

EXPLORATION OF ALTERNATIVE STRATEGIES FOR FUNDING PRIVATE UNIVERSITY EDUCATION IN NIGERIA

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Abstract

Nigeria as a developing nation is witnessing increased enrolment of university students; this then demands equal increase in funding which is not yet met in Nigerian Public Universities. **As a result, the government allowed spring up of private universities to help absorb the numerous Jamb students that are unable to gain admission into public universities. This research was necessitated by the funding requirement of private universities in Nigeria amidst series of academic requirements by the necessary authorities. A survey research design was adopted for data collection. Structured questionnaire was utilized, with a reliability index of 0.876, together with percentages and frequency statistics represented in column were utilized in displaying the results. ANOVA was used to test the hypotheses at 0.05 level of significance and the results concluded that there are various funding strategies untapped for funding private universities in Nigeria. The study recommend that fund raising activities are good and untapped funding strategies of fund raising in public universities in Nigeria; also, use of research products and services fund raising activities are alternative source of fund raising in public universities in Nigeria. The above strategic sources of fund raising recommended would raise adequate funds available for universities;**

Key words: Strategic, Sources, Funding, Public universities, Nigeria

Introduction: Nigeria as a developing nation is witnessing increased enrolment of university students. This increase in enrolment demands equal increase in funding which is not the case in Nigeria. Fund allocation does not increase to meet the demand of funds occasioned by the enrolment increase (Akpan, 2008). This has shown that government had never met the amount required by the universities. However, Government had ordered Universities to raise funds internally. Universities actually, made efforts to raise funds but still **suffer difficulties of raising fund and lack of well experienced administrators with little or no experienced methods of raising funds definitely have bad consequences on teaching and research (Akinyemi, 2013).**

In the views of Ezeugbor and Obi, () Education is the most important instrument of change, as any fundamental change in the intellectual and social outlook of any society has to be preceded by an educational revolution. The fulfillment of this role lies on funding and administering sound functional education policies. The federal government of Nigeria realizes this and this is why it provides funds for federal universities throughout the country (Amadi, 2007). In spite of the efforts of the various governments of the federation to provide funds for university education, and/or the huge amount of money expended, universities still lack funds for expansion and admission of the increased student's enrollment and various programmes.

According to Nwakpa, (2016) Education is the process through which individuals are to actively participate in the growth and development of their society. It is the system through which man becomes a moral agent capable of living in society peacefully and harmoniously among others. Education is the process through which man realizes his potentialities and uses them for, self fulfillment in the services for all. Education is the cornerstone of a nation, culture and an absolute necessity for economic prosperity and development. There is hardly any household in this state that is not concerned about the state of our education system particularly the university system.

Saumen, C. (2020) examine the rationale behind public funding of universities to achieve efficiency, equity and excellence in the wake of controversy surrounding fee hike in Jawaharlal Nehru University. The paper argues why in the context of a developing country, public funding remains the most preferred source. However, the university community should reflect on their role and make sure of best possible utilization of resources Therefore with

reduced levels of public funding together with increased competition, private universities in Nigeria must work harder to make resources enough to support research and teaching. In Nigeria, where universities are traditionally funded by government, fundraising for universities are often very challenging as most people do not understand the role and purpose of university education

Private universities ought not rely on their core funding but greatly diversify their income sources as donation box curation follows:

Mind your communication; here, the university fund raising should be down to earth and focus on the donor not on the university. Words like this should be used; your gift helps kings to support the breast and best students in fulfilling potentials.

Alternative Sources of Financing Private University Education in Nigeria:

Cost creative fund raising events like one-day online, guest speaker; foot-ball;

Donation match drive fund raising events; operation show your handwork is better than increase in tuition, education levy, privatization as alternative sources of fund raising. Even the following events like embarking more on 3 face book live fund raising; personal challenge events as alternative means of funding your university; and Gulf marathon fund raising events and peer to npeer fund raising events in universities.

Saumen, (2007) state that Higher education holds the key to "inclusive growth" and to lead in the world of knowledge production. The mode of financing higher education is crucial for understanding how higher education is provided to society and at what price. Despite recent increases in budgetary allocation for higher education, the importance of exploring alternative sources of financing higher education remains. This paper reviews literature on government intervention in education and discusses the pros and cons of some alternative sources of financing higher education from the point of view of social justice and efficiency in allocation of resources. It argues that keeping in mind India's imperatives, the government has to continue to play a leading role in the provision of higher education. Among the measures suggested, fee enhancement and education loans are of limited significance in a country like India.

The university education in Nigeria is in a deplorable condition. Lecturers in universities are demoralized and disenchanted, as the system now produces millions of virtually illiterate young people who roam the streets and villages in search of employment that is not even available. Currently, university education is tuition free is quite high and it is principally financed by the parents and government. Worse still, the state allocation to universities education is always very slim, and this does not encourage successful achievement of university education goals. Nwakpa maintained that Education financing as a branch of knowledge that deals with important examinations of cost versus expenditure in the production of educational services. However, government alone cannot adequately finance universities; therefore, strategic alternative funding of financing universities becomes necessary and inevitable. Nevertheless, in financing Education there are certain costs that must be borne by government if we must achieve universal access to education.

As at 2020, we have 79 Private Universities in Nigeria; 43 Federal Universities and 48 State Universities. The Private Universities includes: Evangel University; Covenant University; Caritas University; Coal City University; Godfrey Okoye University; Igbinedion University, Okada among others. Their fees range as follows:

	₦
Babcock University	700,000
Roma	800,000
Gregory University	500,000
Uturu	1,500,000
Igbinedion University	500,000
Okada	800,000
Covenant	700,000
Oba	800,000
Cheap Private Universities in Nigeria with their tuition fee;	
	₦
Oduduwa University	164,000
Obong University Ntak	170,000
Rhema University Ntak	313,000
Babcock University	340,000

Adeleke University	350,000
Covenant University Ota	432,000
Crawford University	450,000
Ajayi Crowther University Oyo	500,000
B.I.U.(Ben Idahosa University Benin City	500,000
African University	1,000,000
American University of Nigeria, Yola	1,000,000
Nigerian Turkish Nile	1,000,000

PRICE RANGE

Caleb University, Lagos	N400.000- N500,000
Lead City University Ibadan	N500.000-N600.000
Achievers University Owo	N400.000-500.000
Christopher University Mowe	N400.000-500.000
Crescent University Abeokuta, Ogun State	
Babalola University, Ikeja	
Arakeji Lead City University, Ibadan and many more	

Source: University Campus/Exclajah 2020

Gone are the days when people see students of private university as inferior and on low academic class compared to students of Federal or state universities. However, private universities in Nigeria stepped up academically; they are gradually taking over from most federal universities. Also, their hard work put into their development is evident, from the qualified academic staff and non-academic staff they recruit to the general level and style of teaching and training their students, one can only but admire these private universities.

Nigerian Price

Fee subject to change at the description of school managers, their fees from time to time either increase or decrease. Fees paid on installment i.e. 1st and 2nd semester. Some fees are broken down by department and levels. Some private universities in Nigeria pay low tuition fee when compared with their state counterpart, it would be worthy to note.

The only down side to the private university system of education is the exorbitant fees and charges which is not easily affordable to everyone but the truth is many of these private universities have structured assignments that makes payment of fees less of burden to parents and guardians unlike in the past where it was designed to be paid in lump sum. Some university give students opportunity to pay in bits or break down fees in 3 (three) installments or allow up to four installment payments.

Private schools boasts of a smooth calendar that is not hindered by strike action as very well noticed in the public schools and still maintain a great standard of learning. The number of private university in Nigeria has increased tremendously within the last decade.

Statement of the Problem

Fund allocation does not increase to meet the demand of funds occasioned by the enrolment increase in public universities (Akpan, 2008). This has shown that government had never met the amount required by the universities but has resorted to spring-up of private universities nationwide; with these private universities left alone to fund their universities to NUC standard. Private university system of education is known for the exorbitant fees and charges which is not easily affordable to everyone. This increase brought about a stiff competition in the quality of education available in the nation presently, as this motivated this study into accessing various other alternatives strategies to be explored in funding university other than high school fees for 2020/2021 academic session.

Purpose of the study: The main objective of the study is to explore alternative strategic sources of funding private universities in Nigeria. The specific objectives of the study include the following:

1. To determine the extent to which private universities explore alternative strategies for fund raising events like no staff hotel fund raising as an alternative fund raising activities.
2. To find out the extent to which use of one-day online, as an alternative strategic funding event is effective in private university.
3. To determine the extent to which private universities are engaged in exploring

alternative fund raising events like foot-ball fund raising as an alternative strategic fund raising activities.

4. To assess the extent to which private universities explore guest speaker event as a strategic alternative fund raising.
5. To find out the extent to which use of Donation match drive fund raising events, as an alternative strategic funding event.

Research Questions: To achieve the objectives of the study, the following research questions were asked and their answers discovered in the course of the study.

1. To what extent does private universities explore alternative fund raising events like no staff hotel fund raising event is an alternative fund raising activities?.
2. How does use of one-day online, as an alternative strategic funding event in your university perform?
3. To what extent is the use of football fund raising event effective on your Private university fund raising activity?
4. What is the impact of guest speaker activities fund raising event as a strategic fund raising in private university?
5. To find out the extent to which use of Donation match drive fund raising events, as an alternative strategic funding raising event.

Hypotheses of the Study: The following hypotheses were formulated in the Null form

H₀₁: Use of no staff hotel fund raising events is not significantly a strategic alternative source of fund raising of private universities in South-East, Nigeria.

H₀₂: Use of one-day online, as a strategic alternative funding event is not significantly an alternative source of funding to the private universities in Nigeria.

H₀₃: Use of football fund raising event is not significantly effective on your Private university fund raising activity.

H₀₄: Use of guest speaker activities fund raising event is not significantly a strategic fund raising source in private universities

H₀₅: Use of Donation match drive fund raising events is not significantly a strategic alternative funding event in private universities.

REVIEW OF RELATED LITERATURE

In the opinion of Lawal, *, and Umar, (2013) the funding of academic institutions has always been a problematic issue irrespective of the economic environment within which the institutions operates. For this reason, universities in both the developed world and to some extent in developing countries including Nigeria, are constantly exploring ways of achieving financial self-sufficiency. This is supported in the Nigerian National Policy on Education (Section 8:2004, revised) stating “Universities and other tertiary institutions are encouraged to explore other sources of funding such as endowments, consultancy services and commercial ventures”. Thus handling financial resources for academic institutions has posed a threat to the quality of their programs and hence the products. The researchers suggests awareness for addressing the issue of financial shortfalls in Nigerian universitie; which is achieved through detailed explanations of some possible avenues by which funds may be sourced to finance university programs and activities. Additionally, they provide insights on various external constrain on educational costs.

Maintaining, that in Nigeria the massive cutback in social expenditure including the support for education have been drastically reduced. As it were, the greatest problem facing the Nigerian institutions of higher learning even prior the advent of the global meltdown had always been that of under-funding. Therefore apart from further decline in allocation of funds to these institutions which we have been witnessing since the global meltdown started, other effect of this phenomenon on the universities have shown to include decreased acts of giving such as philanthropy, donations, grants, sponsorship, awards, endowment thereby compounding the funding problems of universities with regard to research and access to the identified capacity platform. The issue here is government alone may not be able to undertake the great task of funding universities. This brings about the search for alternative sources through which school oriented projects can be undertaken, As such various suggestions have been canvassed as to how the nation should mitigate the effect of the meltdown. In particular, it has been agreed that our universities have the obligation to lead our economic recovery and national regeneration efforts. Therefore it goes without saying that our respected academicians and university administrators have to buckle up to confront the emerging challenges squarely if the universities are truly the last hope of the people in this situation.

The question now is what then how these institutions can make judicious use of the little they can get from proprietors and the challenge of exploring other ways to boost their internally

generated revenue and maintaining existing infrastructure to extend their longevity. The challenges are as much for the management as that of the entire workforce. Based on the foregoing Lawal, et al, (2013)I suggest as follows: through contributions from non-governmental sources; Community based associations, NGOs, Philanthropist, Alumni Associations, PTA; Consultancy, Revenue generating ventures (self-financing academic ventures, university press, micro-finance bank, distance learning, cottage industry, guest house, computer services etc).So also other measures could be through reviewing their manpower planning and forecast, charging tuition fees, external collaboration / private contributors/International donors have to come in. Endowment funds are also a recent introduction to assist educational establishment especially secondary and tertiary institutions in executing their development plans and finally the culture of emphatic communication should be enthroned. Thus for the achievement of the stated goals of education, everyone should join hands in financing education. Apart from the government, everyone should help in funding higher education so as to achieve the stated goals. A reliance on foreign aid to which certain buying terms are attached can be a way of importing inflationary (Lawal, 2013)

Shortage of manpower retards economic and social development of a nation (Mbipon2000). Therefore, in planning education it is pertinent to consider economic planning and the manpower need of the economy. The right amount and kinds of manpower in various sectors of economy should be produced. A huge amount of money is needed for this manpower production (Lawal, 2013).

Funding by the University: Each private university can help source for funds in different ways; These are: philanthropy is alive and well; Get on board with the Digital and the New; showcase impact; Integrate a Donation form on each page; Pay attention to Donor stewardship; Offer multiple ways to give; Offer specific projects or campaigns; Focus on community building; mind your communication; among others. Since government in both developed and developing countries is cutting funding, universities are forced to adapt fast to the above means of exploring alternative funding.

Tuition Fees: Private Universities receive a reasonable proportion of their revenue through students' fees. Adeyemi and Osunde (2005) also remark that the part-time programmes are

offered on a ‘for-profit’ basis (profit making venture), which in turn financially subsidize regular students’ fees.

Bilkisu, (2018) examined financial management practices of secondary school principals in Kaduna State. Four research questions and two null hypotheses were formulated to guide the study. The study employed a survey research design. The population was not sampled due to the manageable size hence 624 principals of government grant aided secondary schools were used. A forty seven item questionnaire was administered on 312 junior principals and 312 senior principals respectively. Mean rating and standard deviation were used to answer the four research questions while t-test statistics was used to test the two null hypotheses. The test of the two null hypotheses showed that there was no significant difference in the mean ratings of junior and senior secondary school principals on sources of funds for secondary schools, and there was no significant difference in the mean ratings of senior and junior secondary school principals on how funds are managed in secondary schools in Kaduna State. The findings of study revealed that principals explore other sources of funds such as P.T.A. levies, funds from school farms, magazines, speech and prize giving day, and canteens. Money raised from these sources are included in school budget therefore such funds are accounted for. Budgetary plans are made in collaboration with heads of department but not strictly adhered to in terms of implementation. Furthermore, the findings showed that there were several factors militating against financial management such as ghost workers, untimely disbursement of funds, lack of ICT training in the bursary department and neglect of internal auditing.

Akinyomi, (2012) suggests the problem of funding universities in developing economies has become a reoccurring problem often resulting in calamitous effect on teaching and research, and intellectual capital flight of academics. The inadequate funding of universities in developing countries especially West Africa is a prime cause of other problems that have undermined quality in university education. With the level of funding in tertiary institutions in West Africa, there is the need to evolve some funding strategies that will make it possible for the universities to achieve qualitative education. In view of the above, this paper examines funding strategies for qualitative university education in developing economies using the experiences of the Nigerian Universities as a case study. This paper made use of secondary data which were collected from the Federal Government of Nigeria’s Office of Statistics and National Statistics Bureau. The

tuition fees analyzed in this paper were collected from the admission offices of the six public universities purposively selected from 72 public universities (both federal and state universities) in Nigeria. Since the pursuit of qualitative university education bothers on all stakeholders – the government, parents, individuals, firms and cooperate bodies, this paper therefore recognizes funding as an external factor and a necessary condition for achieving qualitative university education in developing economies.

Akinyomi, (2012) To State Universities: The state universities equally receive subvention from the state governments through appropriation on education. Some state universities also, in addition, receive deduction from their Local Governments' allocation accruing from Federation Account. 3.1.3 To Private Universities The private universities receive subvention from their proprietors. 3.2 Internally Generated Revenue (IGR) As a means of finding solution to the unending financial problems in the nation's universities, the Federal Government directed each university to generate at least 10 percent of its total revenue. In response to this, the universities expanded the scope of their internally generated revenue to include the following: **Cost creative fund raising events is an alternative strategic funding activities in your University's funding like one-day online; guest speaker; football; skydive; 5k/marathon;**

Donation match drive fund raising events and operation show your handwork is better than increase in tuition, education levy, privatization as alternative sources of fund raising

Tuition Fees: Private Universities receive a reasonable proportion of their revenue through students' fees. Adeyemi and Osunde (2005) also remark that the part-time programmes are offered on a 'for-profit' basis (profit making venture), which in turn financially subsidize regular students' fees.

Various traditional sources for funding Nigerian private Universities were examined in this paper. The alternative strategies adopted for raising additional funds for private university education in Nigeria were also examined with a view to suggesting ways through which the problem of funding universities in developing economies could be ameliorated. The paper also suggests pragmatic approaches in generating incomes for the faculties. Consequent upon achieving qualitative university education in developing economies, funding should therefore be

seen as all inclusive where government, households, private sector and enhanced internally generated revenue could be efficiently and effectively harnessed for providing qualitative university education. Arising from this, university managements should be suitably aggressive in identifying and exploiting various available fund generating avenues. Productive offices should be created to handle internally generated revenue programmes. Finally, proceeds from internally generated revenue should be judiciously utilized as a necessary condition for achieving qualitative university education in developing economies.

EMPIRICAL REVIEW

Abbas,*, and Ogiri, (2017) provides how democratic regime at the sub-national level in Nigeria seeks to achieve the UNESCO's recommendation of 26% budgetary allocation in the education sector. Using Gaidam's regime in Yobe state from 2009-2015, it utilized interview discussions with Key Democratic Stakeholders and document analysis to showcase the state government's budgetary process and the socio-economic and political challenges incurred towards achieving the UNESCO's recommendation. The finding specifically shows that although the 2015 20% budgetary allocation to education sector did not yet reach 26%, yearly progression from 2009 (17%) to 2015 (20%) indicates political commitment in meeting the UNESCO's recommendation. Beyond the financial commitment for education infrastructures, facilities and utilities, the regime had also implemented the much sought after teacher's salary scale. It also maintained regular and timely payment of teacher's salary, their promotions and training, and regular and timely payment of scholarship to students. However, non-full implementation of budgets and delays in the release of the approved fund were evident. Maintaining, previous neglect of financing education and poor internally generated revenue, misallocation, mismanagement, and Boko Haram insurgency have increased the existing financial challenges in the sector. Hence, adequate funding is required in order to achieve qualitative and functional education systems.

Akpan, (2008) stated that after putting an end to school fees (tuition fees) in the universities in 1982 by the federal government, Universities started being under-funded till now and this affected their performance as well as pave way for private universities to get more students

Also, Omopuna and Abdulraheem, (2013) report that as a result of the above-mentioned reduction students' performance for research and teaching was now affected; thereby the Nation's motive for universities to produce high level manpower is also defeated hence, to solve the problem of poor performance of students; Federal Government of Nigeria directed through the National Universities Commission (NUC) that all Federal Universities should generate 10 percent of their total yearly budget internally through various revenue diversification means. To achieve this 10 percent revenue, many Nigerian Universities engaged in different business ventures like hotels, printing press, petrol stations, and bookshops; but the performance of such ventures have been very poor and most often conflicts with the objective of university education – teaching and research; thus, rendering this solution of raising 10% ineffective.

According to Omopuna and Abdulharem, (2013) the concept and practice of quality in university education is a new fact but growing fast; stressing that the educational sector is powerful and experiencing many difficulties in producing graduates that will be useful to the community. Onuka, (2009) added that there are different issues of New Public Management (NPM), an idea that some representatives in education sector wants to transmit profit making idea from public sector management. The author asserts that these representatives could mean Stakeholders in universities to include: Academic and Non Academic Staff, Students who use the services, government who provides fund, parents and industrialists or administrators who employ. These stakeholders have different ways or views that led to different methods of alternative fund rising. He also, observed major sources of revenues to Nigerian universities to include: Subventions from Government (Federal or States) formally referred to as NUC Grants Endowment Fund – To this contest means the income controlled by a body appointed by the council (Webster's comprehensive Dictionary, 2010). Endowment funds" donors normally attach special instructions with it. Akinyemi, (2013) added other means of fund raising to include: Grants and Research funds for special projects, funds from the institutions own investments, interest from Short Term Fixed Deposit, Loan Debentures and Dividends receivable from stocks, interests on various types of loan; Hall Lodging Fees, income from rent of Quarters, non residential buildings

and plots of land, income from sales of old and damaged Asset, establishment of commercial farms that is, crops and livestock.

Acceptance is explained as sources of fund that are worthy of being accepted, pleasing and welcome by stakeholders in university (Webster's comprehensive Dictionary, 2010). Onuka, (2008) Maintain that government subvention covers about 91% of fund and is grossly inadequate. Therefore, Universities now require other sources of funding which should not hamper the aim of establishing university education. He therefore, suggest some alternative sources to include increased government subvention, reintroduction of tuition fees, increased philanthropic gestures and others, however he noted that only 35% of the population accepted the reintroduction of tuition as an alternative funding.

Nwankpa, (2016) asserts that Education is the cornerstone of a nation, culture and an absolute necessity for economic prosperity and development. Maintaining that there is hardly any household in this South-Eastern States, that is not concerned about the state of our education system particularly the university system

Fund is financial resources set aside for a certain purpose (Webster's Encyclopedia Dictionary, (1992); Funding remained a critical factor in the provision of functional university education that can lead to a national transformation. Alternative shows one of two things which must be chosen (Webster's comprehensive Dictionary, 2010).

Akinyemi, (2013) investigated funding strategies for qualitative university education in developing economies using the experiences of the Nigerian Universities as a case study; Secondary data which were collected from the Federal Government of Nigeria's Office of Statistics and National Statistics Bureau and were utilized for analysis. The tuition fees analyzed were collected from the admission offices of the six public universities purposively elected from 72 public universities (both federal and state universities) in Nigeria. Since the pursuit of qualitative university education bothers on all stakeholders – the government, parents, individuals, firms and cooperate bodies, should make serious efforts regarding funding as an external factor and a necessary condition for achieving qualitative university education in developing economies

Mopelola and Akinyemi, (2013) examined the difficulty of raising income for university in maturing providence developing economics which have become a continuous

difficulty which result to a negative consequences on training and analysis and the running away of educated peoples. Their study made use of inferior information which was obtained from the National Bureau of Statistics. Knowing that the proceeding of standard university training bothered on all awarders – the government, parents, and student's partners and co-operate companies recognized raising fund as an outstanding agent and an essential situation for obtaining a standard university education in maturing providence.

Malawi, (2014) investigated examined alternative sources of internal revenue drives in Adamawa state university, Mubi. The methodology utilized in this paper was the observation and identification of alternative sources of revenues in addition to registration fees and other charges. Descriptive statistics was utilized in analyzing the data obtained from the study. The results revealed that mean response was ≥ 5 ; indicating that the University needs additional sources of revenues to supplement budgeted revenue. This implied that there were more internal sources of revenues yet untapped in the University. The study recommended for exploration of untapped sources of revenue to assist the university to execute more programs and projects that will create value and quality knowledge in Adamawa State University, Mubi.

Orkodashvili (2009) compared and contrasted maximum education means of raising fund and method in the U.S and the UK. The methodology applied in the study was a case study comparative analysis. The study used secondary data. The objective of the study was to access parents, teachers and scholar determine some different means of raising fund in universities in Nigeria. Tabulated unidirectional experiments method was used and questionnaire was utilized in data collection. Analysis was carried out using percentage and different analysis. The outcome revealed that they agreed on free education, achievement of scientific technique, workers swap activities. She recommends Preventing fraud repetition and grants to help in funding but refused engaging in business like Lodging, payment of school fees, degree awarding fee, payment of tax, engaging in businesses inside the university for raising fund. It was suggested that the income of the community need to be standard if the community may be at rest to help in raising fund.

In the words of Akpan, (2008) means of raising fund for university training in Nigeria are numerous. The study aimed at determining how parents, teachers and university

scholar points out other means of raising fund for training in Nigeria. Two research questions were brought out and tabulated unidirectional experiment method was used in obtaining 677 parents, 679 scholar and 309 teachers for the study. Questionnaire was utilized for data collection and was analyzed using percentage and different analysis. Findings revealed that they agreed on free education, achievement of scientific technique, workers swap activities, and grants but refused engaging in business, lodging, payment of school fees, degree awarding fee, and payment of tax and engaging in business inside the universities as another means of raising fund for university training.

Theoretical Framework

This work is based on historically human capital theory has its roots from the work of Adam Smith “wealth of Nation” he talks extensively on how skill and knowledge acquired by the labor force can influence economic growth and development; and that resources spend on education and training of human capital is as important as the resources spend in acquiring physical capital and investment (Sani, 2015). The author went further to state that works extensively on human capital theory. That is why the scientific effort he made represents an original, pioneering approach which gave him the opportunity to model the theory and is often refers to as the father of human capital theory. Also Alfred Marshall in his book “Principle of Economics” published in 1961 argued that education can be regarded as a personal investment, this according to him is because the intention to invest in education and training is the same on the intention to invest in any other type of investment hence societies and individuals invest in education to get certain benefit at the end of it all. The above argument justifies the early birth of human capital theory and the investment in education for its social and economic benefit. Hence, Human Capital Theory as used in this study explains the availability of resources in higher education system; which bring to light issue of who should finance higher education. Whether the individual that benefit in term of getting higher earnings after acquiring additional level or type of education or the society who benefited in term of getting good and enlighten workforce, good health care, improve economic development and healthy political participation.

METHODOLOGY Research Design: The study employed the survey research method through the use of questionnaire. Tables and simple percentages were adapted in analyzing data.

The area of the study: Includes all Private universities in Nigeria seventy-nine of them (79) to includes Godfery Okoye University, Babcock University, Roma University, Gregory University Uturu, Igbinedion University Okada, Oduduwa University, Obong University, Rhema University Ntak, Babcock University, Adeleke University, Covenant University, Crawford University, Ajayi Crowther University Oyo, B.I.U.(Ben Idahosa University Benin City, African University, American University of Nigeria, Yola, Nigerian Turkish Nile and many others.

Population of the study: Population of the study was 500 (five hundred respondents.

Population was five hundred (500) respondents.

Determination of Sample Size: Five Hundred Respondents (500) spread across the lecturers in Accountancy department, lecturer parents, and students from five (5) universities.

Method of Data Generation: The study used primary source of data generation.

Data was generated through information obtained which involved the use of questionnaires.

Method of Data Analysis: Data analysis was through the use of frequency, percentages and single factor ANOVA. The single factor ANOVA was adopted to measure the variance in the responses. Where the calculated F is greater than the critical table value of F; It implies that cost creative fund raising activities (operation show your hand work, guest speaker, one day on line, 3 day face book and many others) are an alternative source of fund raising in private universities in Nigeria.

The instrument was subjected to face and content validity by experts in the field of accountancy department and the pilot study; while the test-retest method was used to test for the reliability of the instruments. This test was to determine the consistency of their responses to the questionnaire. Also, combat alpha which performed very well with a value of 0.876 which indicate a high measure of internal consistency (data is reliable)

Model Specification: The following model was utilized:

$$SSB = r \sum (X_{ij} - \bar{x})^2$$

$$SSB = \sum \sum (X_{ij} - \bar{x})^2$$

Where SSB = between sum of square

SSW = within treat sum of the square

X_{ij} = individual observation around their column mean

X = grand mean column

Df = degree of freedom (c – 1) (in 1)

C = number of column

R = number of row

Σ = summation

Level of significant (0.05)

Table 1: Cronbach alpha reliability of data

Cronbach Reliability and Correlation Test

Cronbach Alpha Number of Items .876 15			
Cronbach's Alpha			
0.87615			
Cronbach's Alpha with missing item			
SD	D	SA	A
-0.70995	-2.06201	0.366482	0.898158
Split-half			
Halves	0.894323		
OddEven	-0.71227		

Source: Microsoft excel toolkit 2007.

The table above examines the properties of measurement scales and the items that compose the scales. Ideally, the Cronbach alpha coefficient should be about 0.7 (Pallant, 2001). The Cronbach coefficient for the study performed very well with a value of .876 and this indicates that the scales and the items of the research instrument show a high measure of internal consistency (data is reliable).

ANOVA: Single

Objective One

Factor

Table: Determinant at which no staff hotel fund raising event is an alternative fund raising activities in private universities in Nigeria.

1. To determine the extent to which private universities are engaged in exploring alternative fund raising events like foot-ball fund raising as an alternative strategic fund raising activities.
2. To assess the extent to which private universities explore guest speaker event as a strategic alternative fund raising.
3. To find out the extent to which use of Donation match drive fund raising events, as an alternative strategic funding event.

is an alternative source of fund raising

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Column 1	10	2706	270.6	8082.489
Column 2	10	1474	147.4	4790.933
Column 3	10	483	48.3	8033.789
Column 4	10	337	33.7	726.2333

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>Df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	359197	3	119732.3	22.13838	2.68E-08	2.866265557
Within Groups	194701	36	5408.361			
Total	553898	39				

Decision Rule:

Reject H_0 if F – calculated is greater than or equal to F – critical value.

$$1. F - \text{Cal} = 22.138 \quad F - \text{Tab} = 2.866$$

Since the calculated F is greater than the critical table value of F which is 22.138 that is, $22.138 > 2.866$. We reject the null hypothesis and accept the alternative hypothesis at a 0.05 level of significance; thus, cost creative fund raising is event is an acceptable alternative source of fund raising in public universities in South-East Nigeria.

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Column 1	9	3070	341.11	17711
Column 2	9	785	87.222	2719.4
Column 3	9	384	42.667	8490.5
Column 4	9	341	37.889	3910.4

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	562307	3	187436	22.836	4.3E-08	2.90112
Within Groups	262651	32	8207.9			
Total	824958	35				

Anova: Single Factor

Use of sale of research products and services are significantly an alternative source of funding to the universities in South-East, Nigeria (H_{03}) however since at 5% level of significance and 95% confidence level it was found that the calculated F is greater than the critical table value of F which is 22.813 that is, $22.813 > 2.901$. We reject the null hypothesis and accept the alternative hypothesis at a 0.05 level of significance; which is also, in line with Akinyemi, (2013) who noted that low funding is as a result of variation in the wealth of the country; experienced after the surplus oil revenue (oil boom) of 1970s; However, attempts were made to solve the problem which includes cost – saving devices like minimization of laboratory – operative studies, reduction in academic field trip, and many more. Upon discovering that the method could not bring about visible advancement, attention have now been turned to other means of rising fund which the author mentioned as levies, commercial farming, establishment of media houses, tuition (school fees), Thus, use of research products and services fund raising event(s) is an acceptable alternative source of fund raising in public universities in South-East Nigeria

Summary of Findings: The study made the following findings: At 5% level of significance and 95% confidence level it was found that the calculated F is greater than the critical table value of F which is 22.138 that is, $22.138 > 2.866$. We reject the null hypothesis and accept the alternative hypothesis at a 0.05 level of significance; thus, cost creative fund raising is

activities is an acceptable alternative source of fund raising in public universities in South-East Nigeria. Therefore, the researcher deduced that cost creative fund raising is activities is an acceptable alternative source of fund raising in public universities in South-East Nigeria.

Conclusion: This study conclude that there are other sources of fund raising in Nigerian public universities but some are acceptable to stake holders like parents, governments and even lecturers and the universities administrators and that the use of acceptable alternative fund raising events, such as cost creative events significantly and positively affect funding universities; also, the use of acceptable alternative fund raising events, such as use of research products and services significantly and positively affect funding universities

Recommendation: since, the use of acceptable alternative fund raising events, such as cost creative events should be utilized as an acceptable mode of fund raising. The government should enforce use of it, thereby reduce total reliance on government subventions. The use of acceptable alternative fund raising events, such as use of sale of research products and services significantly and positively affect funding universities, thus, public universities should continue its application.

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- DATA
1. Determinant at which private universities explore alternative strategic fund raising events like no staff hotel fund raising as an alternative fund raising activities.
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S/N	Questionnaire	SA	A	SD	D
1	No staff hotel fund raising events is an alternative strategic funding activities in your University's funding	300	150	10	40
2.	Fund raising events like one-day online is an alternative funding aid to your University	330	120	20	30
	Fund raising event like guest speaker activity is an alternative fund raising strategy in your university				
	Skydive and 5k/marathon fund raising events do not have any significance to your university's funding	56	44	300	100
3	Donation match drive fund raising events and operation show your handwork is better than increase in tuition,	350	140	6	4
4	You agree with the views of personal challenge events as alternative means of funding	230	220	20	30
5	Your University should embark more on 3 face book live fund raising events	300	100	56	44
6	As a parent of the university student you support Gulf marathon fund	280	170	20	30
7					

	raising events as a good means of fund raising in universities				
8	AS a student you support peer to peer fund raising events as a good means of fund raising in universities	195	295	6	4
9	As a parent you support cost creative fund raising as an excellent means of fund raising in university	330	120	30	20
10	There are possible effects of cost creative fund raising events as an alternative sources of fund raising in your university	335	115	15	35

Table: Continues. Determination of the extent at which use of

S/ N	Questionnaire				
11	Use of research products and services example no staff hotel fund raising is an acceptable alternative funding activities in your University's funding	450	40	4	6
12	Use of research products and services like luxury rooms and using Nano technology textile products in guest rooms would significantly affect fund raising events as an acceptable alternative fund raising in your University	390	10	50	50
13	You agree with the views of research product and services like Robots for cleaning services as acceptable	280	120	50	50

	alternative means of fund raising in your university				
	Use of sale of new tourism products like health tourism, agril-tourism of research products and services fund raising activities as acceptable alternative sources of fund raising in the universities				
14	Your university's ability to seriously progress in use of sale of research product and services would be an alternative source of fund raising in your university	340	100	30	30
15	Stakeholders (Government, parents, individuals, firms, lecturers and students,) defer in their views on using sale of research product and services as acceptable alternative sources of fund raising in your university	400	60	10	30
16	You agree that sale of research product and services example styling product or camera as acceptable alternative means of fund raising in your university should be expanded Stakeholders (Government, parents, individuals, firms, lecturers and students,) recognize use of sale of research product (journal) and	410	50	20	20
17		410	80	4	6
18		390	190	5	15

**services as acceptable alternative
sources of fund raising in your univer**

ACCOUNTING TECHNIQUE IN FRAUD EXAMINATION IN THE NIGERIAN BANKING SECTOR

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Abstract

This study was motivated by the series of fraud cases in banking sector of Nigeria and focused on fraud management to aid economic development since Banks are the wheel of economic activities of the nation. Survey research design was utilized. Area of the study was commercial banks excluding mortgage finance banks, Agric banks and Nigerian bank for commerce and industry. Frequency, percentages were utilized in analyzing data also, combat alpha which performed very well with a value of 0.876 which indicate a high measure of internal consistency (data is reliable) while, single factor ANOVA was the statistical tool used to test hypotheses to compare the difference between variables of forensic accounting to fraud control. Among the findings were that the use of Forensic Accounting technique does significantly reduce the occurrence of fraud cases in the banking industry; thereby, excess bank resources could be redirected to fund weaker sectors for economic development. The significant contribution of the study is the researchers discovered that not only the experts (forensic accountants) fish out

fraud activities but every staff, customer/stakeholders and even the banking public are made aware of forensic accounting to fish out and report to the experts on any abnormality that may lead to fraudulent act for the experts to investigate the activity before it materializes into fraud. Since the investigative techniques of forensic accounting help in fraud management; banks should continue the utilization of it to manage fraud.

Key words: Forensic Accounting, Fraud, Fraud Management, Banking sector, Nigeria.

Introduction: Frauds in Nigerian banking industry are so common that almost all cadres of staff are involved in one form of fraud or the other irrespective of their post. Even Managers or Operational staff perpetrates fraud to the level of their post and the magnitude of bank fraud is high. Also, the level at which the Nation is negatively affected requires urgent attention (Kasum, 2007). In recent years fraudulent activities are increasing at a tremendous rate (Enofe, Aigbepue and Ochuwa, 2017). These frauds have resultant damaging effect both to the developing economy, banks and investors/individuals. Therefore, fraud is to enrich oneself by intentionally reducing the value/worth of an asset in secret. To portray this further, Mukoro, Yamusa and Faboyede, (2013) believe that the trend and the volume are increasing on a daily basis and all levels of the banking public are also involved in fraud activities. It is a recognized fact that the management of banks experience fraud cases as reported in Adeyemo, (2012). The author asserts that in 2009, the sum of funds fraudulently perpetrated by ten banks with the largest fraudulent activities, total 10,719 fraud cases perpetrated during the period, involving N168.84 billion and also, in the year 2008, 2007 fraud cases, with collective sum of frauds of N53.52 billion were perpetrated. Also, the number of fraud cases perpetrated only in the year 2009 was up to 10,719 in ten banks. That means on the average 1,071.9 fraud cases were perpetrated in a bank for a year and in a year we have 356 days. Showing that in a day, the banks concerned witness about three different frauds cases on a daily basis. Not to think of the amount of customer's funds and banks resources lost which invariably is a waste on the economy; because the said resources (N168.84 billion and N3.52 billion) would have been used to set-up and/or support

another weak sector for economic growth and development. This then calls for full time and professional attention (Mukoto, Faboyede and Eziamaka, 2014).

Dada, (2014) argue that forensic accounting is the application of accounting concepts and techniques to fraud cases and that fraud control is the ability to detect/prevent fraud acts before it criticizes into fraud perpetration. Modugu and Anyaduba, (2013) emphasize that Forensic accounting emerged to put a hurt to certain fraud cases that cause bank failure, loss of customers funds/confidence, economic resource wastage among others. Also, Enyi and Ezuwore, (2014) mention the characteristics of forensic accountant are as follows; Ability to securitize large volume of records in the aim of examining the basic issues, Be abreast of all the necessary bank methods, Must possess a sense of urgency and commitment which will enable him/her give prompt attention to fraud issues when required, Abiding by time table especially when need arises for over time duty to achieve targeted time, Ability to surface professional in a situation of a court case, The authors also stressed that Forensic accountant ought to process the following skills: Communication skill, Investigating skills, honesty and high integrity to enable him / her evaluate and analyze evidential issues which in field of forensic accounting is called evidence, be a professional in accounting and be able to detect fraud with the aid of specialized computer programs (Software) which he must be an authority in it.

Urhoghide and Yakubu, (2014) defines forensic as a combined effort of accounting, auditing and investigative intuition to meet-up with the courts level in addressing matters concerning fraud litigations. According to Enofe, Okpako and Atube, (2013) forensic accounting exposes all the loopholes and weaknesses/challenges revealed in the banking sector concerning fraud investigations and detection. Ennofe, Okpako and Afube, (2013) investigated the relationship between fraud detection and forensic accounting. Primary source of data was utilized and data were collected from fifteen companies in Benin City Edo State. Information was compute red with descriptive statistics utilizing ordinary least square (OLS) regression and chi-square. Their findings revealed that utilization of forensic accounting skills on firms affects degree at which fraudsters operate. Litigation service involved providing assistance to fraud matters and it deals with quantification of economic deals with the investigation of fraudulent issues (Zysman, 2001). Furthermore,

in the cause of providing litigation support, the forensic accountant acquires documents used to assist a claim, investigates necessary documents that helps developing assessment of the fraud cases in specific area of loss. Also, Forensic accountant re-examines the steps in fraud discovering, formulates acts as required in the financial records, aid with the knowledge of fraud matters, construct questions to be asked during investigation processes.

Dada, (2014) report that forensic accounting uses accounting, auditing, computer, and expert witness techniques in confirming fraud cases for prevention purposes. According to Okoye and Gbegi, (2013) forensic accountant should possess good education and training, in-depth experiences and in addition is closer to being investigators, economist who do economic and market estimation and appraisers, especially trained in finance and/or valuation theory in business. In the words of Nor et.al, (2013) Forensic Accountants have two basic areas as follows: investigative accounting and Litigation support.

Forensic accounting also provides for investigating technique. This means a thorough examination of the records and accounts of a bank's physical assets for specific purposes and for a specific period including the in and out routes/movement of their recourses (Onovo, 2001); the author stressed that the approach to an investigation is different to that of a normal audit. Thus, investigation is not an audit, as per the generally accepted auditing standards but is more comprehensive than an audit because it excludes many steps which would ordinarily form part of an audit. Also, investigation depends wholly on the requirement of the bank and is answerable to the management.

According to Nor and Betsy, (2013) forensic accountants have two primary areas namely: investigative accounting and Litigation support; Under investigative its covers: Reviews factual situation and provide suggestions regarding possible courses of action, Assist with the protection and recovery of assets and Co-ordinate other experts. While under litigation support, forensic accountants assist in: Obtaining document necessary to support or refute a claim, reviewing of the relevant documentation to form an initial assessment of the case in an identified areas of loss, Examination for discovering, including the formulation of the act regarding the financial residence and attendance at

the examination for discovery to review the testimony, Assist with understanding the financial issues and To formulate additional questions to be asked (Nor and Betsy, 2013). This will require the forensic accountant to prepare evidence and information as to support for fraud case. Litigant is a person who is making or defending a case in court while litigate means to take a claim or disagreement to court (Wikipedia, 2018). Fraud management is a system that supports the businesses affected by these events like banks; provides them with the tools necessary for the assessment, control and prevention of these activities for the purpose of limiting and stopping money/funds loss. Banking industry plays a primary role in increasing the level of economic activities. Banking sector interact between suppliers and users of funds, banks normally are used to measure the impetus of the business activities in the economy (Eseoghene, 2010). However, the bank's ability or inability to perform the above duty, require having the trust and confidence of their enormous banking public.

Statement of the Problem

One of the controversial issues mostly discussed in Nigeria today is about numerous fraud cases in our banking sector (Dada, 2014). In the view of Adeyimo, (2012) banking sector of Nigeria is affected by incessant fraud. Thus, this paper stands to examine application of forensic accounting in fraud management in the Nigerian banking sector.

Objective of the Study

The general objective of this study is to determine the level at which application of forensic accounting help in fraud management in the Nigerian banking sector, using some selected banks in Nigerian as reference point. The specific objectives of the study are as follows:

1. to determine the extent to which investigative technique of the forensic accounting help in fraud management in the Nigerian banking sector.
2. to assess the degree to which Litigation technique of forensic accounting aid in fraud management in the Nigerian banking sector.

Research Questions: This study sought to answer the following questions:

1. To what extent does: investigative accounting technique aid in fraud management in the Nigeria banking sector;

To what extent does Litigation support technique aid in fraud management in the Nigerian banking sector?

Statement of Hypothesis:

The following hypotheses were formulated to guide this study (stated in Null form) as follows:

1. H₀₁: Investigating technique does not significantly management fraud in the Nigerian banking sector.
2. H₀₂: litigation technique of the forensic accounting does not significantly manage fraud in the Nigerian banking sector

Literature Review

Enofe, Aigbepue, Igbarumah and Ikponmwonba, (2017) investigate the role of expert witness investigation in detecting fraud in the Nigerian public sector utilizing survey research design in generating data from primary sources using a questionnaire, distributed to the respondents. Data collected was analyzed with SPSS 20.0 to analyze the responses from the respondents. The result revealed that forensic accountant as expert witness in court; with expert witness experience and expert witness educational wise have a positive relationship with fraud detection. Recommendation was that there should be an increase in the use of forensic accountant as expert witness in the public sector to help in the detection of fraud.

Also, Okoye and Gbegi, (2013) assert that forensic accountant should possess good education and training, in-depth experiences and in addition is closer to being investigators, economist who do economic and market estimation and appraisers, especially trained in finance and/or valuation theory in business.

According to Nor, et.al. (2013) Forensic Accountants have two basic areas as follows: investigative accounting and Litigation support. This invariably put a hut in the growth of the economy. Thus, in the author's opinion these incessant fraud cases has placed greater expectation on the accountants to get acquainted with special skills to identify and act upon indicators of fraudulent acts and even on any red flag. Therefore, it

is now important to introduce the skill of forensic accountant to prevent, detect fraudulent cases in Nigerian banking industry. Maintaining that Forensic Accounting uses investigative, computer, litigation and expert witness techniques in confirming fraud cases for prevention purposes. Thus, this paper stands to examine the role of forensic accounting in fraud detection / prevention for economic growth with keen interest in the Nigerian banking industry.

Modugu and Anyaduba, (2013) emphasize that Forensic accounting emerged to put a hurt to certain fraud cases that cause bank failures, loss of customer's confidence and economic unrest. Hence, Forensic Accounting is knowledge that involves the use of accounting, auditing, investigation, legal, and computer in providing the required evidence in a litigation process.

Okoye and Gbegi, (2013) investigate application of forensic accounting as a technique for fraud control in the Public Sector Organizations in Kogi State. Primary Sources of data were adopted through the use of questionnaire and three hundred and seventy (370) questionnaires were distributed to employee of five (5) selected ministries. Data was analyzed using tables and simple percentages and analysis of variance (ANOVA) remained the statistical tool employed to test the hypothesis. The author found out that the use of forensic accounting in the public sector organizations of Kogi and detecting and preventing of fraud cases. Recommendation was that forensic accounting should replace external auditors.

Ennofe, Okpako and Afube, (2013) investigate the relationship between fraud detection and forensic accounting. Primary source of data was utilized and data were collected from fifteen companies in Benin City Edo State. Information was computed red with descriptive statistics utilizing ordinary least square (OLS) regression and chi-square. Their findings revealed that utilization of forensic accounting skills on firms affects degree at which fraudsters operate.

Beredugo, Inah and Edom, (2014) appraise Forensic Investigation and Auditors' Liability: Empirical from Nigeria. Survey research design was adopted and data were collected from five hundred and nine (509) respondents of selected Banks in Nigeria. Hypotheses were tested using Spearman's Correlations Coefficient and OLS. It was

discovered that forensic investigation is significantly associated with auditor's liability. The study recommended that forensic investigation should be carried out occasionally and not only when there is a suspicion of fraud.

Modugu and Anyaduba, (2013) examine on how forensic accounting can help put an end to financial fraud in Nigeria. They utilized simple random method in choosing the sample size. Data was computed with the aid of binomial test. The study found out that stakeholder is of the view that forensic accounting is effective on fraud control.

Adegbie and Fakile, (2012) investigate using forensic investigation as a cure to fraud in Banks. Government parastatals were used as population of the study. The statistical model utilized is chi-square and statistical package for social statistics (SPSS) was used to – analyze the information. Findings indicated that forensic accounting is an antidote to fraud.

Olaoye and Dada, (2014) assess the nature, causes, effects, detection and prevention measure for bank frauds in Nigeria. Primary source of data collection involving the use of questionnaires was utilized. Questionnaire were administered together with Nigerian Deposit Insurance Corporation (NDIC) annual reports for data relating to total amount involved in frauds, ten banks with the highest fraud cases and categories of bank staff involved in frauds. The authors concludes that for the prevention of fraud, banks should have in place sound/effective internal control mechanism/checks and balances and provide adequate remuneration and reward for excellence and good conduct while the incessant and periodic downsizing of bank staffs should be discouraged. Moreover, there should be steadfastness in punishing offenders and adoption of zero tolerance to corruption. Therefore, the society should imbibe cultural value system of treating fraudsters with contempt.

Akinyomi, (2012) examine the cases of fraud and its prevention in the Nigerian banking sector. Primary source of data collection was utilized with the aid of questionnaire which was distributed to two hundred (200) staff members of ten (10) commercial banks in Lagos. The respondents were selected using purposive non-probability sampling technique. Responses were tested for significance using T-test while findings revealed that Greed is a foremost cause of fraud, as greater part of the staff

considered their remuneration as sufficient. It was also observed that banks' staff got involved at all stages of fraud, including: initiation, execution and concealment. However, computer fraud was in majority of the fraud perpetuated in the bank. As a result, loss of revenue and loss of customers' confidence top the list of resultant effect of incessant fraud.

Nor, Nafsiah, Betsy and Rosmawati, (2013) assert that frauds are the bane of Malaysian development efforts; Maintaining that most of these frauds destroy Malaysian economy to a large extent and that the integrity of government agencies are being questioned. Transparency measures became doubtful and meaningless. Need of professional expertise to undertake proper procedures are supposed to minimize the percentage of fraud. They investigated the awareness of the government agencies administrator on their understanding the role of forensic accountants, and secondly, to determine the relevance of the implementation of forensic accounting in public sector. Structured interviews and 50 questionnaires were distributed and collected from three selected government agencies in the Klang Valley that is, Inland Revenue Board of Malaysia, Ministry of Education and Shah Alam Court Council. The results show that majority of the government administrator understands the role of forensic accountants and believe that the existence of forensic accounting is a required strategy to detect and prevent fraud in Malaysian economy.

Sorunke, (2018) explain the upsurge in the loss of high profile fraud cases by the anti-corruption agencies in Nigeria, resulting from the inability of the prosecutors to come before courts with legally acceptable evidence, the adoption of forensic accounting investigation techniques in fraud investigation and prosecution has become imperative. The study set out to examine the potency of forensic accounting investigation techniques in fraud investigation and prosecution in Nigeria. Survey design was used in the study with sample population consisting of investigators and prosecutors drawn from the four anti-corruption agencies in Nigeria (Economic and Financial crimes commission (EFCC), Independent Corrupt Practices Commission (ICPC), Code of conduct Bureau (CCB) and Police Special Fraud Unit (PSFU). The Yamane's formular was used in the determination of the sample size. The technique adopted for analysis of returned questionnaires include

descriptive and inferential statistical methods, while Kolmogorov-Smirnov test was used to test the only hypothesis formulated for the study. The findings from the study indicate that there is a significant and positive relationship between the adoption of forensic accounting investigation techniques in fraud investigation and successful prosecution of fraud cases in Nigeria. It was therefore recommended that all the anti-corruption agencies in Nigeria should always adopt forensic accounting investigation techniques in all their fraud investigation so as to be able to come up with evidences that will be supportive in prosecution of fraud cases in courts.

Edori, (2018) investigate the increase in technology as it help all sectors of the economy in Nigeria yet, both the positive and the negatively with the fraudsters manipulating the negative part, while computer forensic accounting technique uses it as a tool to detect and prevent fraud perpetrators. The author utilized survey research method and hypotheses were tested using the Pearson product moment correlation coefficient (PPMC) statistical tool. Findings revealed that forensic accounting has a significant but negative relationship with frauds; technology has significant and positive relationship with both forensic accounting and fraud; and that technology moderates the relationship that exists between forensic accounting and frauds. The author recommend mandatory forensic accounting department ought be established in publicly and privately owned institutions and offices through regulatory authorities and not on voluntary basis; recruit forensic accountants/investigators/auditors in both the private and public sectors and regularly train and retrain them on current technologies; the Nigerian government should amend existing laws to meet the requirements of present day technological advancement. Finally, the author concluded that forensic accounting as afield has all it takes to fight fraud in Nigeria and that technology moderates the relationship, though negative, between forensic accounting and fraud hence the need for technological advancement in forensic accounting in order to fight against these frauds.

Theoretical Framework

This theoretical definition is meant to give the meaning of a word in relation to the theories of a particular profession (Wikipedia encyclopedia, 2018). This research work is based on the theory of mindset and problem representation which was propounded by

(Gollwitzer, 1996 cited in Oyier, 2014), The author maintain that Mindset means a type of Training with specific features that control (direct) a person in the assembling and analyzing of data, This in variably informs how individuals process information and forward their ways of reasoning. attitude influences decision making through its impact on the process by which different people operate data, preliminary individuals with a specific way of reasoning can collectively evoke in them a concentration on data consistent with the attitude and consequently make them to search for pertinent applicable data, it is noted that forensic Accountants position of the mind as an expert was an influence on fraud related job performance. This is as a result of forensic accountant expects are like to suspect wrongdoing in the banks operation. It is also expected that these experts would assess these wrongdoing as not dependable and at a high danger level. The authors assume:

1. That fraud cases would not have being rampant in the banks without the right person in the system with requisite abilities organizing, directing and perpetrating fraud.
2. They also assumed that there are four factors necessary in the cause if fraud perpetration, which include opportune formal placement of duty within the bank.
3. The opportunity to understand and manipulate accounting systems/transactions; which forensic accounting services is one of the control measures.
4. Assurance that fraudster would not be observed or detected and would certainly be covered Ability to coop with the problem created outside the work place and within. Hence Forensic accountants ought to be aware that the urge or intention to perpetrate fraud can either be due to personal pressure, pressure from employer(s), or external pressure and each of these types of pressure can also happen because of financial and non- financial pressure. Accountants with forensic skills need to comprehend the tendencies to commit fraud in order to help them identify the specific fraud schemes an individual can commit and the systematic occurrence of fraud virus given inefficient or absence of forensic accounting.

Methodology

Research Design: The study employed the survey research method through the use of questionnaire. Banks regard fraud topics as sensitive area and as such are very reluctant in disclosing records in that regard. Therefore, survey research is best suit for this study. Tables and simple percentages were adapted in analyzing data

3.2 Area of the Study: The area covered in this study is commercial banks (money deposit banks) of Nigeria. Commercial banks were chosen because of its sensitive nature to fraud.

3.3 Population of the Study: The population of the study is seventy-one (71) Forensic Accountants (who are in the field and are in a better position to know the level at which application of forensic accounting controls fraud in the Nigerian banking system. The population of this study composed of the forensic accountants from all head offices of twenty two (22) commercial banks in their Internal Auditing department at their head offices mostly in Lagos, Nigeria.

Table 2: composition of the population of the study

Below are the breakdowns of the population of the study based on bank by bank analysis (Questionnaire 2017)

Determination of Sample Size: The sample size is seventy-one (71), this is due to its small size therefore the researcher decided to study all the population as sample.

Method of Data Generation: This study used primary source of data generation. Data was generated through information obtained from forensic accountants of the twenty-two (22) Banks. Questionnaire was developed and structured in a four (4) point rating Scale of strongly agree, Agree, strongly disagree, Disagree, and undecided administered to staff of the internal audit department.

Method of Data Analysis: Tables and percentages were used to analyze the data extracted from respondents. The Analysis of Variance (ANOVA) test remained the statistical tool used in testing the research hypotheses. Data collected was statistically

analyzed with Simple percentage (%) and frequency distribution to compare the difference between variables of forensic accounting (Investigative and litigation technique) application in the banks to fraud control in banking sector of Nigeria. The choice of ANOVA for this study is justified by the fact that it reveals the extent of variation in dependent variables that are caused by independent variables. It is also used in comparing the variation in excess of two independent variables, taken just once from population with exact variance.

Model Specification: $SSB = r \sum (X_{iL} - \bar{x})^2$, $SSW = \sum \sum (X_{iL} - \bar{x})^2$,

Where SSB = between sum of square, SSW = within treat sum of the square,

X_{iL} = individual observation around their columns mean, \bar{x} = grand mean column,

Df = degree of freedom ($c - 1$) (in 1), C = number of column, R = number of row,

\sum = Summation, Level of significant (0.05)

The Model adopted for this study is $SSB = r \sum (X_{iL} - \bar{x})^2$, $SSW = \sum \sum (X_{iL} - \bar{x})^2$,

IL = Variables of forensic accounting

Where i = investigative technique

J = litigation technique in Nigerian Banks

Result: The results of single factor ANOVA conducted at 0.05 level of significance revealed that investigative technique of forensic accounting aid in fraud management in Nigerian banking sector with the Calculated F greater than the critical table value of F that is, $113.087 > 2.911334$. We reject the null hypothesis and accept the alternative hypothesis.

Also, from the single factor ANOVA test statistics conducted at 0.05 level of significance, revealed that the Litigation technique control fraud cases in Nigerian bank;. With F_{CAL} being more than F_{TAB} that is $172.7603 > 3.238872$. We therefore, reject the null hypothesis (H_0) and accept the alternate hypotheses. The contributions to knowledge are that through observation, the researcher discovered that not only the experts (forensic accountants) fish out fraud activities but every staff, customer/stakeholders and even the banking public are made aware of forensic accounting to fish out and report to the experts

on any Red flag (abnormality) that may lead to fraudulent act for the experts to investigate the activity before it materializes into fraud.

Reliability of data

Reliability and Correlation Test

Number of Items .876 15

0.87615			
missing item			
SD	D	SA	A
-0.70995	-2.06201	0.366482	0.898158
Split-half			
Halves	0.894323		
OddEven	-0.71227		

Source: Microsoft excel toolkit 2007.

Decisions: The table above examines the properties of measurement scales and the items that compose the scales. Ideally, the coefficient should be about 0.7 (Pallant, 2001). The coefficient for the study performed very well with a value of .876 and this indicates that the scales and the items of the research instrument show a high measure of internal consistency (data is reliable).

Objective 1

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Column 1	9	287	31.88889	27.36111
Column 2	9	204	22.66667	19
Column 3	9	27	3	11.5
Column 4	8	21	2.625	7.125

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	5611.636	3	1870.545	113.087	8.8E-17	2.911334
Within Groups	512.7639	31	16.54077			
Total	6124.4	34				

Decisions:

Reject H_0 if F – calculated is greater than or equal to F – critical value.

$$2. F - \text{Cal} = 113.087 \quad F - \text{Tab} = 2.911334$$

Since the calculated F is greater than the critical table value of F which is, $113.087 > 2.911334$. We reject the null hypothesis and accept the alternative hypothesis at a 0.05 level of significance; thus, investigative technique of forensic accounting aid in fraud management in Nigerian banking sector.

Objective 2

Anova: Single factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Column 1	5	155	31	8
Column 2	5	136	27.2	15.7
Column 3	5	5	1	1.5
Column 4	5	9	1.8	4.7

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>Df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	3874.15	3	1291.383	172.7603	2.13E-12	3.238872
Within Groups	119.6	16	7.475			
Total	3993.75	19				

Decisions

$$F - \text{ratio Cal} = 172.7603 \quad F - \text{ratio Tab} = 3.238872 \quad (\text{Appendix V})$$

Reject H_0 if F – calculated is greater than or equal to F – critical value.

From the ANOVA test statistics above F_{CAL} is more than F_{TAB} . That is $172.7603 > 3.238872$. We therefore, reject the null hypothesis (H_0) and accept the alternate hypotheses (H_1) at a 0.05 level of significance, meaning that the Litigation technique manage fraud cases in Nigerian banking sector

Summary Responses on key research questions

To what extent does the investigative technique of forensic accounting help in the management of fraud activities of your bank?

Use of Forensic Investigation fraud technology aid fraud management

Responses	Frequency	Percentage
Strongly agree	30	49.18%
Agree	25	40.98%
Disagree	1	1.64%
Strongly disagree	5	8.19%
Total	61	100%

Source: Field Survey, 2018.

Decisions

From the table above 30 respondents representing 49.18% of the total population strongly agrees that their bank practices investigative technique of forensic accounting, and that it significantly reduces fraud activities. 25 respondent representing 40.98 % agree, while only 6 of the respondents representing 9.8% of the population strongly disagree. From the scores, the researcher deduced that investigative technique of forensic accounting aid in fraud management in Nigerian banking sector, given the number of respondents that stood for it. This in agreement with the work of Asuquo, (2015) that, Forensic accounting professionals understand and investigate their computerized accounting systems to enable

them carry out more effectively, the job of investigative accounting presently and in the future.

To what extent does the Litigation technique of forensic accounting significantly aid management of fraud in the Nigerian banking sector?

Litigation technique of Forensic Accounting prevent the occurrence of false expenses demand fraud in your bank

Responses		Frequency	Percentage
A	Strongly Agree	30	49.18 %
B	Agree	29	42.6%
C	Disagree	1	0 %
D	Strongly disagree	1	8.19 %
Total		61	100%

Source: Field Survey, 2018.

Decisions

The table above shows that 30 respondents representing 49.18% of the population Strongly Agree, 29 respondents representing 42.6% Agree, while 1 respondents representing 8.19% Strongly Disagree. From the scores above, the researcher deduced that Litigation technique help in fraud management in Nigerian banking sector, Also, in-line with the works of Ijeoma, (2015) findings revealed that there are proof that the introduction of forensic accounting tools which includes litigation has aid regained assurance in the credibility of banks and in their ability to manage fraud cases.

DISCUSSION

Effects of investigative technique in fraud management in the Nigerian banking sector (H_{01}) : Investigative technique of Forensic accounting has helped to manage fraud in banking sector of Nigeria, using investigative techniques to prevent and or detect fraud activities early enough before its perpetration in banks. Forensic Accountants have the relevant techniques to tackle frauds cases such as security fraud, misuse of funds,

bankruptcy, contracts disputes, and possibly fraudulent prevention and detection of fraud transactions; including money laundering. As revealed from the result that tested objective one, which states that investigative technique of forensic accounting aid fraud management in the Nigerian banking sector. As revealed from the parameter tested to achieve this objective, f-value is $113.087 > 2.911334$ and at 34 degree of freedom which is greater than the rule of thumb value of 2 for significance. This revealed significantly the application of investigative technique of forensic accounting aid the management of fraud in the Nigerian banking sector. The significance was confirmed by p-value $< 95\%$ level of confidence. Hence, based on the result of the test, it cannot be disputed that forensic accounting significantly and positively manages fraud cases in the Nigerian banking sector. This is in line with the views of Ijeoma, (2015) were the author examined the use of forensic accounting in curbing frauds and came out with the conclusion that strong proof exist on the effectiveness of forensic accounting tools in controlling frauds. Also, Imam, Kumseh, and Jajere, (2015) studied “The Relevance of Forensic Accounting to Financial Crimes in Private and Public Sectors of Third World Economies with particular reference to Nigeria”. Their reviews are that investigative or forensic accountant has a role to play, generally, but more in the banks. They then recommend the strengthening of forensic accounting institution and utilization of their services in banks of developing nation’s economies

Effects of Litigation technique in fraud management in the Nigerian banking sector (H_{02}): As stated by Degboro and Olofinsola (2007), Litigation technique of forensic accounting provide assistance in fraud management issues affecting existing and pending cases as specified by the Alliance for Excellence in Investigation and Forensic Accounting of Canada; assisting in obtaining documentation necessary to support or refute a claim, review of the relevant documentation to form an initial assessment of the cases and identify areas of loss, assistance with the examination for discovery and the formulation of questions to be asked regarding the financial evidence, attendance at the investigation for discovery to review the testimony, aid in understanding the financial issues and to formulate additional questions, review of the opposing professional’s damaging report, and reporting on both the strength and weaknesses of the position taken,

and attendance at trial, to hear the testimony of the opposing expert and provide assistance with cross-examination.

The result of the test indicated that the f-calculated value is 172.7603 which are more than the f-critical value of 3.238872 for significance. This revealed litigation technique manage fraud activities in banks. The significance was confirmed by p-value > 95% level of confidence. Hence, based on the result of the test, it implies that measures of Litigation technique are needed to manage fraud activities (prevention and detection) bank frauds in banking sector of Nigeria.

Also, Enofe, Ildemuda and Emmanuel, (2015) investigate forensic accounting as a panacea of fraud reduction in Nigeria firms and their findings indicated that, first forensic accounting enhances financial fraud reduction in Nigeria firms through fraud prosecution and prescription of punishment for fraudsters and that forensic accountants should be part of the committee invited in setting up the organizational internal control system to ensure efficiency and effectiveness to help eliminate the chances of fraud; also the developed internal control system by forensic accountant can help to indicate red flag areas.

Conclusion and Recommendation:

We therefore conclude that, use of Forensic Accounting techniques, such as investigative and litigation support techniques significantly and positively aid fraud management in Nigerian banking sector

2. Recommendations are as follows: that investigative accounting technique aid in fraud management in the Nigeria banking sector; together with Litigation support technique aid in fraud management in the Nigerian banking sector. Therefore, Litigation technique should be strictly applied since its utilization exposes the fraudsters together with their high-rank officials supporting them and once this is done others will flee from getting involved in fraudulent practices.

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APPENDIX A

Data

Table 1: Determination of the extent to which Accounting technique aid in fraud examination in banking sector of Nigeria.

S/ N	Questionnaire	SA	A	D	SD	Total	X	Decision
		4	3	2	1			

1	Use of Accounting technique software aid fraud examination.	(30) 120	(25) 75	(1) 2	(5) 5	6.1 202	3.3	Agree
2	Accounting technique help in the examination of fraud cases in the banks.	(37) 148	(20) 60	(3) 6	(1) 1	61 215	3.5	Agree
3	Your bank actively applies forensic accounting technique to fraud examination.	(40) 160	(15) 45	(2) 4	(4) 4	61 213	3.5	Agree
4	You agree with the occurrence of the following fraud cases by forensic investigation: Stealing of physical cash/properties	(30) 120	(20) 60	(10) 20	(1) 1	61 201	3.3	Agree
5	Forensic investigation prevents occurrence of In appropriate use of account fraud cases.	(36) 144	(20) 60	(1) 2	(4) 4	61 210	3.4	Agree
6	The occurrence of purchasing fraud, are managed by forensic investigation	(34) 136	(24) 74	(2) 4	(1) 1	61 215	3.5	Agree
7	The occurrence of employee/ salary register fraud, are prevented by forensic investigations	(25) 100	(25) 75	(5) 10	(6) 6	(61) 191	3.2	Agree

Forensic investigations in your bank

8	Prevent the occurrence of unsuitable journal vouchers fraud cases	(30)	(29)	(1)	(1)	61		
		120	87	2	1	210	3.1	Agree

The occurrence of suspense

9	accounting fraud cases are prevented by forensic investigation	(25)	(24)	(1)	(1)	61	2.9	Agree
		100	72	2	1	175		

Table 1 Continues Determination of the extent at which Litigation technique of forensic accounting help in the management of fraud in Nigerian banking sector.

S/ N	Questionnaire	SA	A	SD	D
10	Litigation technique of Forensic accounting control fraud cases in your bank	(30)	(29)	(1)	(1)
		120	77	2	1
11	Litigation technique of Forensic accounting prevent the occurrence of identify misappropriated assets	29	28	3	1
12	Banking public are now aware of Litigation technique of Forensic accounting and its prevention of fraud	30	26	1	4

13	The common form of frauds controlled by Litigation technique are theft and embezzlement	36	21	1	3
14	Litigation technique of Forensic accounting prevent the occurrence of Voucher manipulation is common in banks	30	28	1	1

Source; Questionnaire 2017 (Personnel department of each sampled bank)

Evaluation of Forensic Accounting Techniques in Fraud Prevention/Detection in the Banking Sector in Nigeria

-  [Abstract](#)
-  [Reference](#)
-  [Full-Text PDF](#)
-  [Full-text HTML](#)

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Abstract

The study evaluated the application of forensic accounting techniques in preventing/detecting fraudulent practices in commercial banks in Nigeria by specifically assessing the impact of commercial data mining, ratio analysis and trend analysis techniques in fraud detection/prevention. With the aid of descriptive statistics and Ordinary Least Square (OLS) model, the result revealed the application of forensic accounting techniques significantly enhanced detection/ prevention of fraud in the banking system. The study further revealed the importance of ratio analysis as well as trend analysis techniques in fraud detection/prevention. Also the study revealed the importance of commercial data mining software in fraud detection/prevention and the lack of capacity and awareness of most staff of the workings of data mining technology as well as the use of trend analysis technique in detecting/preventing fraud in the banks. It was recommended that commercial banks should mandatorily be required to acquire robust data mining software facilities as well as enhanced training on the application of data mining and its usefulness in the banking sector. Also, use of anonymous response hotlines be encouraged as well as extensive awareness put in place for the attention of the public as well as quick responses from the banks to queries.

Keywords: Forensic accounting, Fraud, Commercial banks, Data mining

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According to Association of Certified Chartered Accountants (ACCA) & Ernst and Young (EY.) [1], the scale of financial crimes is enormous, with global estimates ranging from US\$1.4 trillion to US\$3.5 trillion annually. Underlying these trillions of dollars is criminal activities that damages human wellbeing and harms economies and societies throughout the world, Thomas & Dancey [39]. The banking sector globally plays a crucial role in economic development of any nation. In Nigeria while money supply to Gross Domestic Product (GDP) in 2018 stood at 19.63% and credit to private sector to GDP stood at 17.63%, every other sector revolves around the banking sector for credit management and so it is a critical sector in any developed or developing economies of the world. In view of the pivotal and critical role it plays in the economy, governments all over the world are keen in ensuring the sector is devoid of

fraudulent manipulations and avoid the 2008 financial crisis in the US and Europe. In Nigeria because of socio-political and economic dynamics, there is a general upward trend in corrupt and fraudulent practices among the people. Nigeria has thus faced various financial crisis resulting from many failed banks and finance houses in the last two decades. There are various advanced fee and other investment frauds perpetrated in Nigeria and that has bedevilled the Nigerian economy and the world. This is fuelled by the emerging trend where societal appeal for power, authority and recognition is strong and compelling as many believe that power, authority and recognition can be achieved through acquisition of wealth, legally or illegally. This desire for wealth is also propelled by the need to take care of personal health, education, housing, security and other services which are the primary responsibilities of governments, but which governments have failed and/or neglected to provide.

Also as stated by Ewa, Adebisi & Kankpang [9], Nigeria has thus experienced big investment frauds and trading scams that have resulted in the loss of billions of dollars from gullible people as it is alleged Nigeria's financial sector does not have efficient fraud detection mechanism and the prevailing business laws are inadequate to prosecute offenders. Globally many financial institutions collapse like Fannie Mae, Freddy Mae, Stamford Group, Leman Brothers and Northern Rock in the US and UK are attributable to fraud. These criminal vices have led to reduction or even dis-investment from Nigeria and its attendant negative consequences on economic growth is enormous as unemployment is projected to hit 33.5 per cent by 2020 and national poverty rate of 40.09 per cent, NBS [26] & Ngigi [27]. Also with the introduction of electronic banking and enhanced Information and Technology (IT) infrastructures in the banking sector and in Nigeria generally, there is an astronomical increase in financial crimes, mismanagement and misappropriation of funds in the government agencies and the banking sector. In 2017, the Nigerian Deposit Insurance Corporation (NDIC) reported that frauds and forgeries involved in the banking sector amounted to N12.01 billion.

This growing level of fraudulent activities and the negative image on the banking sector is a cause of concern for necessary mechanism or controls that will address this cancer in the system. Against this backdrop is the introduction of forensic accounting techniques in curbing fraudulent practices and easy identification of infractions in the banking system in Nigeria.

1.1. Statement of the Problem

As the fraudsters have over time developed and are continuously developing skills to outwit both internal and external auditors and management who are expected to superintend over the businesses, there is an urgent need to put in place mechanism to address this menace. As Wall and Fogarty [40] stated, fraud mitigation remains key in the justification for internal control implementation, auditing effect and regulatory design. Therefore there arises the need to evolve techniques to stem the tide of these fraudulent practices. In fact most of these frauds are perpetuated under the watchful eyes of both Internal and External Auditors without their knowledge interrogating a vexed question of the capacity of the auditors and the application techniques the organizations are adopting. Uncovering and fighting these fraudulent activities and illicit financial flows requires information on how, where, who owns, controls or ultimately benefits from any business involved in potentially illegal activities in the bank:

namely, the beneficial owners. Could the ineffectiveness in tackling this menace therefore be as a result of the lack of application of forensic accounting techniques in banks' operations in Nigeria?

It is in the light of the above that this study attempts to evaluate the extent to which Forensic Accounting techniques can help in the prevention and detection of fraudulent activities in the banking sector in Nigeria.

1.2. Objectives of the Study

Anchored on fraudsters' continuous development of skills to outwit both internal and external auditors and management, this study is to evaluate the probable effect of forensic accounting techniques on fraud prevention and detection in the banking sector in Nigeria. Specifically to:

- i. Ascertain the effect of commercial data mining technique (CDM) on fraud prevention and detection in commercial banks in Nigeria.
- ii. Ascertain the effect of the application of ratio analysis technique (RAS) in fraud prevention and detection in commercial banks in Nigeria.
- iii. How the application of trend analysis technique (TRD) prevents or detects fraud in commercial banks in Nigeria.

1.3. Research Question

The research question for the study is to examine to what extent can forensic accounting techniques (commercial data mining, ratio analysis and trend analysis) detect or prevent fraudulent activities in the banks in Nigeria.

- i. To what extent can the application of commercial data mining technique (CDM) prevent or detect fraud in commercial banks in Nigerian.
- ii. To what extent can the application of ratio analysis technique (CDM) prevent or detect fraud in commercial banks in Nigerian.
- iii. To what extent can the application of trend analysis technique (CDM) prevent or detect fraud in commercial banks in Nigerian.

1.4. Research Hypotheses

The research hypotheses are:

H₀₁: The application of commercial data mining technique (CDM) has no significant effect on fraud prevention and detection in commercial banks in Nigerian.

H₀₂: The application of ratio analysis (RAS) technique has no significant effect on fraud prevention and detection in commercial banks in Nigerian.

H₀₃: The application of trend (TRD) analysis technique has no significant effect on fraud prevention and detection in commercial banks in Nigerian.

2. Literature Review

2.1. Theoretical Framework

Several attempts have been exerted on defining fraud. This is so because it evokes a visceral reaction in the society. It could be described as a trick with a purpose to obtain someone else assets. It thus involves deception, confidence and trickery. Fraud can thus be distilled into four basic elements of false representation of a material nature which is false, and or recklessly so but is believed and acted upon by the victim and the victim suffers damages resulting from his reliance thereon. This study is anchored on rational choice theory and the fraud deterrence cycle following the rational behaviour of man in satisfying his wants and the deterrence of management to stem the tide of individuals' quest for illegal acquisitions.

2.1.1. Rational Choice Theories

The Rational choice theories which were developed by Marcus Felson and Lawrence Cohen (1968) (cited by Felson & Clarke in [15]) are applicable to employee fraud by combining elements of classical theory as well as economic theory in explaining the criminal behaviour of individuals. Human beings from a classical perspective are considered inherently reasonable and hedonistic who rationally evaluate the possible costs and benefits of a given act (Beccaria, 1764 cited by Hollinger & Davis [17]). Ordinarily people are tempted to take decisions that will avoid pain but with maximum amount of satisfaction notwithstanding breaking the law of the land (Bentham, 1789 cited by Hollinger & Davis [17]).

2.1.2. Fraud Deterrence Cycle Theory

Individuals may not often make distinction between the outrageous and the fraudulent or between bad judgment and wrong doing. A systematic and rigorous approach is essential to manage transactions from the prism of deterrence, discovery, investigation and remediation, [16]. Fraud deterrence cycle according to Golden, Skalak and Clayton [16] is an interactive process with four main elements of corporate governance, transaction level controls, retrospective examination of governance and control processes and investigation and remediation of suspected or alleged problems.

2.1.3. Fraud Triangle

Classic fraud theory explains the reasons behind fraud as a triangle of perceived opportunity, perceived motivation and perceived rationalization. Edwin Sutherland in his book *White Collar Crime* in 1949 is credited to have coined the term and so he is seen as the initial contributor to the model. The fraud triangle theory was propounded by Cressy [7] in an attempt to understand what precipitates, inspire or motivates people to commit fraud or crime. Through extensive interview of fraudsters in prisons, he postulated that every fraud has three things in common – motivation or pressure, rationalization and opportunity to commit the crime. Fraud or crime will occur only when there is pressure of motivating factor on the fraudster. These factors may be extreme financial need, organizational action, entailed organizational rewards or punishment for individuals not meeting set targets. Notwithstanding the desire to commit fraud, without the second leg of the triangle – existence of opportunity, the fraud will not occur. There must therefore be a distinctive avenue or situation for the fraudster to gain access or control over the resources to be defrauded. These opportunity ranges from weak internal controls in the organization, absence of proper accountability and disproportionality between the perceived benefits of the fraud and the perceived costs of being detected and punished. According to the theory, although there may be pressure and opportunity to commit fraud, without rationalization fraud will not occur. Rationalization thus completes the precipitating factors that must be present for fraud to occur. Rationalization is self-justification for deviant act which involves justifying the crime under the circumstance by giving excuses why the action is necessary as perpetrators need a way to justify their actions as being acceptable or normal.

2.2. Conceptual Framework

2.2.1. Fraud and Its Classification

The word Fraud has many definitions according to the circumstance. Fraud as a crime includes all the multifarious means that man invents to get an advantage over others by false representation. Fraud as a tort in the other hand is defined as a material representation by the defendant which is false and which was not actually believed by the defendant to be true and was made with the intent to be acted upon and indeed it was acted upon innocently by the compliant to his detriment. However, to the layperson, fraud is dishonesty in the form of an intentional deception or manipulation of material facts with clear intension to deceive by coercing people to act against their own best interests for the fraudster's material gain.

Fraud may be classified according to those committed against organizations or committed on behalf of the organizations. Employee fraud is a fraud where the victim of the fraud is the organization while financial statement fraud is fraud committed on behalf of the organization by making the financials of the organization look better than they actually are. Fraud may also be classified under occupational fraud taxonomy. Occupational fraud is the use of one's position in the organization for personal enrichment through the deliberate misuse or misapplication of the organization's resources or assets. This involves use of official resources for personal benefit. This ranges from asset misappropriation, corruption and fraudulent falsification of an organization's financial statements. Occupational fraud

classes include employee embezzlement, management fraud, investment scams, vendor fraud, customer fraud and miscellaneous frauds. The Association of Certified Fraud Examiners [2] defined Occupational fraud as "the use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization's resources or assets".

2.2.2. Forensic Accounting

Forensic Accounting has been defined by many scholars according to their perspective of the subject matter. Whereas Zysman [43] defined forensic accounting as the integration of accounting, auditing and investigative skills, Joshi [20] defined forensic accounting as the application of specialized knowledge and specific skill to stumble up on the evidence of economic transaction. On the application of forensic accounting while Coenan [6] opined that it involves the application of accounting concepts and techniques to legal problem, Akintoye [3], Degboro and Olofinola [8] and Singleton, Bologna, Singleton and Lindquist [38] opined that it involves with the relationship and application of financial facts to legal problems. Forensic accounting is also seen as the practice of utilizing accounting, auditing and investigative skills to assist in legal matters, Manning [22]; Murray [25]; Owojori & Asaolu [33].

As the discipline is changing in response to the growing needs of corporations, so it is being redefined as the application of financial expertise and detailed examination and analysis of financial documents and records for use as evidence in a court of law, Howard & Sheetz [18]; Ramaswamy [34]; Sage Forensic Accounting [36] and Zysman [34].

2.2.3. Forensic Accounting Tools

Among the tools employed by experts in the profession to carry out investigation, detailed examination, analysis and diagnosis of financial transactions with a view to giving expert advice include; Data mining, ratio/vertical and horizontal analysis and trend analysis.

2.2.3.1. Commercial Data Mining

Data mining is the application of specialized software that looks for anomalies, patterns and correlations in databases to predict outcomes. It facilitates the extraction of hidden predictive information from large databases and has great potential to assist organizations identify trends, anomalies and other unusual activities thus allowing businesses to make proactive knowledge driven decisions. Data mining software are extremely helpful in detecting fraud as it has scripting capabilities and can search organizations' databases for anomalies and suspicious patterns that are symptoms of fraud. Some of the commercial data mining software are Audit Command Language (ACL) and CaseWare IDEA.

2.2.3.2. Ratio Analysis

Ratio analysis is the act of measuring the relationships among different financial statement items as well as between these items and nonfinancial data. While vertical analysis is a method of comparing elements of a financial statement with a common base item, horizontal analysis is used to understand the ratio of change in different financial statement items over a defined period. Ratio analysis as a forensic accounting technique is used to compare either on a historical basis, industry basis or against a defined benchmark. It identifies fraud therefore by examining the patterns of the data to highlight

possible deceitful transactions. Vertical analysis in the other hand expresses financial statement numbers to percentages.

The technique is very useful for fraud detection because percentages are easily understood by all and sundry. When vertical analysis is applied in analysing changes in income statement, gross sales are set at 100 per cent while all other amounts are converted to a percentage of sales. Horizontal analysis focuses on changes over period. While under ratios and vertical analysis, statements are converted to numbers that are easier to understand and the numbers are compared from period to period, under horizontal analysis, the changes in amounts from period to period are converted to percentages.

2.2.3.3. Trend Analysis

Trend analysis is one of the important forensic accounting techniques that can be deployed to identify frauds. Emphasis is on focusing on the transactions which are exceptional in nature. It may be difficult to identify certain transactions from the current data but if the transactions current entries are compared with the previous year data entries they can easily be identified as fraudulent. By comparing sales and bad debts data over the years in an organization, it is easy to establish if the level of sales increases is at the same rate as bad debts increases. Under such scenario, it could be suspected that such bad debts are nothing but the product of fraudulent sales transactions or manipulations entered in the system to increase turnover. Such fraudulent manipulations could not be identified without the help of trend analysis over a defined period.

2.3. Empirical Review

There are numerous researches carried out on impact of forensic accounting and fraud prevention and detection both in Nigeria and globally. In examining forensic accounting and financial Crimes, Izedonmi and Ibadin [19], looking at some basic and common financial crimes in corporate organizations in Nigeria revealed the motivations for financial crimes are built around some risk factors, such as incentive (or pressure), opportunity and rationalization surrounding the financial criminals.

In the study that examined the application of forensic auditing in fraud control by analysing the trend of fraud cases, Zachariah, Masoyi, Ernest and Gabriel [41], recommended the employment of forensic auditing in Nigeria by amending the Audit Act to incorporate compulsory inclusion of forensic auditors in each audit team. In the study examining the level of forensic auditors' ability to fulfil effectiveness in detecting, investigating and preventing fraud, Njanike, Dube and Mashayanye [28] found among other constraints, lack of technical capacity by auditors, lack of necessary resource materials, and management interference on audit assignments and non-recognition of the profession.

Also on the need to enhance capacity, Okafor and Agbiogwu [29] in their study on the effect of forensic accounting skills on the management of fraud in banks in Nigeria highlighted the need to enhance accountants' skills as it aids in the discharge of their duties. However, in their study, Enofe, Omagbon and Ehigiator [12] examined the impact of forensic audit on corporate fraud and concluded that frequent utilization of forensic audit services will significantly help in detecting, preventing and reducing incidences of fraud.

Investigating the relative merits of engaging forensic accountants when drawing up an audit plan to effectively identify management fraud, Okoye and Gbegi [30] study revealed forensic accountants effectively modified the scope and nature of audit tests when the risk of management fraud was considered high by proposing special audit procedures. They recommended more training and the involvement of forensic accountants' right from the planning stage of an audit when there is suspicion of management fraud risk. In investigating how forensic accounting services can prevent and manage fraud in Microfinance banks, Bassey [5] employed litigation support and forensic investigation services as independent proxies and the study revealed an active engagement of both litigation support and forensic investigation services by Microfinance banks drastically reducing fraud and playing a significant role in the prevention of crimes and corruption.

In examining agreement amongst stakeholders on the effectiveness of forensic accounting in the control of financial fraud, qualities of financial reports and internal control, Modugu and Anyaduba [23] adopting a survey research method revealed significant agreement among the stakeholders on the effectiveness of forensic accounting in controlling fraudulent practices, improvement in the quality of financial reports as well as improvement in the quality of internal control procedures in the organizations. On his part Ejoh [10] investigated the impact of forensic accounting application in monitoring internal controls, detection and prevention of financial fraud in Nigeria. The study which employed survey research design and enlisted 150 accountants, auditors and top management staff revealed the application of forensic accounting techniques is effective and significant in fraud detection, prevention and in monitoring and evaluating internal controls.

In investigating the role of forensic accounting in curtailing financial crimes, Enofe, Agbonkpolor and Edebiri [11] study revealed the dire need for forensic accountants in the banking sector in Nigeria as forensic accounting is an effective tool to addressing financial crimes. In its ability in combating fraudulent activities in the banking sector, Ezejiofor, Nwakoby and Okoye [14] study revealed that forensic accounting is an effective tool for handling financial crimes and ensuring corporate governance in the banking sector. Examining the relationship between fraud detection and forensic accounting services, Enofe, Okpako and Atube [13] found the application of forensic accounting services by organizations affected the level of fraud incidences in the organizations.

Investigating the effect of forensic investigation methods on corporate fraud deterrence in Nigerian Banks, Onodi, Okafor and Onyali [31] adopting a survey research design method revealed among others the existence of a significant relationship between the forensic investigative methods and corporate fraud deterrence. But examining the impact of using forensic accounting on financial corruption, Albduallah, Alfadhl, Yahya and Rabi [4] adopting survey research method to gather respondents for the research revealed existence of significant relationship between forensic accounting methods and the effectiveness of audit firms in detecting financial corruption.

In examining data mining framework for prevention and detection of financial statement fraud following the alarming proportion of reported financial statements frauds globally, Rajan and Nasib [35] proposed

data mining framework for prevention and detection of fraudulent practices in financial statements whose features includes the various financial ratios measuring profitability, liquidity, safety and efficiency and also incorporating behavioural characteristics. Surveying data mining techniques used in fraud detection and prevention, Sheela and Sandip [37] stated that data mining is a powerful tool applied by many enterprises to enhance their operations and competitive advantage. They stated that although there are studies on data mining and various data mining techniques that can be used to detect and identify different types of fraud, this study arose due to little research that synthesizes various facets of fraud that uses the data mining technique. The study thus categorized fraud into four categories management fraud, customer fraud, network fraud and computer based fraud. In the study to explore the effectiveness of data mining classification techniques in detecting firms that issue fraudulent financial statements, Kirkos, Spathis and Manolopoulos [21] investigated the usefulness of decision tree, neural networks and Bayesian Belief Networks in the identification of fraudulent financial statement and found dependency between falsification and the ratio, debt to equity, net profit to total assets, sales to total assets, working capital to total assets and Z score under Bayesian model. The decision tree model revealed falsification of financial statements with distress. Investigating detection of financial fraud using data mining techniques, Monsa [24] revealed logistic regression model tool as the leading data mining tool employed by many organizations in detecting financial fraud.

In a study on fraudulent activities and forensic accounting services of banks in Port Harcourt, Nigeria, Onuorah and Ebimobowei [32] employed a sample of (24) banks and analysed the data with the aid of least-squares, and Granger Causality. The study revealed a significant impact of forensic accounting applications on the level of fraudulent activities in the banks as forensic accounting services gives banks good mechanisms that help to detect these fraudulent activities.

3. Research Methodology

The study is geared towards evaluating the application of forensic accounting techniques in fraud prevention and detection in the banking sector in Nigeria. The study sampled respondents from commercial banks operating in Cross River State, Nigeria.

A survey design was adopted for the study. Its anonymity necessitated by the sensitive nature of the subject of this study allowed participants to make honest responses. The population of the study consisted of 170 senior and management staff of the 15 commercial banks branches in Cross Rivers State. They include accountants, auditors, IT specialists and economists. Using purposeful sampling, 150 out of the population of 170 were selected to participate in the study and 150 structured questionnaires were distributed. A five-point Likert scale (strongly agree – 5points, agree – 4points, undecided – 3points, disagree – 2points and strongly disagree – 1point) was used to grade the responses and logically reflect the degree of the ranking. The number of questionnaires distributed yielded 140 useful responses which were then used in the data analyses.

Since this study is an opinionated research, the questionnaire instrument was structured to elicit responses from the research participants. The questionnaire was divided into two sections, A and B.

Section A contained the demographic data of the respondents while section B contained critical belief questions that elicited responses on the impact of forensic accounting techniques in fraud prevention and detection. The instrument was designed so as to enable respondents choose from the five optional probable responses to each belief question.

3.1. Techniques of Data Analysis

This study examined the extent of the application of forensic accounting techniques using proxies as commercial data mining technique, ratio analysis technique and trend analysis technique in detecting and preventing fraudulent activities in the banking sector in Nigeria using multiple regression analysis. This model is suitable because the research focus is on examining the relationship between forensic accounting techniques and fraud prevention and detection in Nigerian banks. All estimations were performed using SPSS 20.0 software.

3.2. Model Specification

The model specification used to examine the forensic accounting techniques as the determinants of fraud prevention is specified functionally as:

Fraud prevention/detection = f (Forensic accounting technique) = FP = f (CDM, RAS, TRD)

It is stated econometrically as:

$$FRP = \beta_0 + \beta_1 CDM + \beta_2 RAS + \beta_3 TRD + \mu_1$$

Where:

β_0 = Unknown Constant term to be estimated

FRP = Fraud Prevention/Detection

CDM = Commercial Data Mining Software technique

RAS = Ratio Analysis technique

TRD = Trend Analysis technique

μ = Stochastic error term

$\beta_1 - \beta_3$ = Unknown coefficients to be estimated

$\beta_0, \beta_1, \beta_2, \beta_3 \geq 0$

3.2.1. A Priori Expectation

This is a theoretical statement which expresses what a probable result analysis would be. In this study, it is assumed commercial data mining technique, ratio analysis technique and trend analysis technique are to be positively related to fraud detection and prevention. The coefficients of $\beta_1, \beta_2, \beta_3 > 0$.

4. Data Presentation

4.1. Test of Hypotheses

Hypothesis 1:

H_{01} : The application of commercial data mining technique (CDM) has no significant effect on fraud prevention and detection in commercial banks in Nigerian.

H_{A1} : The application of commercial data mining technique (CDM) has a significant effect on fraud prevention and detection in commercial banks in Nigerian.

Decision rule: accept H_{01} if probability of t-stats is greater than 0.05 else reject H_{01} . From our model we can see that CDM has a probability of 0.000 which is less than 0.05, therefore we reject the notion that the application of commercial data mining technique (CDM) by banks has no significant effect on fraud prevention and detection in the commercial banks in Nigerian rather accept that, the application of commercial data mining technique (CDM) has significant effect on fraud prevention and detection in the commercial banks operations. This implies that commercial data mining technique has a significant effect in preventing or detecting fraudulent activities in the banking system in Nigerian. This is in agreement with [24,35&37].

Hypothesis 2:

H_{02} : The application of ratio analysis (RAS) technique has no significant effect on fraud prevention and detection in commercial banks in Nigerian.

H_{A2} : The application of ratio analysis (RAS) technique has a significant effect on fraud prevention and detection in commercial banks in Nigerian.

Decision rule: accept H_{02} if probability of t-stats is greater than 0.05 else reject H_{02} . From our model we can see that ratio analysis technique has a probability of 0.000 which is less than 0.05. Arising from the result, the null hypothesis is rejected while the alternative hypothesis that ratio analysis technique has a significant effect on preventing and detecting fraudulent activities in the banking system in Nigeria is accepted.

Hypothesis 3:

H_{03} : The application of trend (TRD) analysis technique has no significant effect on fraud prevention and detection in commercial banks in Nigerian.

H_{A3}: The application of trend (TRD) analysis technique has a significant effect on fraud prevention and detection in commercial banks in Nigerian.

Decision rule: accept H₀₃ if probability of t-stats is greater than 0.05 else reject H₀₃. The model result shows a probability of 0.000 which is less than the test significance of 0.05. Arising from the result, the null hypothesis is hereby rejected while the alternate hypothesis that trend analysis technique has a significant effect in preventing and detecting fraudulent activities within the banking system is accepted.

5. Discussion of Findings

The descriptive statistics in Table 2 shows that the mean response for the entire commercial data mining is 27.0500 which indicated that the average responses to the nine belief statements clustered around the undecided responses. This implies their lack of awareness of the functionality of data mining technique in detecting and preventing fraudulent activities in the banks. The standard deviation of 5.09383 is an indication of the degree of dispersion of the total responses from the mean response. The maximum and minimum values are 33.00 and 20.00 respectively.

Table 2. Descriptive statistics result on the effect of commercial data mining software (CDM), ratio analysis (RAS), and trend analysis (TRD) techniques on fraud prevention and Detection (FRP)

	Mean	Std deviation	Min	Max	Skewness	Kurtosis
CDM	27.050	5.094	20.00	33.00	0.118	-1.837
RAS	40.471	4.688	34.00	45.00	-0.271	-1.890
TRD	22.129	4.863	12.00	27.00	-0.990	-0.603
FRP	33.643	2.919	27.00	37.00	-1.019	0.029

Dependent Variable: FRP

Independent Variables: CDM, RAS, TRD

Source: Researcher's SPSS 20.0 Computation, 2020

Also, the mean response for the entire ratio analysis technique sample in Table 2 is 40.4714 which translated to average response of the nine belief statements clustering between strongly agreed and agreed responses. That is most of the respondents' responses either fell under strongly agreed or agreed. This shows the awareness of the respondents to the application of ratio analysis as forensic accounting technique that can be used in detecting and preventing fraudulent acts. The standard deviation of 4.68803 indicates the degree of dispersion of the total responses from the mean response. The maximum and minimum values are 45.00 and 34.00 respectively.

Similarly, the mean response for the entire trend analysis technique sample in Table 2 is 22.1286. This showed the average response of the six belief statements clustering between agreed and undecided responses. That is most of the respondents' where either agreeing or undecided to the belief questions. Again this implies respondents' limited awareness of the functionality of trend analysis technique in

detecting and preventing fraudulent activities in the banks. The standard deviation of 4.86337 indicates the degree of dispersion of the total responses from the mean response. The maximum and minimum values are 27.00 and 12.00 respectively.

The mean response for the entire dependent variable sample in Table 2 is 33.6429. This showed the average response of the nine belief statements skewed to agreed response. Again this highlights respondents' degree of knowledge of policies in place to detecting and preventing fraudulent activities in the banks. The standard deviation of 2.91873 indicates the degree of dispersion of the total responses from the mean response. The maximum and minimum values are 37.00 and 27.00 respectively.

The Ordinary Least Squares (OLS) results presented in Table 3 revealed positive and significant relationship between the commercial data mining, ratio analysis and trend analysis and fraud prevention and detection in the banking sector. This is evidenced by their correlation coefficients of 0.746, 0.855 and 0.782 and their probability values of 0.000, 0.000 and 0.000. The result implies application of forensic accounting techniques in the operations of the banks have strong association with fraud prevention and detection in the system. This confirms the various studies on the impact of forensic accounting on fraud detection and prevention, [4,5,13,14,10,31&12].

Table 3. Inter correlation among the variables

	FRP	CDM	RAS	TRD	SIG
FRP	1.000	0.746	0.855	0.782	0.000
CDM	0.746	1.000	0.822	0.516	0.000
RAS	0.855	0.822	1.000	0.750	0.000
TRD	0.782	0.516	0.750	1.000	0.000

Dependent Variable: FRP

Independent Variables: CDM, RAS, TRD

Source: Researcher's SPSS 20.0 Computation, 2020

Table 4 is the econometric linear model specified in our model equation. The result suggests that a one unit rise in data mining leads to 14.5 unit increase in fraud prevention and detection with a probability value ($p = 0.000$). The probability value (0.000) is less than the test significance level of $\alpha < 0.05$. This is in agreement with [24,35,&37]. Also one unit rise in ratio analysis technique in the banks' operations leads to 22.5 unit increase in fraud prevention and detection with also probability value ($p=0.000$) which again is less than the test significance level of $\alpha < 0.05$. The result similarly revealed a one unit rise in the use of forensic accounting technique of trend analysis leads to 22.9 unit increase in fraud prevention and detection commercial banks in Nigeria with a similarly probability value ($p=0.000$) which is less than the test significance level of $\alpha < 0.05$, implying the significant effect that trend analysis which is one of the forensic accounting techniques has on fraud prevention and detection in commercial banks operations. Likewise, the coefficient of determination (adjusted R-Square) shows that 79.1 per cent of

the variation in fraud prevention and detection is attributable to the application of forensic accounting techniques proxies of data mining, ratio and trend analysis techniques by the banks while the remaining 20.9 per cent is due to other factors not included in the model. The F-ratio of 164.169 confirmed the fitness of the model to test the data. The Durbin Watson of 0.160 indicates positive autocorrelation among the variables.

Table 4. Least square regression result model summary of Forensic Accounting Techniques on Fraud Prevention and Detection (Regression constant and coefficients)

Item	Unstandardized Coefficient		Standardized Coefficients		
	B	Std Error	Beta	t	Prob
Con	15.559	1.133		13.728	0.000
CDM	0.145	0.040	0.253	3.583	0.000
RAS	0.225	0.057	0.361	3.959	0.000
TRD	0.229	0.036	0.381	6.269	0.000
R	0.892				
R Square	0.796				
Adjusted R square	0.791				
F. Ratio	176.390				
Prob.	0.000				
Durbin-Watson	0.160				

Dependent Variable: FRP

Independent Variables: CDM, RAS, TRD

Source: Researcher's SPSS 20.0 Computation, 2020

The three forensic accounting techniques studied (CDM, RAS and TRD) are significant and positively related to fraud prevention and detection in the commercial banks in Nigeria with probability value ($p = 0.000$) at 0.05 per cent significance level. The result reveals that everyone per cent increase in CDM, RAS and TRD will lead to 14.50 per cent, 22.50 per cent and 22.90 per cent respectively in fraud prevention and detection in the commercial banks in Nigeria.

5.1. Summary of Findings

This study revealed that a significant relationship exists between forensic accounting techniques application and fraud detection and prevention as the three forensic accounting techniques investigated have positive relationship between with fraud detection and prevention in commercial banks in Nigeria. The study specifically showed that data mining software is a veritable in detecting and preventing fraudulent practices in the banking sector. Also, the study highlighted the importance of ratio analysis technique as it is also a veritable tool to detect and prevent fraudulent activities in the banking

operations. Thirdly, the study showed the importance of trend analysis technique in detecting and preventing fraudulent practices.

5.2. Conclusions

Arising from the analysis of participants' responses, many bank staff are ignorant of what data mining software is all about and so they were on the fence in their responses to the belief questions put across to them. Also from the analysis of participants' responses, there is limited awareness of trend analysis technique as a tool that can be employed to detect or prevent fraud in the system.

5.3. Recommendations

In view of the observations and findings that the application of forensic accounting techniques have the potential to detect or prevent fraudulent practices in the banking system and the apparent weaknesses highlighted, we recommend as follows:

1. All commercial banks as a regulatory policy should be mandated to install robust commercial data mining software in their internal audit units and Servers across the branches. Also as the banks embraces technology, there should be human capacity building through staff training in information technology system.
2. Anonymous response hotline should be introduced in all the banks and extensive awareness put in place for the attention of the public.
3. The data mining software should incorporate features that will capture independently from the branch management instances where deposits and withdrawals from same account are made on a given date to be used in cross checking the exception reports from branches on the subject matter. Also features that will capture exception reports reflecting fraudulent transactions with unusual questionable patterns of supervisory overrides or transactions with no apparent business purposes as well as instances where accounts are either opened or closed or transactions are effected in an account in the absence of the account holder.

Annexures

Questionnaires Analysis

Key:

- SA = Strongly Agree
- A = Agree
- UD = Undecided
- DA = Disagree
- SD = Strongly Disagree

Table 1A. Analysis of commercial data mining technique questionnaire

S/N	Belief statement	SA	A	UD
	Commercial Data Mining Software			
1	The bank hasn't the technique that can examine loan portfolio trends of customers by sector, age and individual		125	15
2	The bank hasn't facility that looks for anomalies in the banks database		10	130
3	The bank hasn't the facility that detect amount of pass due	54	68	18
4	The bank hasn't facility to electronically compare employees telephone numbers with customers telephone numbers		69	23
5	The bank hasn't a software that reports transactions with no apparent business purpose and transactions involving unusually large amounts		69	31
6	The bank hasn't the possibility of identifying instances of journal vouchers containing only one signatory and reflecting transfers between different customers' accounts		69	30
7	The bank hasn't the possibility of identifying instances of deposits and withdrawals from the same account made on the same day or within a short period of time and not appearing on the exception reports			55
8	The bank hasn't the possibility of identifying instances of customers not present when accounts were opened and closed or when transactions were effected in their account			50
9	The bank hasn't the software that reports exception reports reflecting fraudulent transactions which exhibits unusual, atypical and otherwise questionable patterns of supervisory overrides, transactions with no apparent business purpose and transactions involving unusually large amounts			50

Source: Field survey analysis

Table 1B. Analysis of Ratio analysis technique questionnaire

S/N	Belief statement	SA	A	UD
Ratio analysis technique				
1	Ratio analysis is the use of our accounting information to help us be aware of prospective problems and to compare with other industry ratios.	79	61	
2	Return on Assets (ROA) is expressed as: Net Income divided by Total Assets, Multiplied by 100. This ratio is computed in your bank to measure how management is using its assets to generate more income.	79	61	
3	Return on Equity (ROE) is expressed as: Net Income divided by average Equity, Multiplied by 100. This ratio is computed in your bank to measure how well management is using investments (shareholders fund) to generate more income.	79	61	
4	Return on Investment (ROI) is expressed as: Net Income divided by cost of investment, Multiplied by 100. This ratio is computed in your bank to evaluate the efficiency of an investment or compare the efficiency of a number of different investments.	43	57	31
5	Debt-to-assets ratio is an indicator of a company financial leverage. Expressed mathematically as Total debt divided by total assets. This ratio is computed in your bank to measure total assets financed by creditors.	79	61	
6	Debt-to-equity ratio is an indicator of a company financial leverage. Expressed mathematically as Total debt divided by total equity. This ratio is computed in your bank to measure if it has more debt financing than equity financing and vice versa.	79	61	
7	Debt-to-capital ratio is an indicator of a company capital structure, financial solvency and degree of leverage. Expressed mathematically as Total debt divided by total debt plus total equity. This ratio is computed in your bank to measure total debt and financial liabilities against the total shareholders' equity.	79	61	
8	Asset-to-equity ratio is an indicator of a company financial leverage. Expressed mathematically as Total assets divided by total equity. This ratio is computed in your bank to measure the portion of the bank's assets that are financed by shareholders equity.	79	61	
9	The cash ratio compares a company's liquid assets to its current liabilities. It is the most conservative of all liquidity measurements. Expressed mathematically as Total cash and cash equivalents divided by current liabilities. Your bank uses this ratio to determine if it can meet its short-term obligations.	79	61	

Source: Field survey analysis

Table 1C. Analysis of Trend analysis technique questionnaire

S/N	Belief statement	SA	A	UD
	Trend analysis technique			
1	The bank has not the technique that can compare loan granted to customers categorized into principal sum, date of loan and name of approving/booking officials	41	59	23
2	The bank has not the facility that has register of gratifications to staff and comparing yearly impact on staff character		105	14
3	The facility enables procurement prices to be cross-checked outside monthly and BY sector.		55	64
4	The facility enables effective monitoring of employees via telephones, their financial transactions and close associate		105	14
5	The facility is enabled to detect all possible collusion between employees and others in business transactions		105	14
6	The facility is enabled to detect loose internal controls in the bank operations	55	35	18

Source: Field survey analysis

Table 1D. Analysis of Fraud prevention/detection questionnaire

S/N	Belief statement	SA	A	UD
	Fraud Detection/Prevention			
1	There is no policy in the bank to report all fraudulent cases to the public.	31	56	53
2	There is no deliberate policy in the bank to prosecute all fraud perpetrators in court without fear of backlash	31	56	53
3	Risk assessment processes under forensic accounting does specially cover risk of fraud	31	56	53
4	Staff are not allowed to grant overdraft facilities to one singular customer	55	55	30
5	There is no policy regulating the frequency of staff going on vacation			53
6	There is no policy regulating gratification to staff from customers.		71	38
7	There is no policy as to how long a staff spends in a given department.	53	73	14
8	The banks' response hotline does not acts swiftly to anonymous tips.	71	37	19
9	It is not normal for a staff to grant temporary overdraft without reporting to the head office	71	37	19

Source: Field survey analysis

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Forensic Accounting Skills and Techniques in Fraud Investigation in the Nigerian Public Sector

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Abstract

The research is designed to examine Forensic Accounting Skills and Techniques in fraud investigation in the Nigerian public sector. The population of this study comprised of 129 senior staff of the three Anti-Corruption Agencies in Nigeria (EFCC, ICPC, and CCB). The study methodology includes both primary and secondary sources of data collection; questionnaire was used in collecting primary data while secondary data were obtained from EFCC, ICPC and CCB. The data generated for this study were used for the testing of hypotheses using Analysis of variance (ANOVA) and time series analysis with the aid of SPSS version 17.0. Our findings show that, first, forensic accounting skills and techniques have significant effect on uncovering and reducing fraud in the Nigerian public sector. The research recommends that, first, anti-corruption agencies in Nigeria should establish forensic units and forensic laboratories

to allow room for more effective and efficient investigation of suspected and confirmed fraud cases. Second, the public sector (government) should develop interest in forensic accounting by making sure that forensic accounting is institutionalized in all ministries, extra-ministerial departments and parastatals to build up effective internal control system that will enhance more effective performance in the Nigerian public sector.

Keywords: Forensic Accounting, Skills, Techniques, fraud investigation, public sector.

1. Introduction

Fraud is a severe problem of concern globally. It is a major concern in developing nations. It is so endemic that fraud are gradually becoming a normal way of life in both public and private sectors, from the presidential cabinets, down to the political officer, to the ward councilors, from managing directors of companies, through middle management cadre and to lower managers. Individuals perpetrate fraud according to the capacity of their offices. Although fraud affects the whole world, the magnitude of fraud in Nigeria and the extent to which the economy is affected is a call for alarm (Abiola, 2009).

Fraud has been associated with human organization from recorded history. The eradication of which has remained elusive in most parts of human society and civilization. It is an act of deception intended for personal gain or to cause a loss to another party. Seetharaman, Sentivelmurugan and Periyannagam (2004) observed that an analysis of the characteristics of perpetrators showed that the fraud influencing factors include age, gender, position education background and existence of motive for collusion. The growth of digital computer technology procreates fraud and generates additional risks of swindling and illicit activities.

There has been an increased concern about fraud in Nigeria and beyond. For instance the oil subsidy probes in Nigeria which reveals that between 2007 and 2009, the Nigerian National Petroleum Corporation (NNPC) over deducted funds in subsidy claim to the tune of N28.5 billion naira calls for concern (Oboh, 2012).

However, the Auditor-General of the Federation admitted some anomalies in the operations of Federal Inland

Revenue Services (FIRS). According to him, the audit examination of the accounting records maintained for the

Federation Account of FIRS revealed that the collecting banks were in the habit of late remittance of actual collection to

the CBN thereby contravening the agreement between FIRS and collecting banks. Also, there was no documentary

evidence to authenticate the payment of the penalties and interests amounted to N172, 655 million to the Federation

account in 2009. The Auditor-General added that some money generated from over recovery was not remitted to the

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Federation (Obboh, 2012).

In the case of Nigeria Custom Services (NCS), the report states “audit examination of the records maintained for

the Federation Account as the NCS revealed discrepancies between the figures of revenue obtained from the customs,

and the figures of revenue remitted to the federation account by NCS” (Orkura, 2009). The discrepancies arose from

figures of nine months, which indicated that NCS remitted less than the revenue collected during the period to the

government. While the figures for the three months March, October and November indicated that NCS remitted more

than the revenues collected during the period to the Federation Account, which gave a total net difference of N11.122 billion, the report stated (Orkura, 2009).

The fraud cases mentioned above and some other corporate financial accounting scandals such as Enron, WorldCom, Global Crossing, Tyco, Cadbury and financial scams by some Nigerian Government officials as reported by Economic and Financial Crimes Commission (EFCC) have continued to increased concerns about fraud, wiped out billions of dollars of shareholders value and led to the erosion of investors’ confidence in financial markets and reduced

public trust in government. Fraud has had severe negative consequences on Nigeria, ranging from negative economic impact to negative national image (Ribadu, 2003). Looking at the recent

frauds in Nigeria, in each case the perpetrators are the people at the helm of affairs, for example the aviation scam of N5.6 billion in 2009 was perpetrated by the then Minister of

Aviation(Ojeme, 2010). The N2 billion Bayelsa State frauds in 2010 were perpetrated by the then Bayelsa state Commissioner of Finance, the state accountant general, the state’s Director of Treasury, and the Director of Finance (Ojeme, 2010). The Kogi State’s N1.9 billion scam was

committed by commissioners for Local Government and Chieftaincy Matters and Agriculture respectively, and Local Government Chairman (Ojeme, 2010). The capital market fraud (share

cloning) which started in 2002 was perpetrated by the executives of Bankolans investment limited and so on (Ojeme, 2010). From 2009-2010, Nigeria lost N13.8 billion to various financial

scams (Onyeje, 2009; EFCC media report, 2010 adopted from Obboh, 2012). What all these tend to expose is that there is a management or operational problem in the Nigeria public sector in the

area of financial or accounting control. Thus, one needs not wonder much to see how

devastatingly frauds have compromised the administrative competence, performance capacity and general credibility of the public sector. Initial estimates of major projects become little

fractions of ultimate costs paid; original cash projections

produce less than half of the benefits expected and projects which seemed technically feasible and economically viable, turned out “while elephant” if not abandoned, with serious implications for growth and development.

Literature reviewed that forensic accounting has helped to uncover and reduced fraud in countries such as

Britain, Canada, Germany and United State where it is in use but no research has been done in Nigerian public sector. It

has become pertinent that the forensic accounting skills and techniques could help to investigate fraud occurrence since

the external auditors do not or may not have the required training to be able to tackle modern frauds like white collar

crimes such as security fraud, embezzlement, bankruptcy, contract disputes, and possible criminal financial transactions;

including money laundering by organized criminals. It is against this background that this study seeks to examine the

forensic accounting skills and techniques to see whether or not fraud can be uncovered and reduced in the public sector

in Nigeria.

2. Research Questions

i. How do the Forensic Accounting Skills and Techniques help in uncovering fraud in the public sector?

ii. What is the influence of Forensic Accounting Skills and Techniques in reducing fraud in Nigerian public sector?

3. Objectives of the Study

The general objective of this study is to determine whether or not the forensic accounting skills and techniques can help in fraud investigation in the Nigerian public sector.

The specific objectives of this study are to:

i. Examine the use of Forensic Accounting Skills and Techniques in uncovering fraud in the Nigerian public sector

ii. Ascertain the influence of Forensic Accounting Skills and Techniques in reducing fraud in the Nigerian public

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sector.

4. Statement of the Hypotheses

-

H

01

: Forensic Accounting Skills and Techniques have no significant effect on uncovering fraud in the Nigerian public sector.

-

H

02

: Forensic Accounting Skills and Techniques have no influence on reducing fraud in the Nigerian public sector.

5. Theoretical Framework

Experts over time have attempted to formulate theories that explain the mind set of fraudsters. Unless Forensic

Accountants understand the way the fraudster thinks, they will not be able to keep one step ahead of the fraudster. The theory that will guide this study is the Theory of Fraud Diamond by Wolf and Hermanson (2004).

5.1 Theory of the Fraud Diamond

Wolf and Hermanson (2004) proffer the Theory of the Fraud Diamond, in place of the triangle.

They argue that the diamond offers a better view of the factors leading to fraud. They add a fourth variables, capacity, to the three-factor theory of Cressey. Capabilities mean that, the fraud perpetrator must have the necessary traits, abilities, or positional authority to pull off his crime.

Figure 1: The Fraud Diamond

Source: Wolf and Hermanson (2004)

Theory of fraud Diamond offers a better view of the factors to fraud. The theory adds fourth variable, capabilities, to the three factor theory of fraud triangle. Wolf and Hermanson believed many frauds would not have occurred without the right person with the right capabilities implementing the details of the fraud. They also suggested four observation traits for committing fraud; First, authoritative position or function within the organization, Second capacity to understand and exploit accounting systems and internal control weakness, Third, confidence that he/she will not be detected or if caught he/she will get out of it easily, Fourth, capability to deal with the stress created within and otherwise good person when he or she commits bad acts.

Reviewing the literature shows that researchers classified the motive side of the fraud diamond differently. Some

researchers classified them as personal, employment or external pressure, while other classified it as financial and non-

financial pressure. However, it can be noticed that both classifications are interrelated. For instance, personal pressure can come from both financial and non-financial. A person's financial pressure in this case could be gambling addiction or a sudden financial need, while a personal non-financial pressure can be lack of personal discipline or greed. By the same token, employment pressure and external pressure can come from either financial or non-financial pressure. Thus, Forensic Accountants have to keep in mind that pressure/motive to commit fraud can be either a personal pressure, employment pressure, or external pressure, and each of these types of pressure can also happen because of financial and non-financial pressure. Forensic Accountants also need to understand the opportunity for fraud to help them in identifying which fraud schemes an individual can commit and how fraud virus occurs when there is an ineffective or missing internal control.

However, it can be criticized that even though the fraud diamond added the fourth variable capability to the fraud triangle and filled the gap in other theories, the model alone is an inadequate tool for deterring, preventing or detecting fraud. This is because, the two sides of the fraud diamond (incentive/pressure and rationalization) cannot be observed,

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and some important factors like national value system are ignored.

Our present National Value System is not good, little or no premium is put on things like honesty, integrity and good character. The society does not question the source of "wealth". Any person who stumbles into wealth is instantly recognized and honoured. It is a fact of our time that fraud has its root firmly entrenched in the social setting where wealth is honoured without questions. Ours is a materialistic society which to a large extent encourages fraud. The desire to be with the high and mighty caliber of the society extreme want that is often characterized by need, cultural demands or cultivation of a life too expensive for the legitimate income of the individual. The research believes that, it is important

for Forensic Accountants to consider all the fraud models to better understand why fraud occurs. Therefore all other fraud models should be regarded as an extension to Wolf and Hermanson's fraud diamond and should be integrated in one model that include national value system. This should help them in effectively investigating and assessing fraud risk.

6. Conceptual Framework

Joshi (2003) sees forensic accounting as the applications of specialized knowledge and specific skills to stumble up on the evidence of economic transactions. Zysman (2004) puts forensic accounting as the integration of accounting, auditing and investigative skills. Simply put, forensic accounting is accounting that is suitable for legal review offering the highest level of assurance and including the now generally accepted connotation of having been arrived at in a scientific fashion (Crumbley, 2006). Coenen (2005) states that forensic accounting involves the application of accounting concepts and techniques. It demands reporting, where the accountability or the fraud is established and the report is considered as evidence in the court of law or in the administrative proceedings (Joshi, 2003). It provides an accounting analysis that is suitable to the court, which will form the basis of discussion, debate and ultimately dispute resolution (Zysman, 2004).

This means that forensic accounting is a field of specialization that has to do with provision of information that is meant to be used as evidence especially for legal purposes. The persons practicing in this field (i.e. Forensic accountants) investigate and document financial fraud and white-collar crimes such as embezzlement and investigate allegations of fraud, estimates losses damages and assets and analyses complex financial transaction. They provide those services for corporation, attorneys, criminal investigators and the Government (Coenen, 2005). Their engagements are usually geared towards finding where money went, how it got there, and who was responsible. They are trained to look beyond the numbers and deal with the business reality of the situation (Zysman, 2004).

Previous studies indicate that auditors are able to identify Management Fraud Risk factors, but may not be able to translate this knowledge into an audit plan that effectively takes them into account and enhances chances of detecting Management Fraud if it exists. Forensic accountants may be able to compensate for such limitations. Academics and practitioners may be over-estimating what Forensic accountants can contribute to the effectiveness of an audit plan.

They may be able to investigate a known fraud, but may not be able to design audit tests to detect a hypothesized fraud as well as auditors can.

Oliver (2004) is of the opinion that, because the complexity and scope of commerce has expanded throughout the world, the need to track money and financial information has grown. There has been a corresponding increase in illegal financial activity, according to separate surveys by the U.S department of Justice, Price Water House Coopers, and the Association of Certified Fraud Examiners (ACFE). Ironically, illegal businesses and perpetrators of financial crimes also need to keep track of their cash flow and manage their operational performance to generate profits, fund activities and avoid detection and seizure of their assets.

Forensic accounting also called investigative accounting or fraud audit is a merger of forensic science and accounting. Forensic science according to Crumbley (2003) “may be defined as application of the laws of nature to the laws of man.” He refers to forensic scientists as examiners and interpreters of evidence and facts in legal cases that also requires expert opinions regarding their findings in court of law. The science in question here is accounting science, meaning that the examination and interpretation will be of economic information. Zysman, (2004) the forensic accountant’s engagements are usually geared towards finding where money went, how it got there, and who was responsible. They are trained to look beyond the numbers and deal with business reality of the situation.

According to the Black’s law Dictionary, (1979) fraud (sometimes referred to as fraudulent act) includes all the multifarious means human ingenuity can devise that are resorted to by one individual to get an advantage over another by false suggestions or suppression of the truth. It includes surprises, tricks, cunning or dissembling and any unfair way by which another is cheated. Dandago (1997), fraud is an intentional misrepresentation of financial information by one or more individuals among management, employees or third parties. It involves the use of criminal deception to obtain an unjust or illegal advantage. It is a deliberate cheating or deception intended to gain an undue advantage. Michael, (2004)

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sees fraud as different from error, which refers to “unintentional misstatements or omissions of amount or disclosures from an entity’s accounting records or financial statements.”

7. Review of Empirical Studies

7.1

Modeling fraud detection and the relevance of forensic accountants in the audit process

Occupational Fraud has had a big impact on the audit and the destruction of its reputation. Koh and Woo (1998), argue

that there is a widespread belief that a person who has interest in a company (Shareholders, potential investors, take-

over bidders, creditors, etc) should be able to rely on its audited accounts as a guarantee of its solvency, propriety and

business viability, hence, if it transpires, without any warning that the company is in serious financial difficulty, it is widely

felt that somebody should be made accountable for these financial difficulty, it is widely felt that somebody should be

made accountable for these financial disasters, and this somebody is always perceived to be the auditor. Even though

the statements “is always perceived” can be understood as an overstatement, having in mind that fraud detection is

management’s responsibility. Association of Certified Fraud Examiners (ACFE) states in its 2010 report to the nations on

occupation fraud and abuse that medium losses coursed by the occupation fraud was \$160.000, which is about a 5%

loss of the typical organization annual; revenue (ACFE, 2010), the public still expected that auditors will be the ones to

detect fraud. Public expectation of the work required to be done by auditors and regulatory requirements for the audit

activity (known as “expectation gap”) have changed over the years.

Fraud detection was considered as the primary role in the audit until approximately 1940 and later on it changed to

be an ordinary examination that was not designed to disclosure defalcations, which increased public dissatisfaction with

the audit activity. To narrow the “expectation gap”, the American Institute of Certified public Accountant (AICPA) issued

series of Statement of Auditing Standard (SAS). Growing concern and expectations from the public culminated in the

advent of the Sarbanes – Oxley of 2002 and the adoption of the SAS No. 99 (as the response to the SAS No. 99 in

2004). International Federation of Accountants (IFAC) revised International Standard on Auditing (ISA) No. 240),

(Singleton et al., 2006). Since those documents were put into force more attentions has been paid to the issue of auditors detecting fraud, and more technical guidance has been presented to them. Nevertheless, new standards and requirements have reduced but not eliminated the “expectation gap”. Hence, it is still important to research the possibility to improve fraud investigation and detection in the audit process through the forensic accounting skills and techniques.

8. Research Design

The research design for this study was based on non-experimental descriptive/survey design of collecting and analyzing data. Survey design was adopted in the study because it allows data to be collected from a sample with the aim of discovering the relationship or interactions among variables (Adefila, 2008, Izedonmi, 2005). Both primary and secondary sources of data were used. The targeted populations of this study were the senior staff of Economic and Financial Crimes Commission (EFCC), Independence Corrupt Practices and other related offences Commission (ICPC) and Code of Conduct Bureau (CCB). The elements of the population considered in this research were the staff of Finance and Accounts units, audit unit, legal and prosecution unit, general investigative unit, financial intelligence unit and forensic unit. The senior staff of these units constituted the population for the study. The total population of the senior staff for the three agencies is one hundred and ninety (190). The study considered all the staff that falls within the above categories in these agencies qualified as members of the population because of their good knowledge and understanding of the application of forensic services in the agencies.

Table 1: Distribution of the population

S/No	Units	EFCC	ICPC	CCB	Total
1	Finance and Accounts	15	15	15	45
2	Audit	15	15	11	41
3	Legal and Prosecution	10	10	10	30
4	General Investigation	10	10	07	27
5	Financial Intelligence	10	10	07	27
6	Forensic	10	05	05	20
	Total	70	65	55	190

Source: Field Survey, 2012

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9. Sample Size and Sampling Technique

In determining the sample size, we used Yamane (1968) formula to select our sample from the population. The formula is given thus by Adefila (2008):

$$n = \frac{N}{1 + N e^2}$$

$$n =$$

$$N =$$

$$e =$$

Where:

n = Sample Size

N = Total population (190)

1 = Constant

e = Allowable margin to error. In this case, we consider 5% (0.05) error margin adequate (e)

$$=$$

$$= (0.05)$$

$$=$$

$$= 0.0025$$

$$n =$$

$$n = \frac{190}{1 + 190 \times 0.0025}$$

$$n =$$

$$n = \frac{190}{1 + 0.475}$$

$$n =$$

$$n = \frac{190}{1.475}$$

$$n =$$

$$n = 129$$

The sample size n = 129

After selecting the sample, we stratified this proportionately to the agencies depending on the proportion of the

entire population that comes from each of the units in the agencies using Kurnar (1976)

proportional allocation formula as

cited by Adefila (2008), thus:

$$h =$$

$$h =$$

$$h =$$

Where:

NH = Population of the stratum

n = The overall sample size

N = The overall population

Table 2: Distribution of sample among selected units in the agencies

S/No Units

EFCC ICPC CCB

No. of Staf

f

Administered No of Staf

f

Administered No. of Staf

f

Administered

1 Finance and Accounts 15 10 15 10 15 10

2

A

udit 15 10 15 10 11 07

3 Legal and Prosecution 10 07 10 07 10 07

4 General Investigation 10 07 10 07 07 05

5 Financial Inteligence 10 07 10 07 07 05

6 Forensic 10 07 05 07 05 03

Total 70 48 65 44 55 37

Source: Field Survey, 2012

From table 3.2 above, we have a total of 48 staff from EFCC, 44 staff from ICPC, and 37 staff from CCB has filled the questionnaire.

10. Method of Data Analysis

Data from the questionnaire administered were used in testing the hypotheses of the study using Analysis of Variance

(ANOVA), and Time Series Analysis with the aid of SPSS version 17.0.

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11. Results and Discussion

11.1

Test of Hypothesis One

H

01

: Forensic Accounting Skills and Techniques have no significant effect on uncovering fraud in the Nigerian public sector.

Table 3a: Observed Frequency Table

Variables Question 9 Question 16 Question 18 Question 19 Question 20 Total

S.A 72 48 30 40 43 233

A

35 69 77 69 69 319

S.D 13 - 5 5 5 31

D - 3 8 3 3 17

TOTAL 120 120 120 120 120 600

Source: Adopted from questionnaire, (2013)

11.1.1 Analysis of Variance (ANOVA)

Table 3b: Descriptive Sample

N Mean Std. Deviation Std. Error

95% Confidence Interval for Mean

Minimum Maximum

Lower Bound Upper Bound

strongly agree 5 46.60 15.646 6.997 27.17 66.03 30 72

A

gree 5 63.80 16.468 7.365 43.35 84.25 35 77

Strongly disagree 5 6.20 4.764 2.131 .28 12.12 0 13

Disagree 5 3.40 2.881 1.288 -.18 6.98 0 8

Total 20 30.00 28.698 6.417 16.57 43.43 0 77

Source: SPSS Version 17.0

Table 3c: ANOVA

Sample

Sum of Squares Df Mean Square F Sig.

Between Groups 13460.000 3 4486.667 32.809 .000

Within Groups 2188.000 16 136.750

Total 15648.000 19

Source: SPSS Version 17.0

The result of data analysis in table 3b and 3c reveals that the mean is statistical significant at 5% level of significance.

The $F(3, 16) = 32.809$ is greater than the $F(\text{tab}) = 3.24$, therefore the estimated parameters are statistically significant.

This means that the Null Hypothesis is rejected while accepting the alternate hypothesis because the $F(3, 16) = 32.809$

is greater than the $F(\text{tab}) = 3.24$. We therefore concluded that Forensic Accounting Skills and Techniques have

significant effect in uncovering fraud in the Nigerian public sector.

11.2 Test of Hypothesis II

H

02

: Forensic Accounting Skills and Techniques have no influence on reducing fraud in the Nigerian public sector.

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Table 4a: Created Series (showing case number of Non-missing values)

Cases Number of Non-Missing Values

Series Name First Last N of Valid Cases Creating Function

1 Fraud_1 2 10 9 Diff(Frauds,1)

Source: Spss Version 17.0

Table 4b: Time Series Analysis Table.

S/no

Y

Years Frauds Frauds_1 Si

1 2002 374732395.00 - -

2 2003 778695657.98 403963262.98 403963262.98

3 2004 44316186.07 -734379471.91 -734379471.91

4 2005 41201500.00 -3114686.07 -3114686.07

5 2006 25583745.00 -15617755.00 -15617755.00

6 2007 20320940.00 -5262805.00 -5262805.00

7 2008 6539801.98 -13781138.02 -13781138.02

8 2009 3254438.86 -3285363.12 -3285363.12

9 2010 1379758.47 -1874680.39 -1874680.39

10 2011 1084400.00 -295358.47 -295358.47

Source: SPSS Version 17.0

The above table shows a downwards movement over the period, apart from year 2002 and 2003 where there was an

upward movement in fraud cases with a difference of N403963262.98. The difference occurred when the Anti-Corruption

Agencies were not seriously applying Forensic Accounting Skills and Techniques in their fraud investigation. After 2003,

there was a consistent downward movement up to 2011. However, the downward movement became more from 2009 to

2011 when Forensic Accounting was fully in place by Anti-Corruption Agencies particularly EFCC and ICPC. Also the

negative sign on the movement indicated that fraud has been reduced overtime. The implication here is that the uses of

Forensic Accounting Skills and Techniques have helped Anti-Corruption Agencies in reducing fraud in the Nigerian public sector.

From the above result the null hypothesis has been rejected while accepting the alternate hypothesis. We

therefore concluded that Forensic Accounting Skills and Techniques have influence on reducing fraud in the Nigerian public sector.

12. Discussion of Results

The findings from the test of hypothesis one revealed that, forensic accounting skills and techniques have significant effect on uncovering fraud in the Nigerian public sector. This is in line with the view of Abiola (2009) who stated that the involvement of forensic accounting has raised the hope of uncovering fraud globally. He attested that forensic accounting has helped to uncovering fraud and corruption in countries such as Britain, Canada, Germany and United States where it is in use.

The findings from the test of hypothesis two revealed that, forensic accounting skills and techniques have influence on reducing fraud in the Nigerian public sector. This is supported by the view of Abiola (2009) who state that the involvement of Forensic Accounting Skills and Techniques in fraud investigation has raised the hope of reducing fraud globally. He attested to the fact that Forensic Accounting has reduced fraud and corruption to the bearest minimum in developed countries using their service

13. Conclusion

The study analyzed why attention has to be given to the question of fraud investigation in the public sector of Nigeria by Anti-Corruption Agencies with the aid of Forensic Accountants. It should be emphasized that whether within the business world or in the public sector, the ultimate responsibility for investigating fraud cases rests with Anti-Corruption Agencies

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while discouraging and preventing fraud and corrupt practices rest with the government and management.

Above all, result of the study revealed forensic accounting skills and techniques have significant effect on

uncovering fraud in the Nigerian public sector and forensic accounting skills and techniques has influence on reducing

fraud in the Nigerian public sector .

We conclude as follows;

Forensic accounting practice is neither new to the developed nor is it in developing nations. That fraud in the Nigerian public sector is alarming and is not only crumbling the economy but also affecting innocent nation standard of living and image. That the Applications of Forensic Accounting Skills and Techniques have contributed greatly to Anti-Corruption Agencies in Nigeria in the investigation of complex fraud cases particularly EFCC and ICPC as more money has so far been recovered.

14. Recommendations

Consequent upon several revelations from the research conducted, there is need to make some recommendations, as follow:

- i. Information technology: As fraud is becoming more sophisticated on daily basis and need sophisticated tools to uncover, forensic accountants, the public sector and Anti-corruption Agencies should take advantage of the modern accounting and auditing soft wares to enhance efficiency and smooth operation of the tasks of detection prevention and recovering through the application of relevant information technology. To further enhance the performance of forensic accountants on the performance of the public sector, the code of conducts should be put in place and properly monitored. The institute of chartered accountings of Nigeria (ICAN) and the Association of National Accountants of Nigeria (ANAN). Should encourage formalization and specialization in the field of forensic accounting in their curricula and the academia should emphasize skills development in the field of forensic accounting through teaching and research in the area of forensic accounting at BSC, MSC, PhD, HND and ND levels.
- ii. Government should establish a Public Recovery Fund (PRF) where money recovered through forensic accounting should be kept and this money should be properly used to enhance efficient and effective performance in the public sector. Training and guidance are vital in maintaining the effectiveness of the strategy for the detection, prevention and investigation of fraud and its general credibility. The government needs to support induction and work related training, particularly for employees involved in internal control system, accounting units and those in investigative units of all Anti-Corruption Agencies, to ensure their

responsibilities and duties are regularly highlighted and reinforced and that best practices are followed across the nation services. Significant forensic accounting or any Anti-Fraud strategy can only work if heads of departments and senior managers or staff are committed to it. The Anti-Corruption Agencies like the EFCC, ICPC and CCB should ensure they have their technical, investigative and accounting staff trained in the field of Forensic Accounting and the public sector (government) should develop interest in Forensic Accounting by making sure that Forensic accounting is institutionalize in all ministries departments and parastatals to build up effective internal control system that will enhance more effective performance in the public sector in Nigeria. Adequate structures and mechanism such as Forensic laboratories must be improved open in all Anti-Corruption Agencies in Nigeria.

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- ... It is now necessary for Forensic Accounting skills and techniques to be used for prevention and detection or investigation of fraud occurrence. Auditors do not possess the required skills to enable them to tackle complex modern frauds, for example, Organised crime or White-collar crimes; securities fraud, embezzlement, bankruptcy, commercial disputes and illicit financial transaction, money laundering by organised criminal groups and terrorist financing (Gbegi & Adebisi, 2014). Azih & Okoli, (2015) stated that fraudulent activities involving asset misappropriation, embezzlement by employees of the organisation, false billing, and other

problems are in the procurement process of a government contract in Nigeria; this is becoming highly worrisome. ...

... The variable of capacity was added to the existing pressure, opportunity, and rationalisation of Donald Cressey's Fraud Triangle. The capacity from the perspective of the capabilities of the fraudster shows that fraudsters must-have the capability to commit fraud through the use of the necessary traits, skill sets, abilities, or be in a position of authority to perpetrate a crime (Gbegi, & Adebisi, 2014). Evidence for the use of these theories can be found in Oyedokun, (2016) ...

... These two paradigms are used to underpin this study because in fraud detection the issues of pressure, opportunity, and rationalisation must be understood and the fraudsters capacity must also be put into consideration by the forensic accountant before resolving any case. Gbegi & Adebisi, (2014) in an empirical study titled "Forensic Accounting skills and techniques in fraud investigation in the Nigerian public sector" using the methodology of Analysis of variance (ANOVA) and time series analysis. It found Forensic Accounting skills and techniques have a significant effect on uncovering and reducing fraud in the Nigerian public sector. ...

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... Fraud, inclusive of tax related one, is a global phenomenon which cut across both the developed and developing economy. Fraud is an act of deception for personal gain or to cause a loss to another individual or institution (Gbegi & Adebisi, 2014). This has been part of human behaviour from time immemorial even in the religious circle as recorded in the holy books. ...

... The study recommends that government should regulate forensic activities through the provision of good standards and guidelines with proper integrity, fairness and accountability in the public sector. In the same vain, Gbegi and Adebisi (2014) studied forensic accounting skills and techniques in fraud investigation, the study revealed that forensic accounting skills and techniques have significant effect on fraud reduction. They recommends the establishment of forensic units and laboratory by anti-grafts agencies for quick investigation of fraudulent activities while forensic accounting should be institutionalised by government. ...

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... The selected theory for this study is fraud diamond theory by Wolfe and Hermanson (2004). This theory shows that despite the position of the fraud triangle, the potential fraudster must possess the necessary competencies in their traits, skills, knowledge and abilities to commit the fraud and this element is identified as the capability which is the last side in the Fraud Diamond theory; this theory was used by Gbegi & Adebisi, (2014) to underpin their study. The official position of fraudster, intelligence levels, ego of the person, coercion of others, deceitful nature, and stress suppression are other factors that support the capability side of Fraud Diamond (Abdullahi & Mansor, 2015). ...

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... In the light of the above, Gbegi & Adebisi [64] adduced that forensic accounting skills and techniques are significantly related to fraud detection and reduction. Hence, Augustine &

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... It was observed that forensic accounting plays a significant role in curbing crime and corrupt practices in any public sector since it provides a mechanism to hold people accountable, such that those who manage resources in a fiduciary capacity do not easily abuse that trust without detection. Gbegi and Adebisi, (2014) observed that the forensic accounting skills and techniques could help to investigate fraud occurrence since the external auditors do not or may not have the required training to be able to tackle modern frauds like white collar crimes such as security fraud, embezzlement, bankruptcy, contract disputes, and possible criminal financial transactions.

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... Corporate strategies could not be constructed with historical data. To cope with the dynamic situation continuous revision of accounting standards throughout the globe became a usual practice in the accountancy profession (Gbegi, & Adebisi, 2014); ICAI, 2014) ...

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The contribution/importance of Professional Forensic Accountant cannot be over emphasized, whether to the public sector or to the private sector. The purpose of this study is to examine forensic accounting as a tool for fraud detection and prevention in the public sector organizations with particular reference to Kogi State. Both primary and secondary sources of data were appropriately used. 370 ... [Show full abstract]

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This study investigated forensic accounting as a tool for fraud prevention and detection in deposit money banks in Nigeria. Objectively, the study examined the impact of forensic accounting on fraud prevention and detection in deposit money banks in Ekiti State. The study adopted a descriptive survey design and a well-structured questionnaire was used to elicit the needed data from the ... [Show full abstract]

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This paper discusses task performance fraud risk assessment and forensic accountant knowledge and mindset in the Nigerian public sector. The aim of the study is to investigate the fraud risk assessment in the Nigerian public sector through the efficient exploit of forensic accountant knowledge and mindset. The effect will enhance the corporate governance and accountability practices among public ... [Show full abstract]

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. 2014September;, No.14Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 177have collapsed due to mismanagement by the corrupt directors appointed to manage them. Corrupt practices are reported in the area of pensions, salaries and wages, in legislative process as well as other areas of government business. It undermines good government, fundamentally distorts public policy, leads to the misappropriation of resources, harms the public sector and private sector development, and particularly it hurts the poor.To combat the menace, many tribunals, probe panels and anti corruption

institutions had been set up to reduce corruption, but it appears they lacked investigative skills that will ensure successful prosecution of persons accused of corrupt practices. There is therefore the need to adopt effective investigation technique that will assist the anticorruption institutions to successfully reduce corruption. Corruption is seen as the abuse of entrusted power for private gain (Golden, Skalak, and Clayton, 2006). Corruption is the largest single inhibitor of equitable economic development in many countries of the world including Nigeria. It is a form of behaviour, which includes conflict of interest, embezzlement, fraud, bribery, political corruption and extortion (Onakuse, 2004). According to Mazumder (2011), the law enforcement personnel in recent years have become more aware of white-collar crimes, they however have lacked the training and expertise in combating such crimes. They are better trained at combating violent or personal behavior crimes, but now it has the responsibility to expand its knowledge and expertise into the economic crimes area. Since many detectives do not have an accounting background, they often fail to use financial information to support their cases, forensic accounting technique is therefore seen as a viable tool in combating economic crime. Crumbley, Heitger and Smith (2009) opined that forensic accounting is the action of identifying, recording, settling, extracting, sorting, reporting and verifying past financial data or other accounting activities, for settling current or prospective legal disputes, or using such past financial data for

projecting future financial data to settle legal disputes. It utilizes accounting, auditing and investigative skills when conducting any kind of investigation. Equally critical is the ability to respond immediately and to communicate financial information clearly and concisely in a courtroom setting. Akinola (2002: 1-2) gave the following account of the history of corruption in Nigeria. The prominent politicians of the First Republic (1960-1966) were flamboyant, rode in flashy cars, and lived in big houses. Though regional rivalry and inter-party wrangling were the dominant issues during this era, Major Chukwuma Kaduna Nzeogwu, the man who directed their overthrow, nevertheless described them as "ten-percenters", that is, they demanded ten per cent of the value of contracts they awarded. In fact many politicians, both at the regional and federal levels of government, were indicted by the military administration that eventually took over the reins of government. The civil war (1967-70) and the oil wealth during the Gowon era (July 1966-July 1975) brought a new dimension to official corruption in Nigeria. It was an era of "boom" for soldiers and their surrogates who presented themselves as contractors. While General Yakubu Gowon himself has continued to live a relatively modest life style, ten of his twelve state governors were indicted for corruption and self-enrichment. The Murtala-Obasanjo government (1975-1979) made efforts to sanitize the society by its purging of officials who were either corrupt or unproductive. He said certain individuals were believed to have been enriched through money paid

. 2014September;, No.14Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 178for contracts that were partly performed or not performed at all. Some principal members of the government retired to embark on business ventures that could back up the suggestion that they had used their positions to enrich themselves while in office. Akinolawent further to say that corruption was witnessed in every level of government, and was not limited to any political party between 1979-1983and that the administration of Major-General Muhammadu Buhari (1984-1985) instituted the war against indiscipline (including corruption) when many of the second republic politicians were arrested and put into detention by the government, and large sums ofmoney were recovered from them in order to reduce corruption. Owolabi, (2007) said past Nigerian governments enacted so many laws to fight corruption and financial crimes, but all these laws did not reduce cases of corrupt practices. Consequently, the Olusegun Obasanjo administration introduced the Independent Corrupt Practices Commission (ICPC) and Economic and Financial Crimes Commission (EFCC) in 2000 and 2004 respectively, to combat corrupt practices in Nigeria. From the above historical records, itseems that all the efforts of the past administrations did not achieve reduction in the level of corrupt practices hence, this study was onhow investigation of corruption can be effective for successful prosecution of the culprits with the employment of forensic accounting technique by the major anti graft Commission (EFCC)in Nigeria. Forensic accounting technique is fast becoming popular in providing evidence

in the prosecution of corruption and in disputes resolution. It provides an accounting analysis that is suitable to the court which will form the basis for discussion, debate and ultimately dispute resolution. Forensic Accounting encompasses both litigation support and investigative accounting.

Statement of the Problem

Despite the establishment of anti corruption agencies, cases of corrupt practices both in the public and private sectors appear to be on the increase and it seems difficult for anti corruption agencies to successfully prosecute many of the alleged cases of corruption involving billions of naira by government functionaries, contractors, as well as private individuals and organizations. Before the establishment of the Economic and Financial Crimes Commission (EFCC) and Independent Corrupt Practices Commission (ICPC), successive governments had been handling cases of corruption by setting up special military tribunals, banks and miscellaneous offences tribunal, Okigbo panel, as well as many other ad hoc bodies. None of such efforts seem to have yielded results (Adegbie and Fakile, 2012). The Obasanjo administration set up EFCC and ICPC as the institutions that were to be on standing basis. There are, seemingly, inadequate competent professionals to handle cases of corruption as alluded to by Ribadu (2006) and the judicial system in Nigeria is slow leading to delay in the prosecution process. The immediate past chairman of EFCC, Waziri, (2011) complained of unnecessary delay by the judiciary in prosecuting persons accused of corruption. For the court to be able to deliver

judgments without delay, investigation must be thorough. EFCC must therefore ensure that competent personnel handle investigation on corruption and other financial crimes. This is where the expertise of forensic accountants is required hence this study examined the need for application of forensic accounting technique to successfully investigate and detect

. 2014 September; , No.14 Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 17 9 cases of corruption in Nigeria since it was successfully employed by the Central Bank of Nigeria and Securities and Exchange Commission in 2009 and 2011

respectively. Objectives of the Study The objective of this study was to determine how corruption can be eradicated through fraud prevention, bribery prevention and embezzlement prevention with the application of forensic accounting technique in Nigeria. Statement of

Hypothesis Fraud prevention, bribery prevention and embezzlement prevention will not significantly ensure effective eradication of corruption through the application of forensic accounting technique. Operationalization of the variables From the hypothesis stated above, the functional relationships of the variables are as follows: $Y = f(X)$ Where: $Y =$ Application of forensic accounting $X =$

Eradication of Corruption $X = f(x_1, x_2, x_3)$ Where: $x_1 =$ Fraud prevention $x_2 =$ Bribery prevention $x_3 =$ Embezzlement prevention Therefore $Y = f(x_1, x_2, x_3)$ ----- (i) This

equation (i) was investigated in this study. Review of Relevant Literature Oyejide (2008) said it is well established that Nigeria suffers from endemic and systemic corruption

which harms the country's development. According to him, the main factors which generate corruption in Nigeria are not different from those responsible for this phenomenon in other parts of the world. They are closely associated with the policies and actions of government and the non-transparent and discretionary mechanisms through which they are implemented. The associated types and levels of corruption in Nigeria may have been influenced and heightened by the direct access of government to oil windfall income in an environment of weak public institutions, capture or near-capture of the state by powerful vested interests and the inability of the citizens to effectively assert their rights. In these circumstances, it seems clear that effective control of corruption will require extraordinary effort, take more time than is currently realized, and be based on a strategy which is focused only on strong anti-corruption agencies. Forensic accounting is a technique that is suitable for legal review, offering the highest level of assurance, and including the now generally accepted connotation of having been arrived at in a scientific fashion. Findings are based upon the scientific detection and interpretation of the evidences of phenomena introduced into the books and records of an accounting system and the effects of such phenomena upon the accounts, inventories, or the presentation thereof. The

. 2014 September;, No.14 Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 180 primary orientation of forensic accounting is explanatory analysis (cause and effect) of phenomena -including the discovery

of deception (if any), and its effects. The primary methodology employed by forensic accountants is objective verification. Auditing on the other hand, is the independent examination and expression of opinion on the true and fairness view presented by the financial statements prepared by the management of an organization. An audit may not be able to go deep into the cause and effect of a particular misstatement or error contained in the financial statement, but forensic accounting technique can be employed to unravel the cause and effects of such misstatement and establish the intention of the perpetrator to assist in prosecution, if corruption (fraud, bribery and embezzlement) is involved.

Concept of Corruption Corruption is a concept that is difficult to define because of its multi dimensional and multidisciplinary nature. One definition is therefore not sufficient to appropriately describe the concept. Annan (2004) believed that corruption is an insidious plague that has a wide range of corrosive effects on societies, undermines democracy and the rule of law, leads to violations of human rights, distorts markets, erodes the quality of life and allows organized crime, terrorism and threats to human security to flourish. He further claims that although corruption is also found in economically developed countries, it is in the developing world that the effects of corruption are most destructive and that corruption is a key element in economic underperformance, and a major obstacle to poverty alleviation and development. The Black Law Dictionary

(1990) defined corruption as an act done with intent to give some advantage inconsistent with official duty and rights of the perpetrators. Thus, it is the act of an official or fiduciary person who unlawfully and wrongfully uses his status or character to procure some benefit for himself or for another person, contrary to duty and the rights of others. In addition, corruption can also be viewed as the misuse of public office for private gains. This encompasses abuses by public officials such as embezzlement and nepotism, as well as abuses linking public and private actors such as bribery, extortion, influence peddling and fraud. Corruption has continued to thrive in Nigeria as a result of excessive concentration of power and resources at the federal level; inefficient federal structure and excessive federal government involvement in corporate business enterprises; political instability; inadequate enforcement of existing laws and absence of the rule of law; inefficient police force; late or non payment of wages to public officials, and high levels of poverty, unemployment and under-remuneration. Corrupt acts are increasingly regarded as unfair and indeed criminal by many high-income countries because the bribe-recipient's betrayal of trust with his employer, when practiced systemically by high-ranking public officials, compromises the development of fair and efficient markets (Boatright, 1999). Consequently, corruption falls within a larger class of usually non-violent economic crimes. Nigeria is also infamous for deceptive business practices, popularly known as 419 scams or advance-fee fraud, and the

manufacture and sale of counterfeit pharmaceutical drugs and other consumer commodities (Erubami and Young, 2003). Ataman (2007) said corruption does not mean the stealing of money alone, it also includes body language, leakage of official confidential information, unfair practices in procurement, as well as delays in fulfilling tasks.

Anthony (2003) believed that corruption attacks the fundamental values of human dignity and political equality of the people cutting across the social, political and economic spheres. He went further to say that its frequency and manner of operation holds the

. 2014 September; , No.14 Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 18 1 nation hostage making poverty and food insecurity the order of the day for the very poor in the rural areas. Aluko (2006) said the meaning of corruption varies and depends on the context in which it is used. It could mean moral depravity and perversion of integrity through bribery or favour, or a conscious and well planned act by a person or a group of persons for personal gain at the expense of the general public. El-Rufai (2003) viewed corruption as covering a wide range of social misconducts, including fraud, extortion, embezzlement, bribery, nepotism, influence peddling, bestowing of favor to friends, rigging of elections, abuse of public property, the leaking of a government secret, and sale of expired and defective goods, such as drugs, food, and electronic and spare parts to the public. This study has adopted corruption to include fraud, bribery and embezzlement. Concept of Forensic Accounting Akintoye (2008) said forensic

accounting is accounting that is suitable for legal review, offering the highest level of assurance, and including the new generally accepted connotation of having been arrived at in a scientific fashion and providing the needed findings in settling disputes. Crumbley, et al (2009) defined forensic accounting as the action of identifying, recording, settling, extracting, sorting, reporting and verifying past financial data or other accounting activities for settling current or prospective legal disputes or using such past financial data for projecting future financial data to settle legal disputes. Dhar and Sarkar (2010) said forensic accounting is the application of accounting concepts and techniques to legal problems. It demands reporting where fraud, bribery or embezzlement is established and the report is considered as evidence in the court of law or in administrative proceedings. The utilization of specialized investigative skills in carrying out an inquiry conducted in such a manner that the outcome will have application to a court of law is called forensic investigation. Investigative Accounting is often associated with investigations of criminal matters. A typical investigative accounting assignment would be an investigation of employee theft, securities fraud, insurance fraud, kickbacks and proceeds of crime investigations. Mehta and Mathur, (2007) posited that forensic accounting involves a financial detective with a suspicious mind, a financial bloodhound, someone with a 'sixth sense' that enables reconstruction of past accounting transactions and an individual who looks beyond the numbers. Bhasin (2007) noted that the

objectives of forensic accounting include: assessment of damages caused by an auditors' negligence, fact finding to see whether an embezzlement has taken place, in what amount, and whether criminal proceedings are to be initiated; collection of evidence in a criminal proceedings; and computation of asset values in a divorce proceedings. He argues that the primary orientation of forensic accounting is explanatory analysis (cause and effect) of phenomenon including discovery of deception (if any), and its effects introduced into the accounting domain. Gray (2008) analyzed forensic accountants as a combination of an auditor and private investigators. Knowledge and skills include investigative skills, research, law, quantitative methods, finance, auditing, accounting and law enforcement officer insights. He confirmed that forensic accountants have been employed by the Federal Bureau of Investigation (FBI), Central Intelligence Agency (CIA), Internal Revenue Service (IRS), Federal Trade Commission (FTC) and other government agencies. Therefore, a forensic accountant's primary duty is to analyze, interpret, summarize and present complex financial and business-related issues in a manner that is both readily understandable by the layman and properly supported by

. 2014 September;, No.14 Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 18 2 evidence. This study is of the view that forensic accounting technique can also be applied in Nigeria to deal with cases of corruption. Methodology Survey research design has been employed in this study. This research design was chosen

because it ensures that reliable empirical data is obtained to test the relationship that exist between the dependent and independent variables in order to achieve the research objective and test the hypothesis formulated. Cases of corruption and the techniques of its investigation can best be studied using this design to generate reliable data that are analyzed to arrive at reasonable conclusions. It is expected that these conclusions will be of practical application in the eradication of corruption by the major anti corruption agent (EFCC) in Nigeria. This study was carried out on the application of forensic accounting technique in the eradication of corruption in Nigeria and the population of study were the staff (cutting across management, senior and junior levels) in the operations, administrative and legal units of the Lagos zonal office of EFCC, and all the staff of three leading accounting firms in Nigeria who had been involved in forensic accounting assignments in their firms for the period 1999 to 2010. The EFCC has been selected since it is the major organization whose activities are visibly known in fighting corrupt practices in Nigeria, while the professional accounting firms were selected because they had been involved in forensic investigation for the Central Bank of Nigeria and Securities and Exchange Commission in 2009 and 2011 respectively. Their international affiliates have also been involved in carrying out investigations of this nature in other countries like South Africa, United Kingdom and the United States of America. The period was chosen to determine the effectiveness of the efforts of government at stamping out

corruption under the present democratic dispensation. The major research instruments were the questionnaire and interview. Well structured questionnaire containing demographic, attitudinal, general subject and behavioural sections were administered. Two sets of questionnaire were designed to collect information from the staff of EFCC and the professional firms respectively. Oral interview was also conducted with the staff of EFCC that were carrying out investigation on cases of corruption, and the staff of the professional accounting firms with forensic accounting investigation technique. The interview was carried out to either serve as a source of additional information or to corroborate the information obtained through the questionnaire. Multiple regression analysis using Statistical Package for Social Sciences (SPSS) was employed. Fraud prevention, bribery prevention, and embezzlement prevention are the elements of corruption prevention that are involved. Correlation analysis was also carried out to confirm the kind of relationship that exists between the dependent variable (corruption prevention) and the independent variables (fraud prevention; bribery prevention and embezzlement prevention). Data Analysis and Interpretation Summary of regression analysis for the Hypothesis

Variables	β_0	β_1	β_2	β_3	F	R ²	P-value	Comment
Corruption Eradication	2.120	0.152	0.347	-0.102	1.920	0.129	0.142	Not Sig.

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183 Source: Researcher's field survey Hypothesis: Fraud prevention, bribery prevention and embezzlement

prevention will not significantly ensure effective eradication of corruption through the application of forensic accounting technique. Estimated Model: $CORP = 2.120 + 0.152 + 0.347 - 0.102 + \mu$

Model Evaluation and Test of Hypothesis

It can be observed from the estimated model that without the employment of forensic accounting technique, there is a strong relationship between corruption prevention and the autonomous variable as indicated by the positive value of the intercept ($\beta_0 = 2.120$). The estimated model also establishes the proposition of a positive relationship between the application of forensic accounting and prevention of corruption. This is indicated by the positive value of the coefficient of fraud prevention ($\beta_1 = 0.152$), bribery prevention ($\beta_2 = 0.347$), but a negative value of coefficient of embezzlement prevention ($\beta_3 = -0.102$). This implies that prevention of corruption is positively influenced by fraud prevention and bribery prevention through the application of forensic accounting technique. The negative value of the coefficient of embezzlement prevention can be due to the fact that forensic accounting has not been employed by EFCC in the prevention of corruption. Hence, the estimated model is consistent with the a priori expectation of the study. From the result of the regression analysis, the p-value (0.142) associated with the coefficient of β_0 is greater than 0.05 level of significance; R^2 of 0.129 has low explanatory power on the dependent variable (corruption prevention), and the F calculated of 1.920 is less than the F tabulated of 4.08, hence the Null hypothesis (H_0) (Fraud

prevention, bribery prevention and embezzlement prevention will not significantly ensure effective prevention of corruption through the application of forensic accounting technique) is therefore accepted. The fact that EFCC has not employed forensic accounting technique could be responsible for the observed result of the regression analysis. The positive values of the coefficients of fraud prevention and bribery prevention but the negative coefficient of embezzlement prevention however indicate that employment of forensic accounting technique would lead to eradication of corruption. Correlation Analysis In addition to the regression analysis adopted in this study, correlation analysis was also carried out to establish whether there is positive or negative relationship between dependent variable (Corruption prevention) and the independent variables (fraud prevention; bribery prevention; and embezzlement prevention). Presented below is the result of the correlation analysis on the relationship between corruption prevention and fraud prevention; bribery prevention; and embezzlement prevention.

. 2014 September;, No.14 Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 184 Result of Correlation Analysis

	Fraud Prevention	Bribery Prevention	Embezzlement Prevention	Corruption prevention
(r)	0.479*	0.553	0.349*	
(p)	0.008	0.020	0.043*	

Correlation is significant at 0.05 level (1 -tailed) Source: Researcher's Field Survey Result From table 2 above, it has been established that there exists positive relationship between eradication of corruption and fraud prevention;

bribery prevention; and embezzlement prevention through the application of forensic accounting technique. This was also affirmed by the p values at 0.05 significant level as indicated on table 2 above, hence the Null Hypothesis is rejected. Therefore it can be concluded that corruption prevention is significantly and positively related to fraud prevention; bribery prevention; and embezzlement prevention through the application of forensic accounting technique. To further confirm that there is weak regulatory framework to fight corruption in Nigeria, the following are the politically exposed persons (PEPS) that contested for elections in 2007 and 2011:

Year	PEPS standing trial and contested elections	Ex Governors standing trial contested and won election	Ex Governors standing trial contested and lost election	Other PEPS standing trial contested and won election	Other PEPS standing trial contested and lost election
2007	14	2	7	3	0
2011	15	2	7	3	0

Source: Waziri (2011)

From the above statistics, it is clear that there is weak legal framework to fight corruption in Nigeria. As can be seen, there were politically exposed persons (PEPS) who were standing trial for corruption but were allowed to contest and went ahead to win elections. Some of the ex governors even won elections as Senators. They participated in debates on issues that affect EFCC, their prosecutor. It is obvious that they will never support any debate that bothers on how to strengthen the Commission. Their elections contributed to the public opinion that the government is not sincere about the fight against corruption in Nigeria. In fact, a former

governor accused of stealing billions of naira (in the 8 years of ruling Rivers State) by the EFCC, Peter Odili, obtained a perpetual injunction from arrest, and prosecution from a judge of a High Court in Port Harcourt (Zero Tolerance, 2008). These testify to the fact that the commission has been limited by the Nigerian legal system in carrying out its responsibility. The anticorruption campaign in Hong Kong was successful because the anticorruption agency was an independent agency dedicated to fighting corruption, free from political interference,

. 2014 September;, No.14 Kuwait Chapter of Arabian Journal of Business and Management Review Vol. 18 separate from the police force and the civil service, with adequate funding and resources. Salaries are high, attracting highly qualified individuals, and selection criteria are stringent. Once hired, staff is subject to a strict disciplinary code and anti-corruption checks by an internal monitoring group. Nigeria should also take a cue from this experience to achieve positive results.

Conclusion and recommendation This study has been able to establish the need for application of forensic accounting technique to investigate and detect cases of corruption in Nigeria. As at the time of this study, forensic accounting technique has not been adopted by EFCC in spite of the agreement by 98% of the respondents in EFCC and Professional Accounting firms that forensic accounting is needed to fight corruption in Nigeria. The court system that usually causes delays in the trial of accused persons needs to be strengthened, to ensure the success of the efforts of EFCC. There is no

forensic accounting unit in EFCC, and the professional firms that have forensic expertise are not consulted to carry out proper investigation of corrupt cases. It was also noted that accounting curriculum at the undergraduate level in Nigerian universities and colleges do not make provision for the teaching of forensic accounting which is a basic means of fighting corruption. Although many staff of EFCC and professional accounting firms agreed that forensic accounting is needed to fight corruption, the technique was not employed by the Commission as at the time of this study. It is recommended that EFCC should set up a forensic accounting unit where trained expert should be employed to carry out investigation of corrupt cases to ensure that enough evidence and facts are presented in courts for effective prosecution of such cases. Forensic accounting experts from the professional accounting firms should be retained by EFCC to carry out investigations, and serve as expert witness that will assist the court to reach a conclusion on issues which the court itself may not have the knowledge to decide. This is in agreement with Omoniyi (2004). The Nigerian legal framework should be strengthened to ensure that courts apply the provisions of Section 19 sub section 2 of EFCC Act which make provision for accelerated trial of cases of corruption.

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Accounting & Auditing Techniques on Public Sector Fraud in Nigeria OGIRIKI, TONYE

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Abstract The purpose of this paper was to empirically analyze the effect of forensic accounting and auditing techniques on public sector fraud detection, investigation and prevention in Nigeria. Specifically, the study sought to establish the effect of the various techniques of forensic accounting on public sector fraud and secondly, to determine the effect of forensic auditing on fraud detection, investigation and prevention. The research design used in this study was ex post facto design. The study employed restructured questionnaire for data collection after validity and reliability with regression analysis for hypothesis testing. The study

revealed that the relationship between forensic accounting and auditing techniques and public sector fraud detection, investigation and prevention in Nigeria is quite significant. The study therefore concludes that forensic accounting and auditing techniques is a major panacea to the level of fraudulent activities experienced in the Nigerian public sector. It was recommended among others that government should consider providing more fraud hotlines, improve the whistleblowing policy and establish forensic accounting department in the public sector in order to enhance the fraud detection, investigation and prevention mechanism in the public sector. The paper fills an important gap in academic literature by providing insights into the techniques of forensic accounting and auditing in developing economies. Keywords: Forensic Accounting, Auditing, Fraud, Public Sector.

INTRODUCTION The Nigerian environment is filled with news of fraud and fraudulent activities. This is because financial fraud is now part and parcel of the daily activities of Nigerians. Okwoli (2004) stated that the Nigerian press is full of stories of wrong practices in the public sector. He further noted that stories of ghost workers, frauds and embezzlements are found everywhere in Nigeria. Bello (2001) also noted that huge amount of money is lost through fraud and financial irregularities, which to say the least drains the nation's limited financial resources through fraudulent means with its far reaching and attendant consequences on the development programmes of the nation. This is because several billions of Naira is lost in the public sector every year through fraudulent financial activities. Oyejide (2008) opined that fraud is a subject that has received a lot of attention both globally and in Nigeria. This interest has been heightened by several high profile cases involving several organizations. Issues relating to fraud have also been the subject of rigorous theoretical and empirical analysis in the academic literature (Appah and Appiah, 2010). According to Karwai (2002) maintains that

the increasing wave of fraud is causing a lot of havoc in Nigeria. This is because fraud has eaten deep into every aspect of the Nigerian society to the extent that many organizations have lost confidence of their customers. According to Eze (2015), wave of financial fraud in the world today has manifested in various ways including financial fraud has bedeviled the world globally and the resultant spate of failures and the inability of public sector organizations to fulfill their responsibilities placed greater functions on accountants to equip themselves with the skills to identify and act upon financial fraud and irregularities. The increase in the rate of public and private fraud embezzlement has caused a serious concern to investors, general public and owners of businesses. Ojaide (2000) submits that there is an alarming increase in the number of fraud and fraudulent activities in Nigeria emphasizing the visibility of forensic accounting and audit services. Okoye and Akamobi (2009), Owojori and Asaolu (2009), Izedonmi and Mgbame (2011), Kasum (2009) have all acknowledged in their various studies, the increasing incidence of fraud and fraudulent activities in Nigeria and these studies have argued that in Nigeria, financial fraud is gradually becoming a normal way of life. As Kasum (2009) noted, the perpetration of financial irregularities are becoming the specialty of both private and public sector in Nigeria as individuals perpetrate fraud and corrupt practice according to the capacity of their office. Fraud is the number one enemy of the business world. It has become imperative for accountants at all levels to have the requisite skills and competencies for identifying, discovering as well as preserving evidence of all forms of financial fraud (Eze,2015). Hence, the widespread financial frauds in modern organizations have made traditional auditing and investigation ineffective and inefficient in the detection, prevention and reduction of fraud confronting both the public and private sectors. Owojori and

Asaolu (2009) stated that the failure of statutory audit to prevent and reduce misappropriation of

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International Peer-reviewed Journal Vol.47, 2018 8 fraud and increase in crime has put pressure on accounting professionals to find a better way of exposing fraudulent activities. Consequently, there is an expectation that forensic accounting and auditing may be able to stem the tide of financial malfeasance witnessed in public sector of the Nigerian economy. Huber and DiGabrielle (2014) described forensic accounting as “the application of investigative and analytical skills for the purpose of resolving financial matters in a manner that meets the standards required by the court of law”. Also the Institute of Forensic Accountants of Nigeria (2011) defined Forensic audit is the activity that consists of data gathering, verifying, processing, analyzing and reporting in order to obtain material facts and/or evidence in the area of legal or financial disputes and or financial irregularities including fraud and giving preventive advice. Prior studies on fraud detection and prevention have focused mainly on the private sector entities (Alleyne and Horward, 2005; Bierstaker, Brody and Pacini, 2006; Apostolou and Crumbley, 2008 Oluwagbemiga, 2010; Smith, 2012; Onuorah and Appah, 2012; Durtschi, Rahman and Anwar, 2014 Enofe, Omagbon and Ehigiator, 2015). There were limited studies conducted on fraud detection, investigation and prevention in the public sector. There are various audit procedures that can be applied to detect fraud in the public sector (Othman, et al, 2015). However, there has not been adequate emphasis, especially survey evidence on how forensic accounting and auditing techniques can help to curb financial crimes beyond the several anecdotal views that abound. The question that arises at this juncture is to what extent can the application of forensic accounting and auditing techniques detect, investigate and prevent financial fraud in the Nigerian public sector?

Therefore, it is against this backdrop that this study intends to examine to what extent the application of forensic accounting and auditing techniques can detect, prevent and public sector financial fraud in Nigeria. The rest of the paper is divided as follows: section two deals with the review of related literature; the materials and methods used is explained in section three, followed by presentation of results and discussions in section four, while section five explains the conclusion and recommendations.

LITERATURE REVIEW

The review of related literature in this study is divided into three sub-headings, namely, conceptual, theoretical and empirical framework.

Conceptual Framework

Fraud and Fraudulent Activities Bello (2001) stated that fraud is generic and is used in various ways. Fraud assumes so many different degrees and forms that courts are compelled to context themselves with only few general rules for its discovery and defeat. It is better not to define the term lest men should find ways of committing frauds which might evade such definitions. Okafor (2004) also reported that fraud is a generic term and embraces all the multifarious means which human ingenuity can devise, which are resorted to by one individual to get advantage over another in false representation. No definite and invariable rule can be laid down as a general proposition in defining fraud as it includes surprise, trick, cunning and unfair ways by which another is cheated. According to Appah (2016), fraud is an act or course of deception, deliberately practiced to gain unlawful or unfair advantage; such deception directed to the detriment of another. Legally, fraud has been defined as the act of depriving a person dishonestly of something, which is, or of something to which he is or would or might be entitled but for the perpetration of fraud. Karwai (2002), Appah (2016) are of the view of fraud in organizations vary widely in nature, character and method of operation in general. Fraud may be classified into two broad ways: nature of fraudsters and method employed in carrying out the fraud.

On the basis of the nature of the fraudsters, fraud may be categorized into three groups, namely; internal, external and mixed frauds. Internal fraud relates to those committed by members of staff and directors of the organizations while external fraud is committed by persons not connected with the organization and mixed fraud involves outsiders colluding with the staff and directors of the organization. Forensic Accounting Forensic accounting is a discipline that has its own models and methodologies of investigative procedures that search for assurance, attestation and advisory perspective to produce legal evidence. It is concerned with the evidentiary nature of accounting data, and as a practical field concerned with accounting fraud and forensic auditing; compliance, due diligence and risk assessment; detection of financial misrepresentation and financial statement fraud (Skousen and Wright, 2008); tax evasion; bankruptcy and valuation studies; violation of accounting regulation (Dhar and Sarkar, 2010). Curtis (2008) argues that fraud can be subjected to forensic accounting, since fraud encompasses the acquisition of property or economic advantage by means of deception, through either a misrepresentation or concealment. Bhasin (2007) noted that the objectives of forensic accounting include: assessment of damages caused by an auditors' negligence, fact finding to see whether an embezzlement has taken place, in what amount, and whether criminal proceedings are to be initiated; collection

International Journal of African and Asian Studies www.iiste.org ISSN 2409-6938 An International Peer-reviewed Journal Vol.47, 2018 9 of evidence in a criminal proceedings; and computation of asset values in a divorce proceedings. He argues that the primary orientation of forensic accounting is explanatory analysis (cause and effect) of phenomenon-including discovery of deception (if any), and its effects-introduced into the accounting domain. According to Bhasin (2007), forensic accountants are trained to look beyond the numbers and deal with the

business realities of situations. Analysis, interpretation, summarization and the presentation of complex financial business related issues are prominent features of the profession. He further reported that the activities of forensic accountants involve: investigating and analyzing financial evidence; developing computerized applications to assist in the analysis and presentation of financial evidence; communicating their findings in the form of reports, exhibits and collections of documents; and assisting in legal proceedings, including testifying in courts, as an expert witness and preparing visual aids to support trial evidence. In the same vein Degboro and Olofinsola (2007) stated that forensic accountants provide assistance of accounting nature in financial criminal and related economic matters involving existing or pending cases as specified by the Alliance for Excellence in Investigation and Forensic Auditing. Forensic auditing is an activity that consists of gathering, verifying, processing, analyzing of, and reporting on data in order to obtain facts and evidence in a predefined context in the area of legal/financial disputes and/or irregularities and giving preventive advice (Institute of Forensic Auditors, Belgium, 2004). According to Eze (2015), forensic auditing is the application of accounting methods to the tracking and collection of forensic evidence for investigation and prosecution of criminal acts such as embezzlement or fraud. It is a type of professional service which results from actual or anticipated disputes or litigation. Greek (2011), defined forensic auditing as an examination and evaluation of a firm's or individual financial information for use as evidence in court. It can be conducted in order to prosecute a party for fraud, embezzlement or other financial claims. Forensic auditing is defined as "the application of auditing skills to situations that have legal consequences". Chatterji (2009). It is also seen as "an examination and evaluation of a firm's or individual's financial information's for use as evidence in event". During a forensic auditing, professionals

compile and assess financial information to be used in legal proceedings, whereas the auditing is conducted by forensic auditors who rely on the principles of law, business and ethics. These reports are sometimes used to prepare legal defences as well as prosecuting a party for fraud, embezzlement or other financial claims. Forensic auditing is the application of accounting, investigative, criminology, and litigation services skills for the purpose of identifying, analyzing, and communication of evidence of underlying reporting event (Enofe, Omagbon and Ehigiator, 2015). Forensic Accounting and Auditing on Fraud Detection, Investigation and Prevention Fraud prevention calls for measures to stop fraud from occurring in the first place. Fraud detection comes next once fraud prevention has failed as it involves identifying fraud as quickly as possible once it has been perpetrated (Bolton and Hand, 2002). By nature, fraud detection must be used and worked continuously as fraud evolves. It requires more sophisticated approach from preventative to detection. One of the modern approaches that can be used from the prevention to detection is called forensic accounting. According to Hansen (2009), computer forensics is currently the investigators best tools in detecting and implementation of white-collar investigations. Degboro and Olofinola (2007) described forensic accounting as the application of criminalistic methods, and integration of accounting investigative activities and law procedures to detect and investigate financial crimes and related accounting misdeeds. According to Dhar and Sarkar (2010), forensic accounting, also called investigative accounting or fraud audit, is a merger of forensic science and accounting. Crumbley (2003) defined forensic science as the application of laws of nature to the laws of man. He described forensic scientists as examiners and interpreters of evidence and facts in legal cases that also offers expert opinions regarding their findings in court of law. Baird and Zelin (2009) stated that forensic accounting is important investigative tool for detection of

fraud. Gray (2008) reported that the forensic accountants investigation include identification fraud. Gottschalk (2010) stated that the focus of forensic accounting is on evidence revealed by the examination of financial documents. The evidence collected or prepared by a forensic accountant may be applied in different contexts. According to Curtis (2008), forensic accountants are essential to the legal system, providing expert services such as fake invoicing valuations, suspicious bankruptcy valuations, and analysis of financial documents in fraud schemes. According to Hopwood, Young and Leiner (2013), fraud investigation is the systematic process of gathering and reviewing evidence for the purpose of documenting the presence or absence of fraud. It involves the engagement process, the evidence collection process, the reporting process and the loss recovery process. Albrecht and Albrecht (2001) described forensic investigations as the utilization of specialized investigative skills in carrying out an enquiry conducted in such a manner that the outcome will have application to the court of law. According to Kasum (2009), the services of forensic accountants are more required in the public sector compared to the private sector. It is crucial to have forensic accountants function in the public sector in order to

International Journal of African and Asian Studies www.iiste.org ISSN 2409-6938 An International Peer-reviewed Journal Vol.47, 2018 10 assist governments to detect, prevent and investigate fraud cases (Omar, Mohamed, Jomatin, and Haron, 2013). Theoretical Framework Over the years, a number of theories and models have been formulated through which the present day intellectual discuss on fraud theories is derived. According to Wolf and Hermanson (2004), Crumbley, Heitger and Smith (2007), Eze (2015), the theories of fraud include the following differential association theory, fundamental observation theory, fraud diamond Theory, social learning theory, hyper motivation theory, anomie fraud theory, low handing theory, social control theory, differential

opportunity theory, social ecology theory, rotten apple theory. However, the theory of fraud diamond is the bedrock for this research. Eze (2015) stated that the diamond theory of fraud explains an individual's capability, personality traits and abilities contribute a major role in determining whether fraud may occur. According to Wolf and Hermanson (2004), Crumbley, Heitger and Smith (2007), the fraud perpetrator of fraud must have the necessary traits, abilities, or positional authority to pull off his crime. Eze (2015) further noted that while opportunities can open the doorways to fraud, incentive and rationalization will attract people to it, but such an individual must have the capability to recognize the open doorway as an opportunity and should be able to take an undue advantage of the identified loopholes.

Empirical Framework Empirical evidence from a study by Boritz, Kotchetova and Robinson (2008) confirms that forensic accountants could prevent significantly higher number of fraud than auditors. Srivastava, Mock and Turner (2003) in their study found that forensic audit procedures significantly lowered fraud risks. Furthermore, research has also proven that proactive forensic data analysis using computer based sophisticated analytical tests can prevent fraud that may remain unnoticed for years (Brown, Aiken, and Visser 2007). A study by Bierstaker, Brody and Pacini (2006) researched accountants' perception regarding fraud detection and prevention methods. The findings revealed that organizational use of forensic accountants was the latest often used of anti-fraud method but had the highest effectiveness rating. This is similar to the findings of Ernst and Young's (2003) worldwide fraud survey, which states that only 20% of organizations employed forensic accountants although the satisfaction level for the service 88% was the highest. Omar and Bakar (2012) conducted a survey on Fraud Prevention Mechanisms of Malaysian Government-Linked Companies: An Assessment of Existence and Effectiveness and their results showed that management review of

internal controls and external audits of financial statements ranked as the top-most fraud prevention mechanisms in terms of the percentage of existence in organizations as perceived by internal auditors and fraud investigators, followed by operational audits, internal audits or fraud examination departments, and internal control review and improvements by departments. Islam, Rahman, and Hossan (2011) found that forensic accounting is a critical tool in the fight against corruption, detection and prevention of fraud in Bangladesh. While, Dada, Owolabi, and Okwu (2013) and Modugu and Anyanduba (2013) found a positive linkage between forensic accounting and fraud reduction, consequently forensic audit is a useful tool in fraud detection and reduction. Similarly, Njanike, Dube, and Mashayanye (2009) recognized forensic accounting as administrative function in Zimbabwe whilst they identified forensic auditor's duties to include detection and prevention of fraud as well as detection of potential red flag. Enofe, Omagbon and Ehigiator (2015) focusing their study on forensic audit and corporate fraud using survey method and least square regression technique reveals that frequent utilisation of forensic audit services will significantly help in the detection, prevention and reduction of corporate fraud. A study conducted by Othman et al (2015) on detection and prevention methods in Malaysian public sector accountants and internal auditors using structured questionnaire for data collection. The study concluded that operational audits, enhanced audit committees, improved internal controls, implementation of fraud reporting policy, staff rotation and forensic accountants are among the most effective fraud detection and prevention mechanisms employed in the public sector. Okoye and Gbegi (2013) investigated forensic accounting on fraud detection and prevention in the public sector in Kogi State using survey research methods of 370 questionnaire and analysis of variance. Their result reveals that forensic accounting does significantly reduce the

occurrence of fraudulent activities in the public sector. An empirical study conducted by Sidharts and Fitriyah (2015) on forensic accounting and fraud prevention in Indonesia public sector, it was shown that the use of forensic accounting do significantly reduces the occurrence of fraud cases in the public sector. A study conducted by Dauda, Ombugadu and Aku (2016) on forensic accounting: a preferred technique for modern fraud detection and prevention in the public sector of Nasarawa State. Their study shows that forensic accounting is relevant in fraud detection and prevention in Nigeria public sector. Igweonyia (2016) focusing her study on forensic accounting on fraudulent practices in Nigeria public sector using questionnaire and chi-square for data analysis. The result shows that forensic accounting will significantly reduce the occurrence of fraud cases in the public sector. In an empirical study conducted by Akani and Ogbeide (2017) on forensic accounting and fraudulent practices in the Nigerian public sector, it was revealed that there is a significant relationship between forensic accounting and reduction of fraudulent practices in the Nigerian public sector.

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International Peer-reviewed Journal Vol.47, 2018 11 Hence, on the basis of the

prior empirical studies reviewed, this present study hypothesized as follows: •There is no significant relationship between forensic

accounting and auditing on public sector fraud detection, investigation and prevention in Nigeria. MATERIALS AND METHODS This study

adopted ex-post facto research design in the selection of data modes.

Primary and secondary data were employed. A target sample size of 450 accountants and internal auditors was used. The target population consisted of 450 accountants and internal auditors in the public sector of Bayelsa, Delta and Rivers States in South-South Nigeria using a purposive sampling technique for the period August 2016 to May 2017. The questionnaire designed consists of four sections. The first

part of the questionnaire contains questions on organization and respondents characteristics. The second part of the questionnaire contains questions on forensic accounting items (Okoye and Gbegi, 2013; Sidharts and Fitriyah 2015, Dauda, Ombugadu and Aku, 2016; Igweonyia, 2016) using five point calibrated scale of ranging from Strongly Agree (coded as '5') to Strongly Disagree (coded as '1'). The third part of the questionnaire examines forensic auditing items (Njanike, Dube and Mashajanye, 2009; Enofe, Omagbon and Ehigior, 2015) and the last part of the questionnaire consists of public sector fraudulent activities consistent with Basadur and Basadur (2011), Basadur, Basadur and Licina (2013), Popoola, Ahmad and Samsudin (2015), Akani and Ogbeide (2017). The 450 questionnaire were distributed to respondents and a response rate of 62% (279) was recorded, but only 264 copies were used for data analysis. Face validity, content validity and pilot tests were used to validate the instruments. The Cronbach's Alpha reliability test gave a result of ($r = 0.758$) and ($r = 0.714$). Regression was used for data analysis at 5% levels of significance. The ordinary least square was adopted for the purpose of hypotheses testing. The ordinary least square was guided by the linear model below: $PSF = \beta_0 + \beta_1 BDA_1 + \beta_2 DMA_2 + \beta_3 FRA_3 + \beta_4 CAATS_4 + \beta_5 COA_5 + \varepsilon$ ----- (1) That is $\beta_1 - \beta_5 > 0$ Where: PSF = Public Sector Fraud; BDA = Bedford Digital Analysis; DMA = Data Mining Analysis; FRA = Financial Ratio Analysis; CAATs = Computer Assisted Tools and Techniques; COA = Continuous Auditing, and $\beta_1 - \beta_5$ are the coefficients of the regression, while ε is the error term capturing other explanatory variables not explicitly included in the model.

RESULTS AND DISCUSSIONS This section of the study examines the results and discussions obtained from questionnaires administered to respondents from the sampled accountants and internal auditors in the public sector of sampled states in Nigeria. Descriptive Analysis Table 1: Demographic Profile of

Respondents Variable Characteristics Frequency % Total Gender
 Male Female 170 94 64 36 264 Educational Qualification First Degree
 Only Second Degree First Degree with Professional Second Degree
 with Professional Third Degree with professional 106 54 71 28 5 40 20
 27 12 2 264 Length of Work Experience 0 -5 6 – 10 11 -15 Above 15
 87 92 58 27 33 35 22 10 264 Department/function Internal Audit
 Accountant 125 139 47 53 264 Source: Field Survey, 2017 Table 1
 displays the demographic profile of the respondents. Out of the total
 respondents, there were 190 males (64%) and 94 females (36%). The
 educational qualification of the respondents shows that 106 (40%)
 holds first degree only, 54 (20%) holds second degree, 71 (27%)
 holds first degree with professional certification of ICAN and ANAN, 28
 (12%) possesses second degree with professional certification of
 ICAN and ANAN and 5(2%) possesses third degree with professional
 certification of ICAN and ANAN. It is noted that 87 (33%) of the
 respondents have work experience between 0 – 5 years, 92 (35%)
 have work experience between 6 – 10 years, 58 (22%) have work
 experience between 11 – 15 years and 27 (10%) have work
 experience above 15 years. These statistics suggest that respondents
 are expected to possess requisite academic and professional
 qualifications and work experiences to address the questions
 contained in the research instruments, thus ensuring that the
 perception provided is typical of internal auditor and accountant on
 forensic accounting and auditing on

International Journal of African and Asian Studies www.iiste.org ISSN 2409-6938 An
 International Peer-reviewed Journal Vol.47, 2018 12 public sector fraud detection,
 investigation and prevention in Nigeria. Table 2: Forensic Accounting
 and Auditing Techniques on Fraud Detection in the Public Sector
 Options Responses % of Response Strongly agree 145 55 Agree 64
 24 Not Sure 16 06 Disagree 18 7 Strongly disagree 21 8 Total 264
 100% Source: Field Survey, 2017 Table 2 reveals the frequency of

each item on forensic accounting and auditing techniques on public sector fraud detection in the administered questionnaire. 145 (55%) of the respondents strongly agree that forensic accounting and auditing techniques assists in fraud detection in the public sector of Nigeria. 64 (24%) of the respondents agree, 16 (6%) of the respondents not sure, 18 (7%) of the respondents disagree and 21 (8%) of the respondents strongly disagree. This means that the respondents agreed that forensic accounting and auditing assists in fraud detection in the Nigerian public sector. The result was supported by Okoye and Gbagi (2013), Dauda, Ombugadu, and Aku (2016) and Akani and Ogbeide (2017). They averred that forensic accounting and auditing helps public sector organisations to detect fraudulent activities. This position was further supported by a study on forensic audit and corporate fraud in Nigeria conducted by Enofe, Omagbon and Ehigiator (2015) where they found that the application of forensic audit would result in increase in the detection of corporate fraud incidence. Table 3:

Forensic Accounting and Auditing Techniques on Fraud Prevention in the Public Sector

Options	Responses	% of Response
Strongly agree	131	50
Agree	73	28
Not Sure	10	04
Disagree	34	12
Strongly disagree	16	06
Total	264	100%

Source: Field Survey, 2017

Table 3 shows the frequency of each item on forensic accounting and auditing techniques on public sector fraud prevention in the administered questionnaire. 131 (50%) of the respondents strongly agree that forensic accounting and auditing techniques assists in fraud prevention in the public sector of Nigeria. 73 (28%) of the respondents agree, 10 (4%) of the respondents not sure, 34 (12%) of the respondents disagree and 16 (6%) of the respondents strongly disagree. This means that the respondents agreed that forensic accounting and auditing assists in fraud prevention in the Nigerian public sector. The result was supported by Okoye and Gbagi (2013), Enofe, Omagbon and Ehigiator (2015), Dauda, Ombugadu, and Aku

(2016) and Akani and Ogbeide (2017). This position was further supported by a study on forensic accounting and fraud prevention in the Indonesia public sector carried out by Sidharts and Fitriyah (2015) where they found that forensic accounting can help better in preventing public sector fraud. Table 4: Forensic Accounting and Auditing on Fraud Investigation in the Public Sector Options

Responses	% of Response
Strongly agree	121 46
Agree	91 35
Not Sure	12 05
Disagree	30 11
Strongly disagree	10 03
Total	264 100%

Source: Field Survey, 2017 Table 4 shows the frequency of each item on forensic accounting and auditing on public sector fraud investigation in the administered questionnaire. 121 (46%) of the respondents strongly agree that forensic accounting and auditing techniques assists in fraud investigation in the public sector of Nigeria. 91 (35%) of the respondents agree, 12 (5%) of the respondents not sure, 30 (11%) of the respondents disagree and 10 (%) of the respondents strongly disagree. This means that the respondents agreed that forensic accounting and auditing assists in fraud investigation in the Nigerian public sector. This position was supported by a study on the effectiveness of forensic auditing in detecting, investigating and preventing bank frauds in Zimbabwe carried out by Njanike, Dube and Mashayange (2009) where they found that forensic auditing can help in the investigation of fraud.

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International Peer-reviewed Journal Vol.47, 2018 13 Table 5: Multiple Regression
Analysis Dependent Variable: PSF Method: Least Squares Date:
05/10/17 Time: 15:58 Sample(adjusted): 1 264 Included observations:
264 after adjusting endpoints Variable Coefficient Std. Error t-Statistic Prob.
C 3.2754442.2568561.4513300.1488BDA
0.2859350.0956622.9890170.0033DMA
0.2494950.1066272.3398850.0206FRA
0.2165470.1025732.1111500.0363 CATTs

0.2733410.1231842.2189650.0400COA

0.2205260.1049762.1007270.0327R-squared 0.435481 Mean

dependent var 12.99346Adjusted R-squared 0.382318 S.D.

dependent var 3.098167S.E. of regression 2.888766 Akaike info

criterion 4.997962Sum squared resid 1226.711 Schwarz criterion

5.116803Log likelihood -376.3441 F-statistic 5.567008Durbin-Watson

stat 2.16401 Prob(F-statistic) 0.000100Source: e-view output Table 5

reveals the multiple regression analysis of forensic accounting and auditing techniques on fraud detection, investigation and prevention in the Nigerian public sector. The result suggests that Bedford digital analysis (BDA), data mining analysis (DMA), financial ratio analysis (FRA), computer assisted tools and techniques (CAATs) and continuous auditing (COA) with p-values of 0.0033, 0.0206, 0.0363, 0.0400 and 0.0327 is less than the critical value of 0.05. Hence, we deduce that there is a significant relationship between the various forensic accounting and auditing techniques on public sector fraud detection, investigation and prevention in Nigeria. The R^2 (coefficient of determination) of 0.318414 and adjusted R^2 of 0.285935 shows that the variables combined determines about 32% and 29% of public sector fraud. The F-statistics and its probability shows that the regression equation is well formulated explaining that the relationship between forensic accounting and auditing techniques and public sector fraud detection, investigation and prevention in Nigeria are statistically significant (F-stat = 5.567008; F-pro. = 0.000100). The result was supported by Okoye and Gbagi (2013), Dauda, Ombugadu, and Aku (2016) and Akani and Ogbeide (2017). They averred that forensic accounting and auditing helps public sector organisations to detect fraudulent activities. This position was further supported by a study on forensic audit and corporate fraud in Nigeria conducted by Enofe, Omagbon and Ehigiator (2015) where they found that the application of forensic audit would result in increase in the detection of

corporate fraud incidence. This position was further supported by a study on the effectiveness of forensic auditing in detecting, investigating and preventing bank frauds in Zimbabwe carried out by Njanike, Dube and Mashayange (2009) where they found that forensic auditing can help in the investigation of fraud. Also, this position was further supported by a study on forensic accounting and fraud prevention in the Indonesia public sector carried out by Sidharts and Fitriyah (2015) where they found that forensic accounting can help better in preventing public sector fraud. The findings are further buttressed by Othman et al (2015) in a study of fraud detection and prevention methods in the Malaysian public sector: accountants and internal auditors' perception where they found that forensic accountants are among the most effective fraud detection and prevention mechanisms employed in the public sector. Similarly, Islam, Rahman, and Hossan (2011) study in Bangladesh found that forensic accounting is a critical tool in the fight against corruption, detection and prevention of fraud.

CONCLUSION AND RECOMMENDATIONS

The study presented a detailed investigation on the effects of forensic accounting and auditing techniques on public sector fraud in Nigeria. Review of literature provides strong evidence of the effectiveness of forensic accounting and auditing methods on fraud detection, investigation and prevention. This research empirically substantiated the results of prior studies Njanike, Dube and Mashayange (2009), Okoye and Gbagi (2013), Akenbor and Ironkwe (2014), Othman et al (2015), Sidharts and Fitriyah (2015), Dauda, Ombugadu, and Aku (2016) and Akani and Ogbeide (2017). The study highlights the various techniques of fraud detection, investigation and prevention. The empirical analysis provided a significant relationship between Bedford digital analysis, data mining analysis, financial ratio analysis, continuous audit and computer assisted audit tools on public sector fraud detection, investigation and prevention in Nigeria. On the basis

of the empirical result, the paper concludes that the adoption of forensic accounting and auditing techniques would help to detection,

International Journal of African and Asian Studies www.iiste.org ISSN 2409-6938 An

International Peer-reviewed Journal Vol.47, 2018 14 investigate and prevent public

sector fraud in Nigeria. However, it was also noticed that forensic accounting and auditing techniques are less common used in the Nigerian public sector and these techniques cannot be used to reduce the level of fraud witnessed in the Nigerian public sector. Therefore, on the basis of the conclusion, the papers recommends as follows:

1. Government should consider providing more fraud hotlines, improve the whistleblowing policy and establish forensic accounting department in the public sector in order to enhance the fraud detection, investigation and prevention mechanism in the public sector.
2. The Nigerian legal system should be up to date with latest advancement in technology to ensure admissibility of evidence in a court for successful prosecution of criminal and civil cases.
3. The public sector in Nigeria should embrace forensic accounting and auditing techniques with complete implementation of International Public Sector Accounting Standards (IPSAS) and the establishment of Forensic accounting departments.
4. The relevant anti-graft agencies in Nigeria like the EFCC and ICPC should ensure they have their technical, investigative and accounting staff trained in the various techniques of forensic accounting and auditing techniques used in advance countries.
5. Government ministries, departments and agencies should take advantage of the modern accounting and auditing software to enhance efficiency and smooth operation of forensic accounting and auditing practice.

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Number 9 **New Frontiers: Training Forensic Accountants Within The Accounting Program** Vinita

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ABSTRACT Accountants have recently been subject to very unpleasant publicity following the collapse of Enron and other major companies. There has been a plethora of accounting failures and accounting restatements of falsified earnings, with litigations and prosecutions taking place every day. As the FASB struggles to tighten the loopholes in accounting, and Congress and the SEC try to build safeguards for corporate governance, one group of accountants has been quietly helping corporations and investors alike in rebuilding confidence in financial statements. These are the forensic accountants. The forensic accountant actively looks for fraudulent transactions and misrepresentations. Such an accountant has a major role to play in this new environment, and universities have the responsibility to train future accountants to adequately meet the demands of the business world.

RAPID CHANGES IN THE ACCOUNTING PROFESSION The landscape of business has changed dramatically, and has taken the accountants along at warp speed. First, the ability to automate many business functions has greatly streamlined operations in organizations across all industry lines, freeing accountants from the day-to-day tasks of debiting and crediting. Second, with the advent of the Internet, the accountants' financial statements have been sidelined by numerous reports provided by management, analysts, mutual funds and scores of other players on the World Wide Web. Third, as the demands of a global economy accelerate, the accountants have to deal with international markets, their accounting rules and currencies, as well with financial derivatives, divestitures, spinoffs, tracking stocks and the many deals that occur in the financial marketplace. The accountant has had to develop an entire new set of skills to deal with

this changing environment. g And then came Enron! Worldcom! Global

Crossing! Tyco! Xerox! Adelphia! These are just a few names on the Wall Street List of Infamy – companies that manipulated accounting rules to boost their earnings in a stock market gone wild. The year 2002 has gone down in the annals of accounting history as the Year Of Truth, when companies disclosed billions of dollars of financial fraud. The GAO reports that almost 10% of companies registered with the SEC issued earnings restatements between the years 1997 and 2002. The stock market went into a downward spiral as investors lost confidence in corporate governance and in the reported financial statements. The FASB and the SEC scrambled to find solutions to the problem of such ubiquitous financial fraud. Even the Congress stepped in with its Bill to regulate corporate accounting and managerial responsibility. If such widespread fraud occurs with comparative infrequency in the long history of American accounting, let us get into the quieter waters of small business, banking, insurance, personal finance and vendor contracts. Fraud is as prevalent here in the day-to-day business as it seems to be in the corporate world. Some statistics quote a loss of \$ 900 billion annually from fraud and embezzlement. The average company loses \$9 per day due to theft and pilferage. Companies routinely find themselves in court these days for everything from vendor fraud to employee embezzlement. 31

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In this environment of fraud and suspicion, there is great demand – even a clamor for a new kind of accountant: the forensic accountant. Part Sherlock Holmes, part financial wizard, these accountants investigate and

interpret financial statements and testify in court. The expert witness testimony of the forensic accountant has forced businesses to restructure, and millions of dollars to be paid in damages; people have on occasion even gone to jail. The practical and in-depth analysis that a forensic accountant brings to a case helps to uncover underlying problems in a business.

A BRIEF HISTORY OF FORENSIC ACCOUNTING

Forensic accountants have been around for nearly 200 years. The earliest reference was found in 1824 in an accountant's advertising circular in Glasgow, Scotland. These special accountants gave testimony in court and in arbitration proceedings. Interest in forensic accounting spread through the United States and England early in the twentieth century. One of the first institutions to use the services of such investigative accountants was the IRS. The story of Al Capone the famous mobster being caught on a tax evasion scheme is well-known. The FBI decided to use forensic accountants and employed nearly 500 such agents during World War II. As a profession, forensic accounting continued to grow during the latter half of the century, as GAAP and tax laws became widespread and mandatory. The following are a few major milestones in forensic accounting:

- 1942: Maurice E. Peloubet published "Forensic Accounting: It's place in today's economy."
- 1982: Francis C. Dykman wrote "Forensic Accounting: The Accountant as an Expert Witness."
- 1986: The AICPA issued Practice Aid # 7, outlining six areas of litigation services – damages, antitrust analysis, accounting, valuation, general consulting and analyses.
- 1988: Association of Certified Fraud Examiners established
- 1988: A new genre of detective novels where the forensic accountant was the star.
- 1992: The American College of Forensic Examiners was founded.
- 1997: The American Board of Forensic Accountants was founded
- 2000: The Journal of Forensic Accounting, Auditing, Fraud and Taxation was founded.

Forensic accounting is hardly a new field, but in recent years, banks, insurance companies and even police agencies have increased the use of these

experts. A study conducted by Kessler International (a forensic accounting and investigative firm) showed that there is a growing need for experienced forensic accountants. ABCnews.com reports that industry insiders expect more companies to use forensic accountants as preventative measures as the demand for trustworthy financial statements increases in the wake of the recent accounting scandals. Todd Avery, president of the risk consulting firm, Kroll Worldwide, says that many executives are paying greater attention to business controls and fraud prevention today than they were doing a few years ago. US News and World Report recently named "Forensic Accountant" as one of the most secure career tracks over the next few years – the profession made the "Twenty Hot Job Tracks" list. Why is forensic accounting so popular now? According to some experts, this increased interest is because of the struggling stock market and lack of investor confidence which has forced many organizations to take a long, hard look at their financial statements. A sluggish economy with its attendant problems might also be an incentive to commit fraudulent acts, thus requiring the services of an expert. The increase in white collar crime and the difficulties faced by law enforcement agencies in uncovering fraud have also contributed to the growth of the profession. Many accounting firms believe that the market is sufficiently large to support an independent unit devoted strictly to forensic accounting. Whatever the reasoning may be, more and more forensic accountants are being called upon to use their investigative skills to seek out irregularities in their companies' financial statements. 32

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 WHAT IS FORENSIC ACCOUNTING?Forensic accounting has been defined as "accounting analysis that can uncover possible fraud, that is suitable for presentation in court. Such analysis will form the basis for discussion, debate and dispute resolution." A forensic accountant uses his knowledge of accounting, law, investigative auditing and criminology to

uncover fraud, find evidence and present such evidence in court if required to. According to Dr. Larry Crumbley, a forensic accountant can be used in any of the following areas: •Shareholder/partnership disputes •Personal injury claims/accidents •Business interruption/insurance claims •Employee fraud •Divorce/bankruptcy •Professional negligence •Financial statement fraud •Retained by lawyers, law enforcement, banks and companies Apart from knowledge of accounting, law and criminology, a forensic accountant also needs to be familiar with corporate financial planning and management. He also needs to have computer skills, good communication and interview skills.

The Role Of The Auditor Fraud is no longer something that internal or external auditors can guard against with their periodic audits. A new category of accountants is needed to examine the books of a company specifically for fraud. The auditing profession has taken the position that it is not the responsibility of the external auditor to detect fraud. In its Statement of Auditing Standards (SAS), the AICPA states the following: “the ordinary examination directed to the expression of an opinion on financial statements is not primarily or specifically designed, and cannot be relied upon to disclose defalcations and other similar irregularities....(or) deliberate misrepresentation by management.” At the beginning of any assignment, however, the auditor should assess the possibility of material misstatements that could exist due to unintentional errors or fraudulent irregularities. Based on the initial assessment, the auditor should design an audit that provides reasonable assurance of detecting material errors and irregularities. In response to current demand for greater corporate governance, the AICPA issued SAS 99 in 2002:

Consideration of Fraud in a Financial Statement Audit. The new regulation encouraged auditors to:

- Discuss all possibilities of fraud that could take place within an organization so that an appropriate audit program could be designed
- Discuss with management and employees about the risk of fraud

within the organization •Design unpredictable fraud tests so that the surprise element could aid in uncovering fraud •Pay special attention to any management override of the existing internal control system. In "Forensic Accounting to the Forefront" by Wolosky, one of the investigative accountants talks about a significant difference between auditing and forensic accounting. The most important concern in auditing is materiality. However in investigative accounting, one small transaction that looks suspicious could be the thread that unravels a big accounting fraud. An internal audit is the audit performed by an employee mainly to determine whether prescribed operating procedures are being followed. While doing this, many frauds can be discovered by internal auditors. But management has significant influence over an internal auditor's commitment to detect fraud. By limiting available resources or the scope of the audit, top management can effectively conceal fraud. Therefore, the external fraud auditor has a key role to play in uncovering fraud and presenting evidence.

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Journal of College Teaching & Learning – September 2007 Volume 4, Number 9The terms “fraud examination” and “forensic accounting” are often used interchangeably, but they refer to different, but overlapping concepts. Forensic accounting is generally fraud examination done for litigation purposes. TEACHING FORENSIC ACCOUNTINGGiven the pervasiveness of fraud and the necessity of special skills in order to uncover such fraud, it becomes important to train forensic accountants – and colleges and universities have an important role to play. There are a number of universities and colleges offering a course in forensic accounting. Some universities, like the University of Toronto, offer a diploma in forensic accounting. The Association of Certified Fraud Examiners is actively encouraging universities to offer such courses by offering sample syllabi, videos and other material. Many universities report healthy enrolment in

such classes. Not all forensic accounting courses are taught in the same way. There are many approaches to teaching this very new course, some of which are as follows:

- A general course on all types of fraud perpetrated in all walks of life, including identity theft, telemarketing fraud, investment scams etc.
- A course specifically looking at fraud against organizations perpetrated by employees, vendors and customers
- A course specifically targeted at discovering financial statement fraud
- A fraud auditing and investigation course, looking at internal and external audit procedures
- A course dealing with gathering evidence of fraud, including testimonial, documentary, and surveillance evidence
- A course specifically targeted toward presenting evidence in court.

There is, of course, a lot of information overlap between these courses and their common focus is identifying and proving fraud. A sample syllabus for a general course in fraud would cover the following topics:

Defining Fraud Albrecht (2003) defines fraud as a representation about a material fact which is false and intentionally or recklessly so, which is believed and acted upon by the victim, to the victim's damage. Fraud can be classified into these categories:

- Employee fraud: fraud committed by an employee against an organization
- Management fraud: fraud committed by management using financial statements to defraud stockholders, lenders and others who rely on those statements.
- Investment scams: fraud committed by individuals to trick their victims into investing their money in scams and false investments
- Vendor fraud: fraud committed by vendors by overcharging or falsely charging a company
- Customer fraud: fraud committed by customers that trick organizations into giving them something that they should not have.
- Identity theft: fraud committed by individuals who steal personal information from a victim and then go on to purchase goods or services using this information
- E-commerce fraud: fraud committed using the Internet and electronic transactions

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 Why Do People Commit Fraud? Like any other crime, fraud can be analyzed using the three elements of motive, means and opportunity.

- Motives: Why do people commit fraud? Fraud is usually committed to benefit oneself or benefit an organization. Personal reasons could include financial pressures, gambling or drugs, and work related pressures where an employee feels overworked and underpaid and unrecognized. For an organization, financial statement fraud is usually for obtaining cheap capital or for increasing stock value and therefore the value of stock options to management.
- Means: Like a smoking gun, fraud can be committed using computers, telephones, the Internet, annual reports, bank accounts, and things as simple as a cash register.
- Opportunity: Within an organization, lack of adequate internal controls provides a prime opportunity for fraud. Lack of audit trails and failure to punish the perpetrators also send signals encouraging fraud. In other cases, lack of access to important information, and ignorance and apathy can breed fraud.

The Best Way To Control Fraud – Prevention
 Fraud, as we have said before, is extremely expensive, and the best way to minimize this fraud is to take measures to prevent fraud from occurring. This can be done in two ways:

- Creating the right environment in an organization by making the right hiring choices, and disseminating a well-understood code of conduct
- Eliminating opportunities for fraud by installing a good system of internal controls, with physical control of assets, proper authorizations, segregation of duties and proper documentation.

Such proactive fraud management can help the organization spot red flags and detect instances of fraud early. However, in spite of all good intentions, fraud does occur – and the forensic accountant is then called into the picture. Red Flags Of Fraud
 Fraud is not an openly visible crime. It can be detected only through “red flags” that indicate that ethics and honesty have been compromised within the company. Such red flags can be from the

accounting system, lack of segregation of duties and other crucial internal control features, lack of integrity in top management behavior, unusual or extravagant behavior on part of employees, and numerous complaints or hotline tips. All these are indicators that fraud may exist – not necessarily proof of fraud.

Fraud Investigation And Evidence The fraud investigation process begins with a predication – circumstances under which a reasonable, professionally trained expert could believe that fraud is taking place. Once there are such indications of fraud, the investigator develops a hypothesis and looks for evidence to prove the hypothesis. Such evidence can come from documents, interviews, observation and other physical clues like fingerprints. Based on the evidence acquired, the initial hypothesis can be proved or revised.

Forensic Accountants In Court In court, the forensic accountant can be an expert witness, a consultant, or play other roles such as trier of fact, special master, court-appointed expert, referee, arbitrator, or mediator. A key piece of evidence is the report of the forensic accountant. The fraud report should not be accusatory nor conclusive as to guilt. It is critical to ensure that the tone of the report is not inflammatory or prejudicial. The fraud trial can be a civil or a criminal trial. In either case, the role of the forensic accountant is to study relevant materials documents, and the authoritative literature relating to the case on hand. Direct and cross examination questions will be asked, and the forensic accountant has the responsibility to answer these questions clearly and concisely. 35

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Other topics covered in a forensic accountant's class can include a detailed analysis of evidentiary types, embezzlement and other internal frauds, money laundering and external frauds, computer evidence and cybercriminals.

TEXTBOOKS AVAILABLE While forensic accounting is fairly new in the academic area, there are a variety of books available. Some of the books are comprehensive, while others deal with specific topics. Here

are some of the books available (topics covered by the books are in italics):

- Fraud Examination by W. Steve Albrecht, Wiley – Comprehensive coverage of all types of fraud
 - Forensic and Investigative Accounting by Larry Crumbley, CCH - Comprehensive coverage, with Instructor Manual and Test Bank
 - Principles of Fraud Examination by Joseph Wells, Wiley - New textbook with comprehensive coverage of various fraud schemes.
 - Forensic Accounting by Hopwood et. al., McGraw Hill - Comprehensive coverage, with Instructor Manual and Test Bank
 - Fraud Auditing and Forensic Accounting by G.Jack Bologna and Robert J. Lindquist, Wiley – Fraud against organizations, mainly by employees and vendors
 - Business Fraud: Know It and Prevent It by James Blanco, Humanomics Publishing – Fraud against businesses
 - Occupational Fraud and Abuse by Joseph T. Wells, Obsidian Publishing – Asset Misappropriation and Financial Statement Fraud
 - Fraud 101: Techniques and Strategies by Howard Davia, Wiley – General coverage of all types of fraud
 - Financial Investigation and Forensic Accounting by George Manning, CRC Press – Fraud auditing and investigative techniques within an organization
- Other similar books are also available, although many of them are not set up as text books with end of the chapter questions and cases. USEFUL WEBSITESA search on key words like “Forensic Accounting”, “Fraud Examination”, “Fraud Investigation”, “Fraud Auditing” and other similar terms yield a number of websites with useful information, articles and investigative techniques. Here is a sampling of some of the most relevant websites:
- The official website of the Association of Certified Fraud Examiners provides a wealth of information about fraud resources and links to other websites
 - The official website of the American College of Forensic Examiners : acfe.com – provides information about forensic accounting
 - www.forensicaccounting.com has a comprehensive definition of forensic accounting and the work involved during forensic accounting engagements
 - bus.lsu.edu/accounting/faculty/lcrumbley/forensic.html – website of Dr.

Larry Crumbley, one of the pioneers in forensic accounting

- myacademiconlyhomepage.com/Accounting_Forensic.html – provides links to many forensic websites
- aicpa.org/antifraud – the AICPA’s website dealing with fraud, especially financial statement fraud
- fraud.org, ckfraud.org, crimesandclues.com – websites that provide information about the various types of frauds and investigative techniques. 36

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conjures up images of exciting discoveries and crime detection especially after the numerous TV shows based on the subject. In real life, forensic accounting is a patient examination of boxes of documents and computer files, careful interviews and study of statements, and a slow build up of evidence, piece by piece. While real life takes up a lot of leg work, forensic accounting classes can be turned into something more exciting, involving students as more than passive listeners. Here are some of the ideas that

have been used in classes:

- Setting up “mock trials” at the end of class where students present evidence and “try” a case in forensic accounting

- Reading novels in forensic accounting – Dr. Larry Crumbley has written more than a dozen novels involving intrepid forensic accounting detectives

- Role playing, taking on the perspectives of management, the auditor, the fraud perpetrator and the forensic accountant

- Writing a short story involving fraud and presenting it in class.
- Trying out different interview techniques on each other/watching TV interviews and analyzing them

- Handwriting analysis/analysis of questioned documents
- Watching videos - the Association of Certified Fraud Examiners has a number of really good videos to purchase

- Guest speakers from accounting firms, the FBI, IRS and other agencies that investigate crime Litigation support and the intricacies of deposition testimony, direct testimony and cross examination during trials are important to any course in forensic accounting and getting in guest

speakers who have experience in these areas adds enormous value.

QUALITIES AND QUALIFICATIONS OF A FORENSIC ACCOUNTANT A forensic accountant must be part detective and part accountant while analyzing, investigating, testing and examining evidence in order to present expert testimony on the occurrence of fraud. This requires knowledge of financial and managerial accounting, corporate financial management, advanced computer skills, a good knowledge of the legal environment, and strong communication skills. A naturally suspicious state of mind also helps the forensic accounting during the task of uncovering fraud. Crumbley et. al. (2003) outline a number of courses and knowledge content areas that would be necessary for a comprehensive program in Forensic Accounting:

- Basic foundational courses in Accounting and Finance for a solid understanding of financial statements and the markets in which they operate
- Financial Statement Analysis - for the ability to critically analyze financial statements and their related ratios
- Taxation and Business Law - for a thorough understanding of the legal elements of fraud
- Securities Law and Corporate Governance - for an indepth coverage of the specific regulations affecting companies and their behavior
- Information Systems - covering computer essentials and the flow of funds and information through the electronic media
- Business Valuation - the often complex methods of finding hidden assets and the correct value of a business are useful tools for the forensic accountant
- Criminology - for the many aspects of criminal law and procedure
- Psychology - for an understanding of human behavior that leads to fraud
- Business ethics - general ethics and specific codes that cover many professionals working in the field of finance and accounting
- Business Communication - for clear report writing and oral communication skills that are crucial for conducting interviews and expert testimony in court.

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HOW DOES ONE BECOME A FORENSIC ACCOUNTANT?

- One of the

most popular certifications available is the CFE or the Certified Fraud Examiner. This is an examination offered by the Association of Certified Fraud Examiners. It consists of four parts: financial transactions, investigation, legal elements, and criminology. •The American College of Forensic Examiners offers the “Certified Forensic Accountant” or the CrFA. This program qualifies the accountant in the areas of Fraud and Expert Testimony. •The Certified Insolvency and Reorganization Accountant (CIRA) qualifies an accountant in the areas of insolvency and reorganizational accounting. •The Association of Certified Fraud Specialists offers the Certified Fraud Specialist Certification •Other resources include the Forensic Accounting Society of North America, the National Association of Certified Valuation Analysts and National Litigation Support Services Association.

CONCLUSION Forensic accountants are currently in great demand, with the public need for honesty, fairness and transparency in reporting increasing exponentially. These forensic accountants need accounting, finance, law, investigative and research skills to identify, interpret, communicate and prevent fraud. As more and more companies look for forensic accountants, and professional organizations offer certifications in the area, it is becoming evident that the forensic accountant has a skill set that is very different from an auditor or a financial accountant. Universities must therefore be prepared to train such accountants to meet future needs of the profession.

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