

Asian Journal of Economics, Business and Accounting

4(2): 1-15, 2017; Article no.AJEBA.34826

ISSN: 2456-639X

Accounting Ethics and Audit Quality in Nigeria

Amos O. Arowoshegbe^{1*}, Emmanuel Uniamikogbo² and Gina Atu³

¹Ambrose Alli University, Ekpoma, Edo State, Nigeria. ²Rhema University, Aba, Abia State, Nigeria. ³Igbinedion University, Okada, Edo State, Nigeria.

Authors' contributions

This work was carried out in collaboration between all authors. Author AOA designed the study, managed the analyses of the study and wrote the protocol. Author EU wrote the first draft of the manuscript and performed the statistical analysis. Author GA managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJEBA/2017/34826

<u>Editor(s</u>

(1) Soner Gokten, Department of Management, Faculty of Economics and Administrative Sciences, Baskent University,

Ankara, Turkey.

Reviewers: (1) Peter Yacob, Universiti Tunku Abdul Rahman, Malaysia.

(2) Tim Murphy, Universidad Carlos III de Madrid, Spain.

Complete Peer review History: http://www.sciencedomain.org/review-history/21023

Original Research Article

Received 14th June 2017 Accepted 27th July 2017 Published 16th September 2017

ABSTRACT

The study examined the effects of accounting ethics on audit quality in Nigeria. Although no method yet has been found to guarantee the optimum quality level for the financial information users, and implicitly the quality of audit services, efforts concerning this aspect has been intensified lately. A number of elements that influence quality in audit profession have been identified by many authors as Integrity, Objectivity, Professional Competence and Due Care, Confidentiality, and Professional Behaviour. Auditors, as professionals, are expected to behave in accordance with the professional codes of ethics, and to maintain standards of moral behaviour that are expected of a professional person for a quality audit report to be achieved. To restore public confidence in the profession, auditors in conducting their tasks should be able to produce an audit with higher quality. For this purpose, auditors need to be brave whistleblowers so that the resulting audit would be to the favour of the stakeholders. The paper examined the manner in which ethical principles impact on the quality of audit report issued by professional auditors. Findings from the various literature reviewed showed the existence of positive and significant relationship between Accounting Ethics and Audit quality. The study concludes that Accounting Ethics play an important role in improving auditor's proficiency thus; there is the need for Accounting Regulatory Bodies and other stakeholders to make

concerted efforts in ensuring that accounting ethics are standardized and strictly enforced. This paper therefore recommends that ethics in accounting should be made effective as a major course in Nigerian Universities, so as to enlighten and educate students on how to and how not to behave as accountants. In the same vein, the paper suggests increased ethics education at both prequalifying and post-qualifying levels of the accounting profession to stop unholy practices among accountants.

Keywords: Accounting ethics; audit quality; professional auditors; quality control.

1. INTRODUCTION

The main objective of financial reporting is to provide financial information to the users which include; current and potential investors, creditors, and stakeholders. This information is intended to assist them in making well-reasoned investment, credit, and financial decisions as well as accurately report the economic resources and obligations of a company. Due to this fact, auditors are perceived as the "gatekeepers" in protection of the investing public. Believing that auditors are professionals and unbiased, their reports are taken by stakeholders to be truthful [1]. Hence, auditors are expected to be guided in their behaviour by the ethics of their profession.

However, the corporate scandals which shook the business world involving WorldCom (2002), Enron (2002), Global Crossing (2002), Tyco (2002), Parmalat, Cadbury Nigeria, BCCL, in USA, HIH Insurance and One Tel in Australia and other notable companies have fixed a spotlight on accounting failures and in turn have reduce public confidence in audited financial statements. These downward swinas confidence have raised much concern about Auditors' independence and as such their ethical behavaiour just as [2] pointed out that the failures and scandals of companies are linked to unethical practices.

In the Nigerian corporate environment a tendency for a fall in the quality of corporate financial reporting has been witnessed amongst companies and this suggest that declining corporate financial reporting quality is fast becoming a major challenge for stakeholders in the Nigerian corporate setting [3]. The cases of African Petroleum PLC which showed financial statements of the company, did not fairly present the company's financial position [4], that of Cadbury Nigeria PLC [5] and the banking sector financial reporting failures are classical examples of financial reporting challenges in Nigeria. These have raised doubts in the mind of the public regarding the credibility of corporate

financials as disclosed on annual reports, which has drastically reduced public confidence in audited financial reports [3]. In the light of the foregoing, it is obvious that a crucial part of what is needed to improve the quality of the audit work is for auditors to apply strictly ethical principles and due professional skills in the conduct of their audit procedures.

The Quality of an audit is the probability in which an auditor finds and reports on the existence of a breach in the accounting system of the concerned auditor's client [6]. Auditing as defined by [7] is the independent critical examination of, an expression of opinion on the Financial Statements and underlying records of an appointed enterprise. bv an auditor accordance with the terms of his engagement and in compliance with any relevant Statutory Obligations and Professional Requirements. Also, auditing can be viewed as the independent examination of the financial statements and records of an enterprise by an independent qualified person so as to form an independent judgment as to the truth and fairness of the financial statements in accordance with the laid down rules and principles. Any person who carries out these duties is known as a statutory auditor.

Statutory auditors therefore, going by their profession are perceived by the public and users of financial information as confidence builders since investors (actual and potential) and other stakeholders rely on their reports to make financial decisions whether to buy, hold or sell their invested interests in entities. This is the case of a private auditor whose activities are guided by statutory regulations, professional requirements and auditing standards, hence, he/she must protect his/ her image as a professional as well as that of the profession by providing accurate, relevant, and reliable financial information to the users of this information in order to gain users confidence on the audited report issued by him.

On the contrary, in the public sector, [8] defines auditing as an examination of accounting records (financial and non-financial) in respect to with professional compliance standards. procedures and contractual terms for the audit under consideration in line with Value-for-Money, that is; economy, efficiency and effectiveness. Public auditors unlike private auditors are civil servants who are not independent management, earn fixed salary, have a very small risk of being laid off, and do not suffer any loss of reputation. The lack of incentive and skills to do professionally good job by public auditors pose a threat that results in poor audit quality. This is due to differences in the characteristics between government or public auditors and private auditors.

Research conducted by [9] in the United States states that auditors' industry specialization affects audit quality, [10] state that competence of auditors through expertise of the auditors affects audit quality, while [11] state that audit quality in the public sector is poorer than that in the private sector, the poor quality of an audit in the public sector resulted from poor litigation.

[12] in his book "A Management Evaluation Tool" describes the definition of audit quality, namely "The Audit Quality is a management tool used to evaluate, confirm, or verify activities related to quality". However, for an auditor to express a true and fair view of a financial report, ethical practices must be observed.

Ethics therefore can be regarded as well-founded standards of right and wrong that prescribes what humans ought to do, usually in terms of rights, obligations, benefits to the society or specific virtues. [13] define ethics as a set of rules or norms or guidelines that govern human behavior, both the one that should be done and the one that should be left that are adopted to by a certain group or class of people or community or profession. The essence of professional ethics therefore is to encourage a sense of social responsibility in the professional member. One of the elements that many believe distinguishes a profession from other occupations is the acceptance by its members of a responsibility for the interests of those it serves.

The rising spate of fraud in both private and public establishments has assumed an enormous dimension. This development has eroded public trust in financial statements. Auditors in their duty to expressing professional

opinion on the truth and fairness of financials are ostensibly bedeviled with quantum of challenges which could result in the issuance of a clean bill of health to fraud-riddled establishments [14], which negates their professional code of ethical conduct. This unethical behavior exhibited by auditors in the cause of performing their statutory engagements is one of the major challenges in the accounting profession. This, often time has negatively impacted on the financial reports issued by auditors, hence, providing users with misleading information. Scandals within the accounting sector have threatened the reputation of accountants and in all this type of cases; ethics did not play an effective role. Despite the accounting standards and ethical codes guiding the accounting profession, morality and ethics have gone down the drain based on the occurrence of the Enron, World Com, Nigerian Cadbury and similar scandals that have surfaced

In many economies, there is a growing research geared towards heightening the need for ethical professionalism in the audit environment. For example in the United States [16] conducted studies on auditor professional ethics. [17] examined this issue for Iran. [18] conducted a similar study for Indonesia. However, for Nigeria, to the best of the researchers' knowledge, this issue has not been adequately examined. It is against this background that this paper seeks to critically examine accounting ethics and audit quality in Nigeria, with a view to proffering formidable cures to ameliorate this challenge and to redeem the auditing profession from impeding collapse. This is the gap that drives this study.

This paper is partitioned into four sections. Besides the foregoing introduction, section two harps on the literature review under two subheads as thus: Conceptual frameworks and Theoretical frameworks, section three discussed teaching accounting Ethics in Nigeria. This is followed by section four; the concluding and recommendation part of the study.

2. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Stewardship/ accountability and decision usefulness Accounting

Stewardship is defined as the role of the accounting system in ensuring that a firm's invested capital is maintained in such a way as to

preserve the economic interests of stockholders and bondholders"[19]. The origins of stewardship (i.e., accountability) in accounting may be traced back several millennia [20,21]. Management's performance in discharging its responsibilities, often referred to as stewardship responsibilities, particularly is important to existing equity investors when making decisions in their capacity as owners about whether to replace or reappoint management, how to compensate management, and how to vote on shareholder proposals about management's policies and other matters [22].

The objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity and that those decisions involve buying, selling, or holding equity and debt instruments and providing or settling loans and other forms of credit [22].

[23] posit accounting information plays two important roles in market-based economies. First, it allows capital providers (shareholders and creditors) to evaluate the return potential of investment opportunities (the ex-ante or valuation role of accounting information). Second, accounting information allows capital providers to monitor the use of their capital once committed (the ex-post or stewardship role of accounting information). It is the responsibility of the accountant, therefore, to measure, report, and audit management's social performance, entity's economic resources for their efficient and profitable use [24]. This singular role played by the auditor (agent) to act on behalf of the shareholders (principal) and reporting same to the shareholders is an act of stewardship from the auditor to the party whose interest he represents.

The objective of financial reporting is in its usefulness in making decision in assessing cash prospects and stewardship. characterizes "asset utilization" articulations of stewardship, in these versions: The Conceptual Framework talks about "how efficiently and effectively the entity's management governing board have discharged their responsibilities to use the entity's resources" [22]; the Trueblood Report discussed accounting information as information useful in judging management's ability to utilize enterprise resources effectively in achieving the primary enterprise goal [26]; and The Corporate Report used stewardship terminology in relation to demonstrating how resources with which management has been entrusted have been used [27]. The primary focus is on assessing managerial efficiency and effectiveness with respect to the management of corporate resources.

The accountability approach includes not only the traditional stewardship issues centered on the compliance with established rules but also the modern performance issues oriented towards the efficiency and effectiveness notions [28]. However, the financial reporting revolution (rooted in economic science) brought about the root metaphor of 'decision usefulness' and the expurgation of 'accountability' from the discourse of policy makers and researchers. [29] points out that no commonly accepted definition of stewardship exists in the literature, and the concept itself appears subject to a variety of alternative interpretations.

2.1.2 Ethics and accounting/auditing

Accounting has been a moral discourse partially reflecting the moral order of the world in which it's been practiced [30]. The injustices that have occurred with the accounting profession reflect the current state of immorality in the society. But as debates proliferate in regards to ethics and accounting, it is essential to define ethics within the accounting profession.

As defined by [31], ethics is the discipline dealing with what is good and bad and with moral duty and obligation principles of conduct governing an individual or a group. Following the accounting scandals like Enron, WorldCom and the recent Nigerian Cadbury Plc cases that have painted the accounting profession black, it is however disturbing to know that a profession guided by certain codes of ethics, regulated by standards, monitored by recognized regulatory bodies could record a high level of unethical behavior in recent time [32]. The issue of ethics has been long discussed in virtually all disciplines and works of life.

In relation to accounting, the application of ethics cannot be overemphasized because it is somewhat the bedrock of the accounting profession. Ethics in the accounting profession can be said to be one of its pillars because, it gives support to the notion that accountancy is a noble profession. Furthermore, the profession is such that it is governed by its own standards and

not by government [30]. There are so many standards that have come to stay in the accounting profession that gives the profession a humble name and made the accountants to be called "noble".

With regard to auditing, the Auditing Practices Board also sets out a number of guidelines on ethics which should be followed by auditors due to the nature of their work. Hence, self-regulation may not seem possible if accountants were not seen to have high standards of professionalism or morals. The nature of both accountants' and auditors' work require them to have and show high level of ethics. In the case of auditors, they have to ensure that a true and fair view is being portrayed by the financial accounts of the company they are auditing. Shareholders for instance rely heavily on the annual accounts of a company as they can use this information to make informed decisions on their investment. The opinion of the auditor is so much vital as he is the one to express the truth and fairness of the financial statements or otherwise [33].

However, auditors are somewhat bound to face a great deal of temptation in their line of work. Where an auditor identifies a problem with the accounts but decides to ignore them due to the fact that he may have received some incentives, he is said to have acted outside the ethical boundaries guiding his profession.

2.1.3 Accounting ethics and ethical code of conduct for auditors in Nigeria

[34] opines that no one clear definition can be ascribed to ethics or ethical behaviour. Some of the definitions that have been given include that of [35], they defined Ethics as set of moral principles, rules of conduct or values and argue that Ethics apply in the process of decision making where various alternatives regarding moral principles are involved. According to [36], ethical issues are to be taken into consideration once the criteria of volition and consequences are met.

Since ethics appears to be a significant factor in planning and conducting a quality audit, there is a need to establish a set of rules in that regard. The code of ethics for professional accountants establishes ethical requirements for professional accountants. Although, each professional accountancy body has its own code of ethics, all codes are similar because they are based on the International Ethics Standards Board for

Accountants (IESBA) which is a subset of International Federation of Accountants [37]. On the global level, the International Federation of Accountants (IFAC) delegated the responsibility for issuing Ethical Standards for Accountants to the International Ethics Standards Board for Accountants (IESBA). The IESBA code is issued by the Ethics Committee of the International Federation of Accountants whose members include the Professional Accountancy Bodies of most countries. The IESBA code sets out the Ethical requirements for professional accountants and states that any member body of IFAC [such as "The Institute of Chartered Accountants of Nigeria (ICAN) and Association of National Accountants of Nigeria (ANAN)"] or any individual firm of accountants may not apply any ethical standards that are less stringent than those in the IESBA. However, if a member body or firm is prohibited from complying with certain parts of this Code by law or regulation, they should comply with all other parts of this Code. The IESBA Code therefore establishes a minimum world-wide code of ethical conduct for accountants.

In the context of accounting profession, accountants and auditors being professionals are expected to behave in accordance with the professional codes of Ethics, and to maintain standards of moral behaviour that are expected from a professional body. These standards of moral behaviour are expected to be exhibited by accountants and auditors alike in order to resist pressures from clients or pressures for personal gains so as to instill public confidence in their reports. It is only on this basis that stakeholders would be assured that auditors are ethically sensitive on issues that confront them while carrying out their audit duties and that the integrity of information provided is not in doubt.

The fundamental principles or rules of independence according to [38]) are based on Integrity, Objectivity, Professional Competence and Due Care and Professional Behaviour. These rules, though, modified from time to time due to changing circumstances, they have long been in existence. This essentially means that the auditors must not only be independent of both mind and appearance, but must be seen to be so by others in his ethical dealings with clients.

In Nigeria, both the Institute of Chartered Accountants of Nigeria (ICAN) and Association of National Accountants of Nigeria (ANAN) have

codes of conducts for their members. These codes are generally in tandem with the code issued by IFAC.

2.1.3.1 The Institute of Chartered Accountants of Nigeria (ICAN)

The Institute of Chartered Accountants of Nigeria is the foremost regulatory body for the accounting profession in Nigeria established by the parliamentary Act No. 15 of 1965 and charged with the general duty to: (i) determine what standards of knowledge and skill are to be attained by persons seeking to become members of the accountancy profession and to raise those standards from time to time as circumstances may permit; (ii) secure in accordance with the provision of the Act, the establishment and maintenance of the registers of fellows, associates and registered accountants entitled to practice as accountants and auditors and to publish from time to time a list of those persons; (iii) perform, through the Council of the Institute, all other functions conferred on it by the Act.

As the foremost professional accounting body in the West African sub-region, in 1982, ICAN initiated and contributed significantly to the formation of the Association of Accounting Bodies in West Africa (ABWA). The Institute has over the years certified 58,000 Chartered Accountants who are engaged in value creation in various sectors of the economy. The Institute has a strict Code of Conduct and Professional Ethics, the breach of which is sanctioned through Disciplinary Tribunal assisted Investigating Panel which has the status of a Federal High Court. The Institute has 46 District Societies for effective coordination of the social and professional activities of members in all the sectors of the economy in Nigeria. Of these 46 district societies, 44 are in Nigeria while one each in the UK and USA. ICAN continued growth had also gained international recognition as shown through her invitations to the institute to serve the international Accounting Standard Committee (IASC).

2.1.3.2 Association of National Accountants of Nigeria

The Association of National Accountants of Nigeria (ANAN) is one of the two professional accountancy associations with regulatory authority in Nigeria, the other being the Institute of Chartered Accountants of Nigeria (ICAN). A consultant offering financial services in Nigeria must be a member of either ANAN or ICAN.

ANAN was founded on 1 January 1979 and was incorporated on 28 September 1983. The Association was chartered on 25 August 1993 by Decree 76 of 1993. The governing council of ANAN is elected by its members. It includes representatives of the Auditors General of the Federation, State and Local Government, and representatives of universities and polytechnics.

Before being admitted to ANAN, members must undertake academic studies, including one year at ANAN's Nigerian College of Accountancy, followed by a two-year practical accountant-intraining program, leading to qualification as a Certified National Accountant. ANAN members must comply with its Professional Code of Conduct, which complies with International Federation of Accountants requirements. As of December 2016 ANAN total membership had grown to 28,345. ANAN was admitted as a member of the Association of Professional Bodies of Nigeria on 7 December 2010. ANAN is also a member of the Financial Reporting Council of Nigeria (FRCN), which sets accounting standards for the country. Both ANAN and ICAN work with the United Kingdom-based Chartered Institute of Public Finance and Accountancy (CIPFA) to promote best practices in the profession. ANAN is a member of International Federation of Accountants (IFAC).

2.1.4 The fundamental principles or rules of independence for accountants and auditors

[39,34,38] provide the fundamental principles of ethics applicable to all accountants and auditors. A professional accountant is required to comply with the following fundamental principles:

2.1.4.1 Integrity

The fundamental principles require that a member should behave with integrity in all professional. business and financial relationships. Integrity implies not merely honestly but fair dealing and truthfulness. According to [40], integrity is the value of supreme importance for a Code of Ethics and this can be measured in terms of what is right and just. The principle of integrity imposes an obligation on all professional accountants to be straightforward and honest in professional and business relationships. Integrity also implies fair dealing and truthfulness. A professional Accountant should not be associated with reports, returns, communications or other

information where they believe that the information: Contains a materially false or misleading statement; Contains statements or information furnished recklessly; or Omits or obscures information required to be included where such omission or obscurity would be misleading. However, a Professional Accountant will not be considered to be in breach of the above listed points if the professional accountant provides a modified report in respect of a matter stated above.

2.1.4.2 Objectivity

The principle of objectivity imposes an obligation on all professional accountants not to compromise their professional or business judgment because of bias, conflict of interest or the undue influence of others to override professional or business judgments. A professional accountant may be exposed to situations that may impair objectivity. It is impracticable to define and prescribe all such situations. Relationships that bias or unduly influence the professional judgment of the professional accountant should be avoided. This principle according to [41] requires four basic needs of credibility, professionalism, quality of service and confidence.

2.1.4.3 Professional competence and due care

A professional accountant has a continuing duty to maintain professional knowledge and skill at the level required to ensure that a client or employer receives competent professional service based on current developments in practice. legislation and techniques. professional Accountant should act diligently and in accordance with applicable technical and professional standards when providing professional services. Competent professional service requires the exercise of sound judgment in applying professional knowledge and skill in the performance of such service. Professional competence may be divided into two separate phases: Attainment of professional competence; and Maintenance of professional competence.

The maintenance of professional competence requires a continuing awareness and an understanding of relevant technical professional and business developments. Continuing professional development develops and maintains the capabilities that enable a professional accountant to perform competently within the professional environments. In the

vein diligence encompasses responsibility to act in accordance with the requirements of an assignment, carefully, thoroughly and on a timely basis. A professional Accountant should take steps to ensure that professional under those working the accountant's authority in a professional capacity have appropriate training and supervision. Where appropriate, a professional Accountant should make clients, employers or other users of the professional services aware of limitations inherent in the services to avoid the misinterpretation of an expression of opinion as an assertion of fact.

2.1.4.4 Confidentiality

A professional accountant should respect the confidentiality of information acquired as a result of professional and business relationships and should not disclose any such information to third parties without proper and specific authority unless there is a legal or professional right or duty to disclose. Confidential information acquired as a result of professional and business relationships should not be used for the personal advantage of the professional accountant or third parties. The need to comply with the principle of confidentiality continues even after the end of relationships between a professional accountant and a client or employer.

2.1.4.5 Professional behaviour

The principle of professional behavior imposes an obligation on professional accountants to comply with relevant laws and regulations and avoid any action that may bring discredit to the profession. [42] states that auditor must avoid facts and circumstances that are so significant that a reasonable and informed third party, having knowledge of all relevant information including safeguards applied would reasonably conclude a firm's or a member of the assurance team's integrity, objectivity or professional skepticism had been compromised.

In marketing and promoting themselves and their work, professional accountants should not bring the profession into disrepute. Professional accountants should be honest and truthful and should not: Make exaggerated claims for the services they are able to offer, the qualifications they possess, or experience they have gained; or Make disparaging references or unsubstantiated comparisons to the work of others. The above rules of independence enjoin the auditor to have a state of mind that allows him to issue an

opinion without any pressures or influences that compromise his professional judgment.

2.1.5 Threats to compliance with the fundamental principles and safeguards

2.1.5.1 Threats to compliance with the fundamental principles

The circumstances in which professional accountants operate may give rise to specific threats to compliance with the fundamental principles. It is impossible to define every situation that creates such threats and specify the appropriate mitigating action. In addition, the nature of engagements and work assignments may differ and consequently different threats may exist, requiring the application of different safeguards.

A conceptual framework that requires a professional accountant to identify, evaluate and address threats to compliance with the fundamental principles, rather than merely complies with a set of specific rules which may be arbitrary, is, therefore, in the public interest. This framework will assist a professional accountant to identify, evaluate and respond to threats to compliance with the fundamental principles. If identified threats are other than clearly insignificant, a professional accountant should, where appropriate, apply safeguards to eliminate the threats or reduce them to an acceptable level, such that compliance with the fundamental principles is not compromised. Compliance with the fundamental principles above may potentially be threatened by a broad circumstances. A professional range of accountant has an obligation to evaluate any threats to compliance with the fundamental principles when the professional accountant knows, or could reasonably be expected to know, of circumstances or relationships that may compromise compliance with the fundamental principles. A professional accountant should take qualitative as well as quantitative factors into account when considering the significance of a threat. If a professional accountant cannot implement appropriate safeguards. professional accountant should decline or discontinue the specific professional service involved, or where necessary resign from the client (in the case of a professional accountant in public practice) or the employing organization (in the case of a professional accountant in business).

Many threats that fall into the following categories are: (a) Self-interest threat; (b) Self-review threat; (c) Advocacy threat; (d) Familiarity threat; and (e) Intimidation threat.

- Self-interest threats: This may occur as a result of the financial or other interests of a professional accountant or of an immediate or close family member;
- Self-review threats: This may occur when a previous judgment needs to be reevaluated by the professional accountant responsible for that judgment;
- c. Advocacy threats: This may occur when a professional accountant promotes a position or opinion to the point that subsequent objectivity may be compromised;
- d. Familiarity threats: This may occur when, because of a close relationship, a professional accountant becomes too sympathetic to the interests of others; and
- e. Intimidation threats: This may occur when a professional accountant may be deterred from acting objectively by threats, actual or perceived.

2.1.5.2 Safeguards to reduce threats

Safeguards that may eliminate or reduce such threats to an acceptable level fall into two broad categories:

- (a) Safeguards created by the profession, legislation or regulation; and
- (b) Safeguards in the work environment.

Safeguards created by the profession, legislation or regulation include, but are not restricted to:

- Educational, training and experience requirements for entry into the profession.
- Continuing professional development requirements.
- Corporate governance regulations.
- Professional standards.
- Professional or regulatory monitoring and disciplinary procedures.
- External review by a legally empowered third party of the reports, returns, communications or information produced by a professional accountant.

Certain safeguards may increase the likelihood of identifying or deterring unethical behavior. Such safeguards, which may be created by the accounting profession, legislation, regulation or an employing organization, include, but are not restricted to:

- Effective, well publicized complaints systems operated by the employing organization, the profession or a regulator, which enable colleagues, employers and members of the public to draw attention to unprofessional or unethical behavior.
- An explicitly stated duty to report breaches of ethical requirements.

The nature of the safeguards to be applied will vary depending on the circumstances. In exercising professional judgment, a professional accountant should consider what a reasonable and informed third party, having knowledge of all relevant information, including the significance of the threat and the safeguards applied, would conclude to be unacceptable.

2.1.6 Accounting ethics and audit quality in Nigeria

There is no universally accepted definition or measure for audit quality as various scholars ascribed different definitions to audit quality. International Federation of Accountants [37] and its subsequent amendments provide code of ethics for auditors. In the same vain, "The Nigerian Companies and Allied Matters Act, 1990" (as amended) particularly Sections 358-363 also made provisions that could enable an auditor to avoid relationships that result in undue pressure and conflict of interest so that his report can be taken as being of high quality.

Empirical studies show that faithful compliance with codes of ethics increases the quality of audit report [43,18]. Auditors, like other professionals need these ethical principles such as credibility. honesty, integrity, loyalty, respect, responsibility. show of concern for the benefit of others. caution, justice and adherence to the laws and regulations as outlined by [44], as the result of their work affects the general public, customers, shareholders, community, stakeholders etc. Therefore, there must be a total commitment to the rules of ethics and professional conduct by the auditors in order to positively impact on audit quality. The existence of ethical code of conduct is considered an essential guide for every profession accountant and auditor in practice.

According to [45], the influence of ethics on auditor's professional engagement is powerful because: (i) they principally determine what he/she regards as right, good, worthy, beautiful

and ethical. (ii) They provide the standards and norms by which he/she guides his/her day-to-day behaviour. (iii) They chiefly determine his/her attitudes toward the causes and issues such as political, economic, social and industrial with which he/she comes into contact daily. (iv) They determine which ideas, principles and concepts he can accept, assimilate, remember and transmit without distortion.

The role of ethics in accounting practice had received considerable attention from several studies [46,47]. It suffices to also note that certain factors inherent in the audit environment can influence the appropriate application of Auditor professional skills. The adherence to professional accounting ethics will help ensure that auditors are able to withstand such factors as incentives and pressures affect the objectivity and skeptical nature of the auditor which is required for financial reporting credibility to be maintained. However, scholars do not agree on the extent to which the auditors abide by the ethical code nor the reasons for non-compliance. Though, several threats have been identified as responsible for audit quality reduction effects. These threats according to [48] include selfreview, familiarity, management, self-interest and advocacy threats which the auditor may face in the course of his audit engagement.

2.1.7 Factors responsible for unethical behaviour of auditors in Nigeria

2.1.7.1 Corruption

Corruption has been identified as one of the major causes of unethical behaviour among Auditors. [49] had described unethical behaviour as encouraging illegal behaviour from within to replace legal behaviour. Interestingly they argued that this illegal behaviour is deliberately perpetrated to satisfy one demand or the other and they are generally referred to as corruption [50]. [51] through an inexhaustible list mentioned corrupt unethical practices as outright stealing of cash and hiding; physical concealment of stocks; improper allocation of expenses in financial statements; falsification of figures, destroying financial records: inflation of contracts: false valuations: "window dressing"; over-invoicing; "cooking the books", "cute accounting" [52].

2.1.7.2 Conflict of interest

The major area of ethical behaviour of the auditors that have been criticized so much is the

existence and impact of conflict of interest on professional behaviour [53]. Ethical conflicts occur when people perceived that their duties towards one group are inconsistent with their duties and responsibilities towards some other group or one's self. It may also been seen from a situation in which a person has a private or personal interest sufficient to appear to influence the objective exercise of his or her official duties. [54] argues that auditors have usually been criticized for pleasing management at the expense of investors.

2.1.7.3 Provision of non- audit services

Scholars have documented studies on the relatively high level of non-audit fees from client for non-audit services [55]. The provision of non-assurance services may, however, create threats to the independence of the firm, a network firm or the members of the assurance team, particularly with respect to perceived threats to independence.

[56] identifies four types of threat that could occur as a result of provision of non- assurance services to a company. One of such threat is that arising from auditor's self-interest since the revenue from that source may be very significant and so the auditor is economically dependent on the client. This could make the auditor look the other way on accounting breaches committed by the company and issue a clean report when actually the circumstances demand otherwise. Another threat is the fear of losing a substantial part of the income which could arise from management intimidation of the auditor. It is also possible there exist a disagreement in auditorclient relationship and management could decide to sack the auditor, but with the fear of losing the non-audit job would make the auditor not to raise any negative opinion against management. Self- review threat could also be perceived as a maior threat faced by auditor reviewing what he has done such as provision of accountancy services, which he may find difficult to condemn. Finally, the auditor could also be faced with familiarity threat for carrying out other services. The auditor may become too familiar with the client company that he may not be inclined to carryout extensive tests based on the fact that he has trust on the company being audited. All these compromise the auditor's independence and his ethical conduct.

2.1.7.4 Audit firm's culture and environment

Another factor affecting ethical conduct is the audit firm's culture/ environment of the audit. The traditional focus of professionalism as the greatest selling point of audit firms is being eroded. Professionalism places emphasis on competence, display of trust, honesty and decency. Under this, audit firms are known to stand up against clients where such clients fail to comply with a particular principle on accounting transaction. The professional ethics are regarded as part of the culture of the firm and each audit staff must comply. Where the audit firm has a zero tolerance for unethical behaviour, the conduct of the audit team must align with the ethical policy of the firm. It has been found that with the interest of the firm focusing more on commercial activities with a view to boosting revenue base of the firm, the firm culture is changing and becomes fatal to auditor's professional behaviour [57].

2.1.7.5 Auditor's remuneration

Another major concern relating to the impairment of auditor's independence is the institutional tradition of delegating the powers to fix auditor's remuneration on the directors of the company by shareholders. The directors are statutorily responsible for the preparation of financial statements which are being audited by this same auditor. The power given to the directors on auditor's remuneration automatically makes the auditor economically dependent on the director whose work is examined by the auditor. In such circumstance, the auditor cannot be truly independent by opposing the view of the management where necessary, since the payment of his fee is done by this same director. This is certainly a case of he who pays the piper dictates the tune. Unethical behaviour would definitely be upheld by auditor under this circumstance.

2.2 Theoretical Framework

An agency relationship is one in which "one or more persons (the principal[s]) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent [58]. In auditing, agency relationships exist between the auditor, management (agents) and the shareholders (principal) by virtue of their business relationship, hence, accountable to the

shareholders. This relationship that exists between them is known as agency theory.

An analytical agency modeling refers to mathematical models of the relationship between managers under owners and restrictive assumptions consistent with both parties being fully rational and motivated exclusively by selfinterest [59]. Commencing with [60], scholars in the analytical agency tradition have long assumed that the overall demand for accounting information arises because of the separation between ownership and control of business enterprises. This separation gives rise to both decision making and stewardship information needs and, consistent with the traditions of agency research, Gjesdal offers somewhat narrow definitions of both objectives. The financial reporting revolution (rooted in economic science) brought about the root metaphor of 'decision usefulness' and the expurgation of 'accountability' from the discourse of policy makers and researchers. As social sciences have come up short as predictive scientists, so has 'decision usefulness' come up short as a justifiable basis for policy and research.

Stewardship and decision-usefulness are generally viewed as separate financial reporting objectives, [61] work also demonstrates that there are important overlaps so that information which is useful in fulfilling one objective may simultaneously be useful with respect to the other [62,63,64,65].

Decision-usefulness is conceptualized in terms of both performance evaluation [19] and valuation roles [23], while "stewardship" is viewed as synonymous with both efficient contracting [19] and ex-post monitoring [23]. Turning to different strands of the accounting literature, we find that other scholars adopt a broader perspective on stewardship. ljiri's focus on efficiency, effectiveness, and future plans [28] synonymous with the notion of "strategic stewardship" discussed by [25]. "Strategic stewardship" is broader than the "asset utilization" perspective because it incorporates an enhanced focus on strategic planning and Similarly. Bromwich remarks that stewardship/accountability arises from a wish to know the actions taken by an enterprise and to control them [63]. This broader conception naturally takes stewardship into the domain of social and turning environmental issues (Chen, 1975 [24]. [66] acknowledges the importance of this aspect of accountability and speculates that some form of it will play an increasingly important role in the future.

Other work on stewardship/accountability and decision-usefulness has explored aspects of the overlaps, as well as the tensions and trade-offs between the two objectives [67,68]. In the analytical agency tradition, [68] conclude that stewardship and decision-usefulness "potentially conflicting objectives of financial accounting" and suggest that abandoning stewardship as a separate objective of financial accounting and mandating further disclosure of soft information by standard setters and regulators can result in lower productivity and reduced firm value. However, there is a surprising dearth of equivalent capital market research on the nature of, and the relationship between, stewardship and decision-usefulness.

[69] demonstrate that the stewardship demand for information has a significant influence on firms' accounting choices; and archival work by [61] also suggests that stewardship relevance is not subsumed by valuation relevance. Ultimately, as the fundamental conceptual problems concerning decision-usefulness are beginning to garner increased attention [59]; it would appear that there is an urgent need for additional work from a variety of research perspectives focusing on the nature of the overlap and interaction between the two objectives. This agency (stewardship) relationship exists between the auditor, management and shareholders vis-a-vis his professional ethical behavior respectively.

3. TEACHING ACCOUNTING ETHICS IN NIGERIA

In Nigeria, although the accounting profession has attempted to respond to earnings scandal, however, there is a growing concern that ethics and professional responsibility should become more prevalent in the Nigerian accounting curriculum. This is evident in the proposal from the Nigerian Accounting Standard Board (NASB) now Financial Reporting Council of Nigeria (FRCN) to increase the number of semester hours for ethics education and the need to educate future accounting professionals specifically in accounting ethics.

One problem with ethics education as argued by [70] cited in [71] is that ethics education is often held at the philosophical level, rather than exposing accounting students to the practical aspect. [72] also expressed the need to integrate

ethics throughout the accounting curriculum rather than as appendage to an auditing course. As also observed by [73], the National Fraudulent Financial Reporting (Treadway Commission) in the United State indicated that curricula should integrate the development of ethical values with the acquisition of knowledge and skills.

All these views indicate that there is much to be done by accounting lecturers in teaching ethics to instill the ethical culture in student accountants. Similarly, it will be more prudent for the accounting profession in terms of counting the cost of the profession's image and reputation to establish a singular course in the accounting curriculum different from auditing which will address ethics for higher institutions. Also, symposia, seminars and workshops should be organized by schools and professional accounting bodies to educate accountants and practitioners alike on the need to embrace ethical conduct and the gross dangers unethical practices have on the professionals and the profession. This would help in no small measure to prevent unethical behaviour among future accountants and auditors, thereby building confidence on the financial statements users as well as avoiding costs of litigations and bad publicity.

4. CONCLUSION AND RECOMMENDA-TIONS

In conclusion, on the effects of accounting ethics on audit quality, audit quality is perceived as high if auditors keep to the general principles or rule of independence, objectivity, integrity and professionalism. The audit quality is assumed to be low if the audit team's conduct show signs of unethical behaviour such as cutting corners, focusing on self-interest, rather than public interest, refusal to align with firm ethical culture, involving in tax fraud, engaging in creative accounting, failure of duty of care towards shareholders and the public etc.

The study examined accounting ethics and its effects on audit quality report issued by professional auditors in Nigeria. Auditors are perceived as the "gatekeepers" in protection of the investing public. However, the occurrence of a number of fraudulent financial misstatements from companies has raised doubts in the mind of the public regarding the credibility of corporate financials as disclosed on annual reports. Scholars have attributed the occurrence of

fraudulent financial misstatements from companies to the focus on profit and growth of the audit firm by auditors. The tendency to yield to commercial pressures has made the audit firms to lose focus on professionalism and face conflict of interest.

Scholars are consistent in their views that a reorientation and adherence to the core ethical standards prescribed by the code of professional ethics for accountants is the surest way of resolving the issue of conflict of interest [53]. This can be achieved by continuously educating prospective and qualified accountants, that honourable behaviour even at the expense of self-interest is the true key to professionalism. In the light of the foregoing, regulators and standard setters should reiterate the importance of professional skills and skepticism on the part of professional accountants. The study concludes that accounting ethics will play an even more important role in improving auditors' professional skills hence, the need for accounting regulatory bodies and other stakeholder to make concerted efforts at ensuring that accounting ethics are standardized and enforced strictly.

The large number of studies investigating the quality of audit suggests that the existence of the profession of accountants (auditors) is still desperately needed both in the private and public sectors. To restore public confidence in this profession, auditors in conducting their tasks should be able to produce an audit with higher quality. For this purpose, auditors needed to be brave whistleblowers so that the resulting audit would be to the favour of the stakeholders and the public respectively.

On the issue of ethics education, literatures reviewed showed that the ethical conduct of accountants has been dented and has created a wrong image on this profession as a result of different unethical practices of high profile companies.

The paper further concludes that ethics education is a reckoning force with behaving ethically. From the above findings, it is also evident that if ethics is taught well as an independent course in the accounting curriculum, the future accountants are bound to have instilled in them, the required ethical culture. It was further observed that the relationship between ethics and the accounting profession is symbiotic; meaning that ethics is an integral part of accounting and auditing profession and the

accounting and auditing profession are standing on the foundation of ethics.

This is in line with the work of [70] as cited in [71], where they opined that ethics education should become more prevalent in accounting curriculum. This paper therefore recommend that ethics in accounting should be made effective as a major course in Nigerian Universities, so as to enlighten and educate students on how to and how not to behave as accountants. The study views ethics education as one potential remedy to address professional ethical crises globally. In the same vein, the paper suggests that there should be increased ethics education at both prequalifying and post-qualifying levels of the accounting profession. This would assist professional accountants and accounting profession in achieving quality audit reporting in

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

- Arter DR. Quality of audits for improved performance. USA. ASQ audit press; 2003.
- Lufting J, Quellette S. The decline of ethical behaviour in business. How the quality professional can and should meet challenges; 2009. (Accessed 21 December 2013)
 Available:http://www.cluteinstitutiononline.c
 - Available: http://www.cluteinstitutiononline.c om
- Enofe AO, Ukpebor I, Ogbomo N. The effect of accounting ethics in improving auditor professional skepticism. International Journal of Advanced Academic Research –Social Sciences and Education. 2015;1(2).
- Oyejide TA, Soyibo A. The practice and standard of corporate governance in Nigeria. DPC Research Report. 2001;26(33).
- Itsueli UI. Public statement: Cadbury Nigeria Plc Update on Investigation into Financial Position. The Guardian, Dec: 12, 2006.
- 6. DeAngelo LE. Auditor size and audit quality. Journal of Accounting and Economics December 1981.
- 7. Millichamp AH. Auditing" (Book Power/ELST Publisher, York Road: London; 2002.

- General Accountability Office (GAO), CPA
 Quality: Many Governmental Audits Do Not
 Comply with Professional Standards
 (AFMD 86-33). Government Printing
 Office, Washington, DC; 1986.
- 9. Lowensohn S, Johnson LE, Elder RJ, Davies SP. Auditor specialization, perceived audit quality, and audit fees in the local government audit market. Journal of Accounting and Public Policy. 2007;26(1):705–732.
- 10. Schelker, Mark. Auditor Expertise: Evidence from the Public Sector; 2009.
- 11. Brown CD, Raghunandan K. Audit quality in audits of federal programs by non-Federal auditors. Accounting Horizons. 1995;9(3).
- Charles AM. The quality audit: A management evaluation tool, the United States of America: Mc Graw – Hill Inc; 1989.
- Maryani dan Ludigdo. Sikap dan Etika Profesi Akuntan Indonesia (In Indonesian), Jurnal akuntansi dan Keuangan Vol. 4 No. 2.Universitas Brawijaya (in Indonesian); 2001.
- Modugu PK, Ohonba N, Izedonmi PF. Challenges of auditors and audit reporting in a corrupt environment. Research Journal of Finance and Accounting. 2012;3(5).
- Ranti OU, Ovia E. Ethics and Accounting Education in Nigeria: A Study of Selected Universities. Indian Journal of Commerce & Management Studies; 2011.
- Luz J. Auditors' belief revisions and evidence search. The Accounting Review. 2012;68:443-465.
- Ramzan AR, Ahmad YN, Kaveh A. Relationship between skepticism and decision making in audit. World Applied Sciences Journal. 2013;28(11):1609-S1617.
- Syamsuddin IS, Abdul HH, Mediaty U. The influences of ethics, independence, and competence on the quality of an audit through the influence of professional skepticism. Journal of Research in Business and Management. 2014;2(7):08-14.
- Kothari SP, Ramanna K, Skinner D. Implications for GAAP from an analysis of positive research in accounting. Journal of Accounting and Economics. 2010;50(2–3): 246–286.

- Basu S, Waymire G. Recordkeeping and human evolution. Accounting Horizons. 20(3):201–229.
- Schmandt-Besserat D. Before writing. From counting to cuneiform. Austin: TX University of Texas Press. 1992;I.
- IASB/FASB). The objective of general purpose financial reporting (Chapter 1). In IASB/FASB, Conceptual framework for financial reporting. 2010;1–5.
 Available: http://www.eifrs.ifrs.org/eifrs/files/136/conceptual%20fw% 202010 130.pdf
- Beyer A, Cohen D, Lys T, Walther B.The financial reporting environment: Review of the recent literature. Journal of Accounting and Economics. 2010;50(2–3): 296–343.
- Chen RS. Social and financial stewardship.
 The Accounting Review. 1975;50(3):533–543
- Birnberg JG. The role of accounting in financial disclosure. Accounting, Organizations and Society. 1980;5(1):71–80.
- American Institute of Certified Public Accountants (AICPA). Report of the study group on objectives of financial statements ("The Trueblood Report"). New York, NY: American Institute of Certified Public Accountants: 1973.
- Accounting Standards Steering Committee (ASSC). The corporate report: A discussion paper published by the accounting standards steering committee. London: ASSC; 1975.
- 28. Ijiri Y. Theory of accounting measurement. Studies in Accounting Measurement No. 10. Sarasota, FL: AAA; 1975.
- 29. O'Connell V. Reflections on stewardship reporting. Accounting Horizons. 2007; 21(2):215–227.
- 30. Verschoor CC. Accounting involves Ethics, not just Technical issues. Strategic Finance. 2002;84:13 -28.
- 31. Jackling B, Cooper LP, Dellaportas S. Professional accounting bodies' perceptions of ethical issues, Causes of Ethical Failures and Ethics Education. Managerial Auditing Journal. 2007;22(9): 56-63.
- Lindstorm D. Enron Scandal. Microsoft student; 2007 (DVD).
- 33. Warth RJ. Ethics in the Accounting Profession: A Study; 2000.

 Available: http://findartides.com/p/articles/rnigg=5346/is-2000-1-0/ai-n21463248

- 34. Nwagboso J. Professional ethics, skills and standards. Jos. Inspirational Media; 2008.
- Hayes RA, Schilder A, Sassen R, Wallage P. Principles of auditing: An international perspective. Berkshire, MCgraw- Hill Publishers; 1999.
- 36. Bartels L, Harrick E, Marel E, Strickland D. The relationship between ethical; 1998.
- IFAC Code of ethics for professional Accountants; 2005.
 Available:www.ifac.org
- IESBA. Fundamental principles of ethics applicable to professional Accountants and Auditors; 2013.
- The Institute of Chartered Accountants of Nigeria. Rules for professional Conduct for member, Lagos; 2000.
- Milos J. The impact of ethics on quality audit results. International Journal for Quality research UDK–366.65 Short Scientific Paper (1.03); 2012.
- Oraka AO, Okegbe TO. The Impact of Professional Accounting Ethics in Quality Assurance in Audit. International Journal of Academic Research in Business and Social Sciences. 2015;5(8):64-78.
- 42. Adeniyi AA. Simplified auditing and assurance services, Lagos; 2005.
- Adeyemi SB, Fagbemi. Stakeholders perception of Independence of statutory auditors in Nigeria. Serbian journal of management; 2011.
- Thunaibat A. Auditing in the light of the international accounting standards, Amman, Dar Wael Publishing House; 2010.
- 45. McCurry. Independence; professional skepticism and the financial statement audit; 1977.
- Ryan LV. Toward a corporation with conscience. Strategic Finance; 2005;85: 20-21
- Verschoor. Accounting involves Ethics, not just Technical issues. Strategic Finance. 2004;84:13-28.
- Auditing Practices Board. CPA Guidance on APB Ethical Standards for Auditors; 2004.
- Navran J, Joseph J. Eye on Ethics: Reprinted from Training Magazine; 2003. Available: http://www.ethics.org.resources/articledetail.cfm?ID=837
- Asemota OO. Ethics and Values: Are they forgotten in the Workplace, Community and Society? Academic and Research Conference, University of Namibia,

- Northern Campus, Oshakati, Namibia; 2003.
- 51. Gumel FS. Ethical Practices and Goal Attainment in G. Bison and N. Elfrida, (Eds). Handbook of Ethics. Bletain: Carl Pub; 2004.
- 52. Brewster C, Carey A, Dowling C, Grobler N, Holland S, Warnich, R. Contemporary Issues in Human Resource Management. Southern African, Cape Town: Oxford University Press; 2003.
- Pierce A. Ethics and professional Accounting firms: A literature review Edinburgh. The Institute of Accountants of Scotland: 2007.
- 54. Abdel-Khalik AR. Reforming corporate governance post Enron: shareholders board of trustees and the auditor. Journal of Accounting and Public Policy. 2002;21(2):97-103.
- Weil J, Tannenbaum. Big companies pay audit firms more for other services. The Wall Street Journal. 2000;c1-c2.
- 56. Habbash M. The effectiveness of corporate governance and external audit on constraining earnings management practices in UK. Doctoral thesis, Durham University. Hall; 2010.
- 57. Zeff. The impact of external quality audit on the quality of earnings. Journal of the Faculty of Commerce for Scientific Research, Alexandria University. 2003;45(2).
- 58. Meckling WH, Jensen MC. Theory of the firm: Managerial behavior, Agency Costs and Ownership Structure; 1976.
- Ravenscroft S, Williams P. Rethinking decision usefulness; 2011.
 Available: http://elsevier.conferenceservices s.net/resources/247/182/pdf/
- 60. Gjesdal F. Accounting for stewardship. Journal of Accounting Research. 1981;19(1):208 -231.
- 61. Bushman R, Engel E, Smith A. An analysis of the relation between the stewardship and valuation roles of earnings. Journal of Accounting Research. 2006;44:53–83.
- 62. Bushman R, Indjejikian R. Shareholder demand for "distorted" accounting

- disclosures. The Accounting Review. 1993a;68(4):765–782.
- Bushman R, Indjejikian R. Accounting income, stock price, and managerial compensation. Journal of Accounting and Economics. 1993b;16:1–23.
- Bushman R, Smith A. Financial accounting information and corporate governance. Journal of Accounting and Economics. 2001;32:237–333.
- 65. Givoly D, Hayn C, Katz S. Does public ownership of equity improve earnings quality? The Accounting Review. 2010;85(1):195–225.
- 66. Hopwood AG. Accounting and the environment. Accounting, Organizations and Society. 2009;34(3–4):433–439.
- 67. Indjejikian R. Performance evaluation and compensation research: An agency perspective. Accounting Horizons. 1999;13(2):147–157.
- Heinle M, Hofmann C. Soft information and the stewardship value of accounting disclosure. OR Spectrum. 2011;33:333– 358.
- 69. Wu JS, Zhang I. The voluntary adoption of internationally recognized accounting standards and firm internal performance evaluations. Accounting Review. 2009;84(4):1281–1309.
- Langer, derfer, Rockness. Climate and ethical problems within human resources management. Journal of Business Ethics; Dar Wael Publishing House. 1989;17: 799–804.
- 71. Shawver TM. An exploratory study assessing the effectiveness of a professional responsibility course. Global Perspectives on Accounting Education. 1990;3(6):49-66.
- 72. Helps L. Should we teach ethics in accounting education? Management Accounting. 2002;72:46-54.
- Smith TK, Smith ML. Business and Accounting Ethics; 2003. (Accessed 1 February 2008.Spring report 1977)
 Available: www.cpajournalonline.com

© 2017 Arowoshegbe et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/21023