



# APPRAISAL OF DETERMINANTS OF EFFECTIVENESS OF INTERNAL AUDIT OF THE PUBLIC TERTIARY INSTITUTIONS IN NIGERIA - RESPONDENT PERSPECTIVES

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## Abstract

*This study aims at appraising determinants of effectiveness of internal audit in Nigerian public tertiary institutions from the perception of respondents using Federal Polytechnic Ile-Oluji, Ondo State Nigeria as a research focus. The study's research focus represented all other tertiary institutions of similar status under the regulatory framework of National Board for Technical Education (NBTE) in Nigeria. The management team which included all the principal officers of the institution, the internal audit staff and the bursary staff are the sources of primary data collection which were gathered through the questionnaire administered. To analyze and interpret the gathered data, ordinary least square regression method was used. Amongst the factors which were identified by respondents as determinants of internal audit effectiveness, internal audit independence was considered as the most fundamental and critical in ensuring effectiveness of internal audit in any tertiary institution of higher learning in Nigeria. The study therefore concluded that in order to ensure judicious utilization of public funds in Nigeria, the need for effectiveness of internal audit is sine-qua-non and as such cannot be overemphasized.*

*Keywords: Internal Audit Effectiveness, Tertiary institutions, Federal Polytechnic, Ile-Oluji, Ondo State, Nigeria.*

## 1.1 Introduction

According to literature, continuous business risks, economic instability and unabated rise in financial scandals across the globe have necessitated the need for more effectiveness of internal audit in any organization (Arena and Azzone, 2009, Endaya and Hanefah, 2013, Bekiaris, Efthymiou and Koutoupis, 2013, Vinary and Skaerbaek, 2014, Tsipouridou and Spathis, 2014). To this extent, it will be extremely important to therefore identify key factors that are considered as the determinants of internal audit effectiveness. Prior studies: Arena and Azzone (2009), Endaya and Hanefah (2013), Drogalas, ALampairtsidis and Koutoupis (2014) adopted various approaches in investigating determinants of internal audit effectiveness (IAE). Arena & Azzone (2009) opined that different factors have been used as metrics such as Quality of Internal Audit (QIA), Competence of Internal Audit team, Internal Audit Independence (IAI) and Management Supports in the measurements of Internal Audit Effectiveness. In spite of the use of these metrics, there has not been any unified consensus relating to the framework for measurements of Internal Audit Effectiveness (Endaya and Hanefah, 2013).

Despite the prominent roles internal audit plays to curb extravagance in the judicious utilization of public funds in the tertiary institutions of higher learning in Nigeria, investigating its effectiveness from the perception of respondents has received little or no attention in the past decades. This lapse has to large extent therefore created a wide research gap which this study has prepared to fill. Not only that, the research focus of this study, that is, Federal Polytechnic Ile-Oluji, Ondo State, Nigeria being one of the newly created Polytechnics in the recent time has not witnessed such empirical research on the internal audit effectiveness of this magnitude. The neglect of such topic as this is considered to be precarious and dangerous. The primary aim of this study is to therefore fill this fundamental research gap by investigating into determinants factors of internal audit effectiveness in Nigerian public tertiary institutions from the perceptions respondents using the federal polytechnic Ile-Oluji, Ondo State, Nigeria and to also contribute to frontier of knowledge in this regards.

This study no doubt contributes to existing studies as it will provide additional evidence to scarcely existing ones on the identification of the most significant factor that determines the Effectiveness of Internal Audit in tertiary institutions in Nigeria. Furthermore, the findings of this study will equally be of assistance to the stakeholders, management, internal auditors, accountants and policy makers in the tertiary institutions in Nigeria to know the specific factors to be focused in order to enhance internal auditors' performances.

## 1.2 Research Questions

This study is prepared to provide answers to the followings:-

1. How does the Quality of Internal Audit work enhance the Internal Audit Effectiveness (IAE)?
2. How does the professional competence of internal audit team contribute to IAE?
3. To what extent does organizational independence of internal audit unit promote IAE?
4. How does the management supports/management perception internal audit impact on IAE?

### 1.3 **Research Hypotheses**

The following null hypotheses are designed for analysis:

H<sub>01</sub>: Quality of Internal Audit work has no significant effect on effectiveness of internal audit.

H<sub>02</sub>: Professional competence of internal audit team has no significant effect on internal audit effectiveness.

H<sub>03</sub>: Independence of Internal Audit Unit has no significant effect on internal audit effectiveness.

H<sub>04</sub>: Management support/perception has no significant effect on effectiveness internal audit.

## 2.0 **LITERATURE REVIEW**

2.1 This section of the study reviews the previous works that have been carried out on the determinants of internal audit effectiveness by examining the variables such as Internal Audit, internal audit effectiveness, internal audit quality, internal audit team competence and management support.

### 2.1.1 **Internal audit (IA)**

According to literature, it is argued that internal audit contributes to organization's compliance with applicable laws and regulations, facilitates the work of external auditors (Simunic, 1984; Wallace, 1984; Xiangdong, 1997), detects the weaknesses in business procedures (Sawyer, 1995) and provides independent assessment to business operations and procedures (Kinney, 2000; 2001). Along with the above, internal audit enhances corporate governance structure (Roth and Espersen, 2002; Hay et al., 2008), helps in strategic management planning (Melville, 2003), assesses business risk (Spira and Page, 2003; Sarens and De Beelde, 2006; Karagiorgos et al., 2009; Mohamud and Salad 2013) and adds value to the organization (Drogalas et al., 2014).

Sarens and Beelde (2006) identify some of the contributions and roles of internal audit in organizations management point of view. Senior management expects internal audit:

- i. To recompense for management's loss of command emanating from additional organizational intricacy,
- ii. To protect corporate culture with a means of personal links with people in the line of work,
- iii. To support in the supervision and enhancement of the risk management and internal control mechanism,
- iv. To liaise with external auditors in order to increase overall coverage of audit work.

This indicates that internal audit and management is the interdependent unit that should be collaborated to achieve organizational goals. While doing their activities, there are some values that internal audit unit seeks from management (such as management support, commitment, expectation, etc.) and that the management wants from the internal audit like adding value in

decision making by providing sufficient information and reducing information asymmetry,<sup>250</sup> monitoring and improvement of the risk management and internal control system.

### 2.1.2 Internal Audit Effectiveness (IAE)

Different authors have defined the term “effectiveness” as follows; for instance, Arena and Azzone (2009) described effectiveness as “the capacity to obtain results that are consistent with targets”. Dittenhofer (2001) “Effectiveness is the achievement of internal auditing goals and objectives using the factor measures provided for determining such factors”. In Mihret and Yismaw, (2007) internal audit effectiveness is defined as “the extent to which an internal audit office meets its supposed objective or the extent to which it meets the intended outcome”.

All the three authors defined effectiveness in terms of achieving the IA goals and objectives, though interpreted in different ways. Mihret and Yismaw (2007) described the characteristics of effective internal audit unit from the internal audit point of view.

Effective Internal Audit (IA):

- i. It carries out independent appraisal of financial and operating systems and processes;
- ii. Contributes to the achievement of organizational goals;
- iii. Needs management’s commitment for implementation of recommendations;
- iv. Provides recommendations necessary for possible improvements;
- v. Affected negatively by lack of attention from management which in turn adversely affects the auditee attributes; and
- vi. Management support is a natural quid pro quo for effective internal audit.

### 2.1.3 Quality of Internal Audit (QIA)

The overall standard of internal audit work is a function of the efforts and professional care exhibited by the internal audit staff (Cohen & Sayag, 2010; Leung and Cooper, 2009; Belay 2007). Arena and Azzone, (2009) also stated that effectiveness internal audit increases particularly when there is growth in the number of competent internal audit staff and employees of the organisation. This shows that adequate number of competent professional staff in the internal audit unit determines the quality of their works.

Additionally, the critical dimensions of IAF is the quality of its internal auditing measured in terms of internal auditors skill (Seol et al, 2011; Leung and Cooper, 2009; Seol and Sarkis, 2006).

Barac and VanStaden, 2000 studied the relation between the perceived quality of internal audit and the safety of corporate governance structure in South Africa. In contrast to the above, the results indicate that there is no correlation between the corporate governance structures and the perceived quality of internal audit. More recently, examining one hundred and eight Israeli organizations, (Cohen and Sayag, 2010) also considered the quality of internal audit work as a factor of internal audit effectiveness. Along with the above (Alzeban and Gwilliam, 2014) emphasize the impact of internal audit quality to internal audit effectiveness.

## 2.4 **Internal Audit Team Competence**

An effective internal audit unit requires a professional staff that collectively has the necessary education, training, experience and professional qualifications to conduct the full range of audits required by its mandate (Al-Twajry et al, 2004). Auditors must comply with minimum continuing education requirements and professional standards published by their relevant professional organizations (IIA, 2001).

The IIA's standard 1210, on proficiency of the auditor require that the internal auditors should possess the knowledge, skill and other competencies need to perform their responsibilities (IIA, 2001). As part of this, Competency Framework for Internal Auditing (CFIA) focuses on the skills needed by an individual person to be an efficient internal auditor.

Mihret et al., 2010 indicate that both the technical competence and continuous training of internal audit team are essential requirements for internal audit effectiveness. Moreover, (Cohen and Sayag, 2010) argue that professional proficiency of internal auditors is of major importance for effective internal auditing. Finally, (Alzeban and Gwilliam, 2014) argue that higher internal audit effectiveness is associated with greater competence of internal audit staff.

## 2.5 **Internal Audit Independence**

Alzeban, Abdulaziz and Gwilliam, 2014 opine that independence has no single meaning and interpretation across the globe; hence the concept is subject to ambiguity and uncertainty. However, for the purpose of this study, independence refers to the concept of being free from any management influence while internal auditor performs audit activities and issues audit report (Ahmad & Taylor, 2009; Belay, 2007; MoFED, 2004 and Wines, 2012). Independence is critical to the reliability of auditor's reports. Those reports would not be credible, and investors and creditors would have little confidence in them, if auditors were not independent both in fact and appearance. The assurance services provided by auditors derive their value and credibility from the fundamental assumptions of independence of mind and independence in appearance (Wines, 2012; Stewart and Subramanian, 2010).

Independence in fact exists when auditors are actually able to act with objectivity, integrity, impartiality and free from any conflict of interest. While the concept of independence connotes that auditor must be perceived by others (the public or other third party) to be independent. In this case, conflict of interest will also exist when a reasonable person, with full knowledge of all relevant facts and circumstances, would conclude that the auditor, or a professional member of the audit team, is not capable of exercising objective and impartial judgment in relation to the conduct of the audit of the audited body (Alzeban, et al, 2014).

## 2.6 **Management support**

One of the most important factors affecting internal audit effectiveness according to the literature is the support by the top management. As it is analyzed above, (Mihret and Yismaw, 2007) argue that there is a positive relationship between top management support and internal audit

effectiveness. In line with the above study, management support is also considered as<sup>252</sup> the main determinant of internal audit effectiveness according to (Cohen and Sayag, 2010). Similarly, (Alzeban and Gwilliam, 2014) indicate that management support is positively and significantly associated with internal audit effectiveness and is also positively associated with all the other variables affecting internal audit effectiveness.

### 3.0 **METHODOLOGY**

#### **Introduction**

This section gives comprehensive details of the research methodology used for this study. It discusses the research design, study area, study population sample size and sampling technique, the sources and methods of data collection, the techniques for data analyses as well as model specification and its justification.

### 3.2 **Research Design**

This study intends to extract primary data for analysis to provide adequate answers to various research questions earlier raised. Therefore survey research design will be adopted while Pearson Product Moment Correlation Coefficient will be used for analysis.

### 3.3 **Study Area**

This study is carried out specifically on the determinants of effectiveness of internal audit in public tertiary institutions in Nigeria from respondents' perception. Therefore, the study shall concentrate on the management staff and key technical staff of the Federal Polytechnic Ile-Oluji, Ondo State, Nigeria as its central research area.

### 3.4 **Study Population.**

The study population for this research is the entire 250 workforce of the institution. This population is divided into Principal Officers, Academic Staff, Bursary Staff, Internal Audit Staff and other non-teaching staff. Teaching staff and other non-teaching were excluded from the survey because of the technicality involved in the study.

### 3.5 **Sample Size and Sampling Technique**

After the teaching and non-teaching staff have been excluded from the survey, 50 copies of questionnaire were distributed to 50 staff comprising the key management staff, Internal Audit Staff, registry staff, Bursary staff and other relevant staff for the study. These 50 staff are selected

using purposeful random technique. Eventually, the study ended up with 40<sup>253</sup> copies of questionnaire which represents 90% valid response rate for the study after both invalid and incomplete questionnaires had been excluded.

### 3.6 Sources and Method of Data Collection

The data source is coming from a questionnaire that was designed for the needs of this study. In line with the research hypotheses and the relevant literature review. Firstly, questions are selected mainly by four surveys that examined similar research field: (Bota-Avram and Palfi, 2009); (Cohen and Sayag, 2010); (Alzeban and Gwilliam, 2014) and (Karagiorgos and Arampatzis 2015). The questions finally included in the questionnaire are considered as more relevant with the present study as well as more significant with regards to their contents. However, the present paper consists of additional questions to best describe internal audit's effectiveness. The questionnaire comprises of twenty-six questions, which are divided in six groups. The first group is composed of questions that refer to the demographic characteristics of the participants. The other groups consist of Likert scale questions, concerning internal audit effectiveness, internal audit quality, competence of internal audit team, independence of internal audit and support of internal audit by the top management.

### 3.7 Model Specification

The following Ordinary Least Square (OLS) model is considered appropriate for the regression analysis:-

$$IAE = a + \beta_1QIA + \beta_2CIAT + \beta_3IIA + \beta_4MS + e_i$$

The variables are defined below:

IAE = Internal Audit Effectiveness

QIA = Quality of Internal Audit

CIAT = Competence of Internal Audit Team

IIA = Independence of Internal Audit

MS = Management Support

$\alpha$  is a constant, it represents the effectiveness of IA when every independent variables is zero.

$\beta_1-4$  is the coefficient, in which every marginal change in variables on internal auditor's effectiveness affects correspondingly.

$e_i$  = the error term

#### 4.0 RESULTS AND DISCUSSION

##### Demographic characteristics:

Demographic characteristics of the respondents regarding gender, age, educational level, work experience and departments of the participants are presented in Table 1. According to the table, the study respondents were made of 67.5% male and 30% female, indicating dominance of male in the sample used. Concerning the age of the participants, the highest percentage is between 31 and 40 years old (47.5%), while 25% is older than 50. As regards the educational level 37.5% obtain a bachelor degree and also 45% obtain a postgraduate degree. Respondents have remarkable work experience in view of the fact that 75% have more than 10 years work experience. Finally, the highest percentage of the sample works in the Internal Audit Unit and Bursary department (52.5%), while only 47.5% work in other departments. Including top management level.

Table 1. Demographic Characteristics of the Respondents.

|                               | Frequency | Percent |
|-------------------------------|-----------|---------|
| <b>Gender</b>                 |           |         |
| Male                          | 27        | 67.5    |
| Female                        | 12        | 30.0    |
| Not answered                  | 1         | 2.5     |
| <b>Age</b>                    |           |         |
| <30                           | 2         | 5.0     |
| 31 – 40                       | 19        | 47.5    |
| 41 – 50                       | 8         | 20.0    |
| > 50                          | 10        | 25.0    |
| Not answered                  | 1         | 2.5     |
| <b>Level of Education</b>     |           |         |
| High School                   | 3         | 7.5     |
| Polytechnic Education         | 1         | 2.5     |
| University Education          | 15        | 37.5    |
| Postgraduate                  | 18        | 45.0    |
| Ph.D                          | 3         | 7.5     |
| <b>Work Experience</b>        |           |         |
| <5                            | 2         | 5.0     |
| 5 – 10                        | 8         | 20.0    |
| 10 – 20                       | 15        | 37.5    |
| > 20                          | 15        | 37.5    |
| <b>Department</b>             |           |         |
| Bursary                       | 14        | 35.0    |
| Audit                         | 7         | 17.5    |
| Others (Including management) | 19        | 47.5    |

Source: Field Survey, 2018.

Regarding internal audit effectiveness from the perception of respondents, it can be concluded that the vast majority of the respondents consider that internal audit ensures that it adds value to the operations of the institution. Also, it is argued that internal audit affects positively not only the bursary department's



activities but also the entire operations of the institution. To better highlight the results, Let us have a closer look at Table 2.

Table 2. Statements regarding internal audit effectiveness.

|  | Frequency |     |      |      |      | Percent |     |      |      |      |
|--|-----------|-----|------|------|------|---------|-----|------|------|------|
|  | 1         | 2   | 3    | 4    | 5    | 1       | 2   | 3    | 4    | 5    |
| Internal audit ensure that it adds value to the operations | 00        | 2   | 5    | 17   | 16   | 00      | 2   | 5    | 17   | 16   |
|  |           | 5   | 12.5 | 42.5 | 40   |         | 5   | 12.5 | 42.5 | 40   |
| Internal audit improve department's performance            | 00        | 3   | 6    | 20   | 11   | 00      | 3   | 6    | 20   | 11   |
|  |           | 7.5 | 15   | 50   | 27.5 |         | 7.5 | 15   | 50   | 27.5 |
| Internal audit improves organizational performance         | 00        | 3   | 7    | 16   | 14   | 00      | 3   | 7    | 16   | 14   |
|  |           | 7.5 | 17.5 | 40   | 35   |         | 7.5 | 17.5 | 40   | 35   |

Source: Field Survey, 2018

The results regarding the quality of internal audit are also encouraging. An analysis of the results reveals that internal audit's recommendations/advices are easily implemented. Also, the participants' responses indicate that internal audit's reports are accurate. However, from the results, it is suggested that accomplishment of internal audit's objectives is the least rated item. To better highlight the results, Let us have a closer look at Table 3.



Table 3. Statements regarding quality of internal audit.

|  | Frequency |     |     |      |      | Percent |     |     |      |      |
|--|-----------|-----|-----|------|------|---------|-----|-----|------|------|
|  | 1         | 2   | 3   | 4    | 5    | 1       | 2   | 3   | 4    | 5    |
| Established internal audit's objectives were accomplished            | 0         | 10  | 13  | 1    | 16   | 0       | 10  | 13  | 2.5  | 40   |
|  |           | 0   | 25  | 32.5 | 2.5  |         | 0   | 25  | 32.5 | 2.5  |
| There is communication between internal auditor and external auditor | 1         | 3   | 19  | 2    | 13   | 1       | 3   | 19  | 2    | 13   |
|  |           | 2.5 | 7.5 | 47.5 | 5    |         | 2.5 | 7.5 | 47.5 | 5    |
| Internal audit's work was efficiently performed                      | 0         | 3   | 19  | 6    | 12   | 0       | 3   | 19  | 6    | 12   |
|  |           | 0   | 7.5 | 47.5 | 15   |         | 0   | 7.5 | 47.5 | 15   |
| Internal audit's findings are correctly justified                    | 1         | 4   | 15  | 4    | 16   | 1       | 4   | 15  | 4    | 16   |
|  |           | 2.5 | 10  | 37.5 | 10   |         | 2.5 | 10  | 37.5 | 10   |
| Internal audit's recommendations can be easily implemented           | 0         | 1   | 9   | 15   | 15   | 0       | 1   | 9   | 15   | 15   |
|  |           | 0   | 2.5 | 22.5 | 37.5 |         | 0   | 2.5 | 22.5 | 37.5 |
| Internal audit's report is accurate                                  | 1         | 2   | 13  | 7    | 17   | 1       | 2   | 13  | 7    | 17   |
|  |           | 2.5 | 5   | 32.5 | 17.5 |         | 2.5 | 5   | 32.5 | 17.5 |

Source: Field Survey, 2018

Competence of internal audit team is also highly rated. The vast majority argue that internal auditors are proactive and are considered as professionals. Also the communication between internal auditors and auditees is effective. However, the analysis indicates that internal auditors ought to attend educational seminars to a greater extent. See Table 4 below for the analysis of respondents' responses.

Table 4. Statements regarding competence of internal audit team.

|   | Frequency |      |      |      |      | Percent |      |      |      |      |
|---|-----------|------|------|------|------|---------|------|------|------|------|
|   | 1         | 2    | 3    | 4    | 5    | 1       | 2    | 3    | 4    | 5    |
| The professional knowledge of internal auditors is high               | 0         | 3    | 10   | 11   | 16   | 0       | 7.5  | 25   | 27.5 | 40   |
|   | 0         | 7.5  | 25   | 27.5 | 40   |         |      |      |      |      |
| Internal auditors is considered as professionals                      | 0         | 3    | 9    | 11   | 16   | 0       | 7.5  | 22.5 | 27.5 | 42.5 |
|   | 0         | 7.5  | 22.5 | 27.5 | 42.5 |         |      |      |      |      |
| Internal auditors are proactive                                       | 0         | 3    | 6    | 17   | 14   | 0       | 7.5  | 15   | 42.5 | 35   |
|   | 0         | 7.5  | 15   | 42.5 | 35   |         |      |      |      |      |
| There is communication between internal auditors and auditees         | 1         | 2    | 12   | 9    | 16   | 2.5     | 5    | 30   | 22.5 | 40   |
|   | 2.5       | 5    | 30   | 22.5 | 40   |         |      |      |      |      |
| Internal auditors attend educational seminars for continuous Training | 4         | 5    | 5    | 12   | 14   | 10      | 12.5 | 12.5 | 30   | 35   |
|   | 10        | 12.5 | 12.5 | 30   | 35   |         |      |      |      |      |
| Internal auditors have adequate education                             | 0         | 3    | 10   | 11   | 16   | 0       | 7.5  | 25   | 27.5 | 40   |
|   | 0         | 7.5  | 25   | 27.5 | 40   |         |      |      |      |      |

Source: Field Survey, 2018.

Respondents also express their opinion on internal audit's independence. The analysis of the results reveals that internal auditors have unrestricted access to all departments and employees in the institution. However, internal audit ought to participate more in the development of the institution's processes and procedures. To better highlight the results, Let us have a closer look at Table 5.

Table 5. Statements regarding independence of internal audit.

|   | Frequency |     |      |      |      | Percent |     |      |      |      |
|---|-----------|-----|------|------|------|---------|-----|------|------|------|
|   | 1         | 2   | 3    | 4    | 5    | 1       | 2   | 3    | 4    | 5    |
| Internal audit report to the highest level within the business                                  | 0         | 3   | 14   | 6    | 17   | 0       | 7.5 | 35   | 15   | 42.5 |
|   | 0         | 7.5 | 35   | 15   | 42.5 |         |     |      |      |      |
| Internal auditors have unrestricted access to all departments and employees in the organization | 0         | 2   | 10   | 15   | 13   | 0       | 5   | 25   | 37.5 | 32.5 |
|   | 0         | 5   | 25   | 37.5 | 32.5 |         |     |      |      |      |
| Internal audit participate in the development of the institution's Processes and procedures     | 0         | 2   | 13   | 11   | 14   | 0       | 5   | 32.5 | 27.5 | 35   |
|   | 0         | 5   | 32.5 | 27.5 | 35   |         |     |      |      |      |

Source: Field Survey, 2018.

Finally, management support is examined. The results indicate that management ought to support more internal audit. The analysis of the results also reveals that internal audit is not large enough to efficiently

carry out its duties. In this respect, senior management ought to be more aware of internal audit's needs Table 6 shall be considered for further analysis.

Table 6. Statements regarding management's support.

|   | Frequency |   |    |    |    | Percent |     |      |      |      |
|---|-----------|---|----|----|----|---------|-----|------|------|------|
|   | 1         | 2 | 3  | 4  | 5  | 1       | 2   | 3    | 4    | 5    |
| Senior management supports internal audit's personnel                   | 3         | 1 | 15 | 17 | 16 | 7.5     | 2.5 | 37.5 | 42.5 | 40   |
| Internal audit unit is large enough to efficiently carry out its duties | 3         | 2 | 10 | 18 | 17 | 7.5     | 0   | 25   | 45   | 42.5 |
| Senior management is aware of internal audit's needs                    | 3         | 1 | 4  | 17 | 15 | 7.5     | 2.5 | 10   | 42.5 | 37.5 |

Source: Field Survey, 2018.

### Factor analysis

Factor analysis using the principal components approach was utilized as it is one of the most well-known methods of classical multivariate analysis (Tabachnick and Fidell, 2001).

Table 7 presents the results of the factor analysis.

From the Table, it is argued that Kaiser-Meyer-Olkin (KMO) measure is higher than 0.5. Results also confirm that each of four variables can be treated as single measures, ended up with just one component. Moreover, reliability of the measures was assessed with the use of Cronbach's alpha. Cronbach's alpha of 0.70 or more is considered significant and highly reliable, thus the results depict a great internal consistency for the four variables: "internal audit quality" is 0.946, "internal audit team" is 0.881, for "Independence of internal audit" is 0.810 and for "Management support" is 0.928.

Table 7. Factor analysis.

| Factor                                   | Variables  | Cronbach 's Alpha | KMO   | Factor Loadings |
|--|--|-------------------|-------|-----------------|
| Internal Audit Effectiveness             | Internal audit ensure that it adds value to the business                                       | 0.858             | 0.720 | 0.848           |
|  | Internal audit improve department's performance  |                   |       | 0.904           |
|  | Internal audit improves organizational performance   |                   |       | 0.896           |
| Internal Audit Quality                   | Established internal audit's objectives were accomplished                                      | 0.946             | 0.892 | 0.929           |
|  | There is communication between internal and external audit                                     |                   |       | 0.949           |
|  | Internal audit's work was efficiently performed  |                   |       | 0.935           |
|  | Internal audit's findings are correctly justified  |                   |       | 0.878           |
|  | Internal audit's recommendations can be easily implemented                                     |                   |       | 0.932           |
| Internal audit's report is accurate      | 0.748  |                   |       |                 |
| Internal Audit Team                      | The professional knowledge of internal auditors is high  | 0.881             | 0.787 | 0.970           |
|  | Internal auditors is considered as professionals   |                   |       | 0.948           |
|  | Internal auditors are proactive  |                   |       | 0.832           |
|  | There is communication between internal auditors and auditees                                  |                   |       | 0.849           |
|  | Internal auditors attend educational seminars for continuous training                          |                   |       | 0.314           |
| Internal auditors has adequate education | 0.970  |                   |       |                 |
| Independence of Internal Audit           | Internal audit report to the highest level within the business                                 | 0.810             | 0.777 | 0.835           |
|  | Internal auditors have unrestricted access to all departments and employees in the Institution |                   |       | 0.902           |
|  | Internal audit participate in the development of the Institution's procedures and processes    |                   |       | 0.824           |
| Management Support                       | Senior management supports internal audit's personnel  | 0.928             | 0.743 | 0.933           |
|  | Internal audit department is large enough to efficiently carry out its duties                  |                   |       | 0.956           |
|  | Senior management is aware of internal audit's needs   |                   |       | 0.918           |

Source: Field Survey, 2018

### Regression analysis

A Pearson correlation matrix is provided for dependent and independent variables in Table 8. From the table, it is observed that there is a significant and positive correlation ( $r=0.929$ ) between "Internal audit effectiveness" and "Internal audit quality" at  $p<0.01$ , a significant and positive correlation ( $r=0.878$ ) between "Internal audit effectiveness" and "Competence of internal audit team" at  $p<0.01$ , a significant and positive correlation ( $r=0.813$ ) between "Internal audit effectiveness" and "Independence of internal audit" at  $p<0.01$  and a significant and positive correlation ( $r=0.919$ ) between "Internal audit effectiveness" and "management support". Then, Table 9 reports the results of the regression analysis. From the table, it is argued that the overall model is significant ( $F=127.039$ , sig.  $F=0.000$ ,  $p<0.05$ ). As far as the first hypothesis is concerned, the results indicate that there is a positive and significant association between "internal audit effectiveness" and "internal audit quality" ( $b_1=0.140$ ,  $p=0.005<.05$ ). Thus H1 is rejected while alternative hypothesis is accepted i.e. Internal Audit Effectiveness is determined by Quality of Internal Audit work. The results also reveal that "competence of internal audit team" influences positively "internal audit effectiveness" ( $b_3=0.104$ ,  $p=0.058$ ), suggesting rejection for H2 and acceptance of alternative hypothesis i.e. IAE is determined by the professional competence of internal audit team, but not at the same level with the other hypotheses.

Similarly, there is a positive and significant relationship between “internal audit effectiveness” and “independence of internal audit unit” ( $b_3=0.239$ ,  $p=0.004$ ) Thus, H3 is rejected while the alternative hypothesis is consequently accepted i.e. IAE is determined by the independence of internal audit unit. Finally, the fourth hypothesis relates to management support. In this case, the regression analysis highlighted a positive and significant association between “internal audit effectiveness” and “management support” ( $b_4=0.164$ ,  $p=0.002$ ). Thus, H4 is rejected while alternative hypothesis is thereby accepted i.e. Internal Audit Effectiveness is determined by management support/perception.

Table 8. Correlation matrix.

|      | IAE     | QIA     | CIAT    | IIA     | MS |
|------|---------|---------|---------|---------|----|
| IAE  | 1       |         |         |         |    |
| QIA  | 0.929** | 1       |         |         |    |
| CIAT | 0.878** | 0.840** | 1       |         |    |
| IIA  | 0.813** | 0.719** | 0.666** | 1       |    |
| MS   | 0.919** | 0.916** | 0.808** | 0.757** | 1  |

\*\* . Correlation is significant at the 0.01 level.

Source: Field Survey, 2018.

Table 9. Regression analysis.

| Variables | Coeff. | Value | S.E.  | T     | p-value |
|-----------|--------|-------|-------|-------|---------|
| Constant  | $b_0$  | 1.705 | 0.545 | 3.130 | 0.004*  |
| QIA       | $b_1$  | 0.140 | 0.047 | 2.967 | 0.005*  |
| CIAT      | $b_2$  | 0.104 | 0.053 | 1.959 | 0.058** |
| IIA       | $b_3$  | 0.239 | 0.076 | 3.130 | 0.004*  |
| MS        | $b_4$  | 0.164 | 0.049 | 3.338 | 0.002*  |

\* = Significant at the .05 level; \*\* = Significant at the .01 level;

Source: Field Survey, 2018.

$R^2=0.936$ ; Adjusted  $R^2=0.928$ ;  $F=127.039$ ;  $p=0.000$ .

## 5.0 CONCLUSION AND RECOMMENDATIONS

The researcher documents and provides empirical evidence on the determinants of internal audit effectiveness which in the past has largely been ignored particularly in the tertiary institutions that fall under the regulatory framework of the National Board for Technical Education (NBTE). Overall from the results, respondents in general appear to be positive about the set of parameters (Nunnally, 2010). In this respect, Table 7 shows that Cronbach’s alpha for “Internal audit effectiveness” is 0.858, for “internal audit quality” is 0.946, for “internal audit team” is 0.881, for “Independence of internal audit” is 0.810 and for “Management support” is 0.928. For “Competence examined in relation to the internal audit quality, the competence of internal audit team, the independence of internal audit the management support. However, there are some exceptions such as the neutral position against the parameter of the participation of internal audit unit in planning and developing processes and procedures, which is incorporated in the independence of internal audit. There is also a neutral position against the parameters of the number of members in the internal audit department and the information provided in the

management about the needs of audit department which are incorporated in the support of top management to the audit unit. Comparing the results of the study with previous literature, it can be generally argued that all of the four examined factors (internal audit quality, professional competence of internal audit team, organizational independence of internal audit unit and management support) proved to be associated with internal audit effectiveness. This result is in line with the general standards of IPPF (IIA, 2012) which consider these four factors as important indicators of internal audit effectiveness and also in line with (Kasim and Hanafi, 2012) who developed their model for assessing internal audit effectiveness based on the same factors. Considering the competence of internal audit team, the results showed positive relationship with internal audit effectiveness but with the lower value of all factors. This finding is in line with prior studies such as (Turley and Zaman, 2007), (Arena and Azzone, 2009), (Cohen and Sayag, 2010), (Alzeban and Gwilliam, 2014), (Shawemene, 2014) and (Drogalas, 2015) who concluded that internal audit team and effectiveness of internal audit are positively associated at almost the same level of significance. Regarding the independence, it can be argued that independence of internal audit is the most important factor affecting internal audit effectiveness according to the present research. Quite similar were the findings of (Alzeban and Gwilliam, 2014) who argue that independence is one of the most important factors in their research. Finally, similar to the (Yee et al., 2008), management support is also positively associated with internal audit effectiveness.

Contrary to the findings of the present study, (Cohen and Sayag, 2010) and (Alzeban and Gwilliam, 2014) found that management support was the most important factor affecting internal audit effectiveness. However, similarly to the study of (Alzeban and Gwilliam, 2014), management support seems to be positively and significantly associated with all other factors. Overall, this study adds to the extant literature on internal audit by examining the factors of internal audit effectiveness. The study also provides practical insights for regulators and internal audit practitioners, suggesting that internal audit effectiveness is of major importance to tertiary education financial management in Nigeria. Despite findings' importance, the results should be considered in light of a number of limitations. The data collected by survey was necessarily limited in order to restrict the length of the questionnaire and to maximize response rates.

Further, the data are limited to the perceptions of internal auditors and are not as comprehensive as they would have otherwise been if the researcher had included other stakeholders, such as external auditors. For this reason the following recommendations are made for future research:

1. Future study could be undertaken to explore the perception of other parties such as external auditors and staff of Inspectorate unit of Office of Accountant General of the Federation.
2. Other Independent variables could also be factored in the measurement of Internal Audit Effectiveness.
3. Other alternative methods such as interviews may be adopted to further explain the determinant of Internal Audit Effectiveness.

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