinion as provided in each of the questions.

ii) State other comments if need be.

SECTION 1

PERSONAL DATA

i) Gender Status: Male ☐ Female ☐

ii) Job Description: [Fraud Auditor] [Internal Auditor]
[Accountant]

iii) Present Academic Qualification: [B.Sc.], [HND], [PhD], [MBA], [MSC].

iv) Years of experience (not more than 5 years), (6 – 10 years), (Above 10 years)

v) Professional membership if any? (ICAN), (ANAN), (AIB), (ACCA),(Others) supply……

vi) Industry specification. Banking ( ), Chartered Accountant ( )

Fraud risk management is defined as a function of internal audit data-mining function ,internal audit proactive function, internal audit ongoing function and internal audit interactive function as an independent assessment to assist corporations attain its

objectives in a systematic and disciplined approach to evaluate and improve the effectiveness of risks management and internal control systems with corporate governance in compliance with the law.

Please, indicate the extent to which you agree or disagree using the key. Key: SA = Strongly Agree; A = Agree; SD = Strongly Disagree; D = Disagree; U = Undecided. 1

To what extent do you agree that the following Internal Audit function combats fraud risk in banks:

		SA	A	UN	D	SD
A	**Data-mining function**					
1	-Employment of a type of a computer that uses a systematic sentence enquiry? (Data-mining audit interrogation)					
2	- Make use of different computer programs that work together through trial and error in audit to detect fraud? (Data-mining neural networks)					
3	-Include capable programmed languages that identify fraud patterns in an audit functions? (Data-mining machine learning techniques)					
4	-Include capable programmed languages that identify fraud patterns in an audit functions? (Data-mining machine learning techniques)					
5	-Employ a technique that reveals where errors and frauds are hidden in large information? (Data-mining link analysis)					
6	-Employ a technique that reveals where errors and frauds are hidden in large information? (Data-mining link analysis)					
B	**Proactive Function**					
7	Managing the risk identification processes set in place and also ensures a dynamic risk analyses? (reports on sustainability and none financial communications).					
8	-Internal audit is given freedom to examine every aspect of business initiations and report on their finding?					
9	-Working with a new mind set towards everyday risk development: from the use of computer technology, from new products, from international business initiations and from the award of contracts in the organization?					
10	-Advising the audit committee effectiveness such as training them and improving in the risk control and - examining the management decision processes in the organization? (Advisory roles and decision making processes).					
C	**Ongoing Function**					
11	-Strict adherence to laid down rules in risk management?					
12	-Assigning groups or individual auditors in continual fraud risk audit and summery and, -Ensuring timely communicated internal audit report?					
13	-Issuing assessment processes, supporting audit plan, design and,					

	-Ensuring that risk assessment is updated?					
14	-Ensure that there is always audit performance that covers the audit scope and work design?					
D	**Interactive Function**					
15	the senior executive to establish internal control, maintain and review existing internal control to discover new development and ensure ways to manage them?					
16	Interaction with audit committee to establish appropriate and effective internal audit function?					
17	-Interaction with Chief Audit Executive to ensure quality and effective audit performance in all risk control?					
18	The External Auditors (-to produce synergy on both internal and external risk management and internal control systems).					

APPENDIX 2

Reliability Statistics

Cronbach's Alpha	N of Items
.822	6

Item-Total Statistics on data mining function

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Audit Interrogation	22.73	46.064	.873	.699
Neural networks	23.20	46.209	.730	.813
Machine learning	22.89	47.101	.756	.710
Algorithm	23.36	43.689	.863	.898
Business Intelligence	23.00	44.318	.821	.803
Data mining link	22.73	50.291	.529	.833

APPENDIX 3

Reliability Statistics

Cronbach's Alpha	N of Items
.699	4

Item-Total Statistics on Proactive Function

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Involvement in more financial reporting	27.96	44.862	.726	.677
Focus on risk processes such as its management	27.78	46.859	.646	.685
Focus on emerging risk such as IT, new product risk , international operations, etc	27.69	47.674	.768	.692
Advisory roles and decision making processes	28.11	52.419	.691	.728

APPENDIX 4

Reliability Statistics

Cronbach's Alpha	N of Items
.714	4

Item-Total Statistics on Ongoing Function

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Assessment processes to Support audit plan and design	26.09	54.356	.757	.600
Periodic audit summaries, reporting	26.82	48.649	.663	.790
Updated risk assessment	25.69	58.083	.624	.711
Audit performance which includes scope, work papers, report and tracking	26.47	52.073	.755	.750

APPENDIX 5

Reliability Statistics on Interactive Function

Cronbach's Alpha	N of Items
.739	4

Item-Total Statistics on Interactive Function

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
The Senior / Executives	34.96	85.180	.857	.727
The Audit Committee	34.96	84.953	.854	.727
The Chief Audit Executives CAE	34.84	85.407	.794	.730
The external Auditor	35.64	82.280	.877	.726

Appendix 6

QUESTIONNAIRE/INTERVIEW FOR INTERNAL AUDITORS

From the following statement, please identify the application common in your organization's internal audit fraud risk combats.

-Employment of a type of a computer that uses a systematic sentence enquiry? (Data-mining audit interrogation) - Make use of different computer programs that work together through trial and error in audit to detect fraud? (Data-mining neural networks) -Include capable programmed languages that identify fraud patterns in an audit functions? (Data-mining machine learning techniques) -Employ a program that uses a precise rule that specify how to solve identified problems in audit? (Data-mining business intelligence) -Employ a technique that reveals where errors and frauds are hidden in large information? (Data-mining link analysis) -Employ a type of auditing machine that is used to detect fraud in audit? -Managing the risk identification processes is set in place and also ensures a dynamic risk analyses? -Internal audit is given freedom to examine every aspect of business initiations and report on their finding? -Working with a new mind set towards risk development everyday, from the use of computer technology, from new products, from international business initiations and from the award of contracts in the organization? - Advising the audit committee effectiveness such as training them and improving in the risk control? - Examine the management decision processes in the organization? -Strict adherence to laid down rules in risk management? -Assigning groups or individual auditors in continual fraud risk audit and summery? -Ensuring timely communicated internal audit report? -Issuing assessment processes and support audit plan and design? -Ensure that risk assessment is updated? -Ensure that there is always audit performance that covers the audit scope and work design?	yes	No

-Often have meetings with the senior executive to establish internal control, maintain and review existing internal control to discover new development and ensure ways to manage them? -Interaction with audit committee to establish appropriate and effective internal audit function? -Interaction with Chief Audit Executive to ensure quality and effective audit performance in all risk control? -Interaction with external auditors on better management of fraud risk?		

REQUEST

Ugwu Ikeckukwu .V.
Dept of Accountancy
Nnamdi Azikiwe University
Awka, Anambra State
08058687142.
February, 2016.

Dear Respondent,

REQUEST FOR THE FIGURES (NUMBERS) OF THE FOLLOWING STAFF IN YOUR BANK TO FORM THE POPULATION FOR MY PhD STUDY.

The topic of my study is "Application of Internal Audit Functionj in Fraud Risk Management: An Empirical Review."

This study is part of my work for the award of doctoral degree Ph.D in accountancy. I plead with you to assist me in giving me the accurate number of the following staff in all your branches within Enugu zone. Also, kindly state the number of functioning branches you have within the zone. I promise that the name of your bank will not be stated and that any information shall be treated private and shall not in any form be divulged.

	No of Permanent staff	No of contract staff
1) Control (fraud)Officers,	----------	----------
2) Internal Auditors,	----------	----------
3) Accounting Officers,	----------	----------
4) Customer Service Officers.	----------	----------

5) Number of functioning branches you have within Enugu Zone ----------

I therefore appreciate your kind urgent response to this. Thanks.

Yours Faithfully

Ugwu Ikechukwu Virginus

Reg. 2011387012f