

Chapter One

Introduction

1.1 Background to the Study

Financial Accounting System (FAS) has evolved over several stages: Pre-double entry system to double entry and post-double entry systems, similarly, several methods had been employed in the recording of financial transactions notably among these are manual, mechanical and electronically. Manual mode of recording (commonly referred as traditional accounting) of financial transactions was the first kind to modern day accounting system and by then it was the best in the history of accounting. However, it is time consuming, prone to human (recording/arithmetical) errors and costly to manage.

This system involves: Preparation of source documents and presenting it through an office assistant, postal system or through fax machine to the end users. Processing is purely executed wholly through human effort; Storage of data taking the form of filing cabinets and output information i.e. Trial Balance, Profit and Loss Account and Balance Sheet (as the last two were then called) were also on paper documents (by manual recording).

However, with first stage of technology development come mechanical accounting system which revolutionised accounting system considerably and serve as a pointer to the fact that information technology is still at infant stage as far as it affects accounting and auditing. This accounting system relied on the use of typewriters, franking machines, photocopiers, mechanical filing system and for it to serve accounting “recording” purposes require the uses of Punch Card, Sorter, Collator, Tabulator and Interpreter. In all sense,

mechanical accounting system bring tremendous changes into accounting system yet the operation still remain cumbersome involving procurement of huge/big machines that occupied large space, need to train machines' operators with accounting knowledge background and this challenge brought quest to device a better system which eventually led to invention of electronic accounting system and today "turn to information systems for the provision of information as firms asset which supplements decision making and performance of business"¹. Application of electronic system into accounting space in wider dimension presently placed enormous challenge on auditors (both internal and external) to familiarise with technical – know – how of various accounting softwares and electronic audit devices.

With the application of electronics in accounting records, traditional audit is no longer relevant except in small business where the accounting records are still relatively manual. The procedure remains the same and the only difference lies in the adoption of appropriate audit software for execution of auditing assignments. This brought new challenges to audit such as loss of audit trail, need for protection of information and exposure of data to virus². Modern audit brings new method of collection and evaluation of data for compliance and substantive tests. This brings a call to reappraise how it has affected independence of statutory (external) audit, determination of audit fees and of course, the quality of audit under present dispensation. It will most likely be unsafe to rely on findings on these areas under manual accounting system

There will definitely be paradigm shift in accounting and auditing with emergence of artificial intelligent (AI) as "auditing is particularly suited for applications of data analytic

and AI because it has become challenging to incorporate the vast volumes of structure and unstructured data to gain insight regarding financial and nonfinancial performance of companies”³.

In the emergence of AI there are two major developments. The first is about blockchain that serves as an open ledger which distribute transactions between two parties efficiently and in a verifiable and permanent way⁴. The second is cloud computing which will aid continuous auditing and in no small way affect audit quality⁵. Under this circumstance, auditor’s independence is not expected to remain stagnant as some of existing parameters for the measurement of auditors’ independence such as familiarity, indirect interference from the management etc. will no longer be relevant in the modern dispensation. Continuous audit will be facilitated by high-tech audit software which will improve the quality of audit and through the application of AI cognitive technology to achieve the purpose of improving the quality of the audit and improve the efficiency of the audit⁶.

This study is aimed at examining the influence of automated accounting system and big data analytics (BDAs) on external audit process. This should be very clear from onset that electronic auditing cannot function in isolation; it is a system that can only ride on the automated accounting system (AAS) which is equally called Electronic Accounting System (EAS) while advent of big data (BD) gave birth to big data analytics (BDA). Automated accounting system is a systematic approach to recording, analysing and interpreting economic or business transactions which are measurable in monetary terms for the use of various stakeholders. It can be described as the application of electronic media for

bookkeeping and accounting functions that is regarded as either electronic or automated accounting.

It can be described as

‘the method of collecting and documenting information about a firm's economic and financial situation which can be sub-divided into two areas; external and internal accounting. External accounting entails the preparation of the financial reports to stakeholders, such as investors or suppliers, and includes information to the external parties about the firm's economic state of affairs. Internal accounting includes transactions, analyses and reports for internal parties and focus on the information about the company's future’⁷.

These accounting functions could be conducted by a firm technically skilled staff or in alternative contracted to a third party with technological expertise.

‘The technology revolution in accounting and auditing began in the summer of 1954 and this is changing the face of traditional accounting that heavily relied on paper activities. Information technology driven accounting is now an integral part of accounting information system. Accounting practitioners currently accentuate technological improvement as one of the major megatrends within the accounting field and the execution is growing substantially^{8,9}.

A mega trend is depicting as an extensive prototype or movement which contributes to businesses and the impacts have a lasting weight on the businesses processes¹⁰. Hence, technological improvement in accounting is now more important than ever, however, whether traditional or electronic, accounting system should provide reliability for its output (information) to be a useful tool for economic decision. It is this quest that led to various

revolutions that brought about the application of electronic data processing (EDP) into accounting and auditing.

Improvement of computers during the 1990's made it achievable to use software for writing and calculating, which declined the degree at which manual typing take place and opened new possibilities to facilitate the accounting process¹¹. The automated software development amplified, and the 90's and the beginning of the 21st century were periods in history when automated accounting usage increased¹². The extreme and widened usage of computer skill in accounting did nevertheless not start until the year 2009¹³. The buoyancy in digitalisation between companies increased and became a requirement in order to develop accounting activities and to store and protect accounting data.

The execution of digital solutions in accounting were also a product of price diminution on software, Internet based programs, and the need for information access. Furthermore, "the consistency of the technology and software also improved the mobility of workplaces, amplified the speed of data gathering and boosted the storage opportunities of essential data"¹⁴. Automation has already started to grow in a related profession, the auditing field, where four main concepts, as recognised by practitioners have shown to be fundamental for automation; cloud accounting, Internet of Things (IoT), block chain and big data¹⁵. For example these concepts are also starting to be recognised in the accounting field, and likewise scholars are now emphasising their possibilities to drive accounting process electronically⁵.

Information technology (IT) impact in business has grown beyond underestimation; recently, it has great effect on audit process through automated accounting in which it has

resulted to prospect and challenges for auditors across the globe⁵. The audit profession (i.e. either external or internal) has grown rapidly in response to changes in its environment. It is observed that auditors are struggling to meet up with their assignment in which organisations' audit undergo radical changes from time to time in order to meet up with the present challenges. Automated accounting as a result of advances in IT incessantly renders control procedure outdated in which the traditional becomes audit value is questionable. As automated accounting occurs more rapidly hence audit profession and especially the external auditors will have to be abreast of this new development as to the need to retrain their staff and acquire necessary software.

The requirement of this innovation on auditing are found to be enormous as auditors must not just understand 'accounting' but must also understand the working of various devices and accounting packages in the accounting process of an organisation. Electronic auditing developed largely as a result of the rise in the use of technology in accounting systems and this is expected as audit process is now built around computer. Assessment of risks, obtaining audit evidence, investigation and the likes are now done in computer environment and which now make deployment of CAATs paramount for execution of external audit,

The more the increase use of IT in organisations' accounting system, the more complex the auditing process and, the more the auditors (either internal or external) have to embrace technology, digest and understand it in order to be able to audit effectively and efficiently. Though the automated accounting makes auditing more challenging but this provides new

vista not only for external auditors but also internal auditors that can now leverage on technology to conduct wider control test compared with manual system of auditing.

For effective engagement performance of auditors, there is need for continuous training programme for audit staff on various accounting and auditing technologies, failure which will warrant the employment of IT specialists and data analyst. It is true that the auditing technical requirements for external audit engagement has not changed fundamentally yet the procedure for manual accounting/auditing cannot fit into this modern audit era. It is pertinent to mention that the main objective and area covered by audit has not changed. However, audit in electronic environment will require an e-audit which could be conducted with various software embedded in CAATs. The changes necessitated as a result of the introduction of electronic into accounting have significantly implications in organisations as accounting, audit and control systems procedures might be positively altered.

In this era of AAS, it is easier for auditors to determine the effectiveness on control in operations in a client's environment on which the whole operations of the clients to be measured and this facilitate the ability of engagement team to determine the degree of misstatement. This highly welcome development through information technology has brought new opportunities and challenges into accounting system. It is this that led to what is now known as e-accounting. Ever increasing in the volume of generated data brought in the concept of big data and of which application in accounting and auditing rides on the existence of automated accounting system. Big data analytics is only practicable through accounting system that is automated which similarly promotes real time audit. This age of information technology is characterised with the abundance of data and at the same time,

accountants and decision makers face difficulty of processing this vast data and then the benefit of it¹⁶.

Big data analytics has become a major instrument of game changer in both financial reporting and auditing. With big data analytics, structured and unstructured data can be processed and also, it supports data mining, social network analysis and test analysis which eventually enhance business value¹⁷. The fact that big data becomes a reality using data analytics for audit tasks, hence, now a necessity for accounting professionals to create more value. It is claimed that “real time corporate activities could cause a shift from auditor’s providing assurances about numbers to assurances about real time system”¹⁸.

Moreso,

‘The quantity of data produced by and available to companies, the replacement of paper trails with IT records, cloud storage, integrated reporting and growing stakeholder expectations for immediate information - any one of these alone would affect the auditing process, but Big Data is bringing them all, and more, at the same time’¹⁹.

Auditors are now confronted with financial and non financial data that are been uploaded into information systems and paper documents are gradually given way to automation, this in effect is leading to accounting data been processed, monitored and audited online. Automated accounting system becomes complimentary to big data and data analytics and effect of this on external audit process is just evolving and are yet to be empirically explored as to provide lead way for the profession, academics and even the regulatory institutions.

This thesis leveraged on the extant conceptual and disaggregated empirical studies on automated accounting system and application of big data analytics into the audit process

especially their influence on auditor independence, audit quality, audit fees and audit evidence in this information technology business driven age.

1.2 Statement of the Problem

External auditors are engaged especially by shareholders of limited liability companies to conduct statutory audit and in the provision of these services, audit passes through stages from engagement to planning to adoption of appropriate approach to conduct of tests to forming opinion and finally issue a report on opinion. Execution of these require that auditor should be freed from interferences of any type (auditor's independence), to form unbiased opinion require that auditors must have cognisance (audit evidence) base upon which to build expression of opinion while the achievement of lender of credence and provision of assurance requires that auditors must produce quality report (audit quality) and to effectively provides these interwoven functions require a just reward for expected commitment of both physical and mental efforts to the exercise.

These: audit independence, audit quality, audit evidence and audit fees had been widely studied both conceptually and empirically either on the implication of one on the other or on one of them as it affects audit processes whether in internal or external auditing. There are evidences of disaggregated and aggregated studies on various elements of external audit process, for instance, auditor size and audit quality, external audit report and audit process, audit quality and audit independence, auditor's fee and auditors characteristics^{20,21,22,23} These aforementioned studies were conducted with no specific attention on what could be the implications of electronic accounting system to their findings yet the outcome of these

previous studies had brought tremendous contributions to the growth of accounting and auditing.

However, with the advent of information technology, it would have been expected that similar attention would have been extended on the implication of AAS on audit process but evident on ground only supports a fragmented attempt as availability of literatures revealed that most studies on this concentrate on the development, opportunities and challenges of AAS to accounting and auditing professions. In addition, the very few studies on accounting automation system were concentrated on issues such as in relation to the profession, benefit of automation such as accuracy, cost savings, reduction in human errors, efficiency and effectiveness on some of audit process^{1, 24, 25}. However, in Europe, America and few Asian countries, there had been notable and concerted efforts of the academic on automated accounting system, big data, data analytic, cloud, robotic process automation for auditing and continuous auditing^{26, 27, 28}. These also are mostly conceptual in nature as notable empirical studies are very few in number to make meaningful impact compare with studies on manual accounting system had brought to bear on the development of accounting process

There is therefore noticeable failure of study on the implication of automated accounting system on various aspect of external audit process. Research shows that implications of manual accounting system on varies yet concerted effort is found lacking when it comes to automated accounting system and external audit process..

Similarly, big data (BD) had been popular in business, science, government and research field and also in the area accounting and auditing because institutions now generates both

structured and unstructured, massive and unprecedented data which are imperative in the governance of modern day businesses which propel them to be ahead of competitors and achieve business success. The advent of big dataset necessitate the need for robust analytical tool with which to draw useful inferences from arrays of data and this bring the need for big data analytics (BDAs). The need for big data analytics is pronounced in auditing. It is on record that there are few studies that had discussed and analysed broad areas of these drawing attention to general issues of BD and BDAs¹⁸. There are very few studies on the use of audit data analytics such as the use on audit engagement in the external audit process²⁹. However, study of these on audits appears not moving faster along with other research streams in the use of valuable BDAs.

Research understanding of the overall effect of its application on audit quality and audit evidence is limited and lacking wider empirically drawn insights. Also and in contrast to availability of literatures in almost all aspect of traditional accounting system on audit process so it is as regard BDAs, as handful studies conducted on development and external audit fails to empirically look into how these can influence audit quality and audit evidence.

This thesis therefore provides not only a holistically study of influence of automated accounting system and big data on external audit process but also supported the findings of the study empirically.

1.3 Aim and Objectives of the Study

The aim of this study is to assess the effect of automated accounting and big data analytics on external audit process in South West Nigeria. While the specific objectives of the study are to;

- i. determine the significant effect of automated accounting system on audit independence
- ii. examine the significant effect of automated accounting system on audit quality.
- iii. establish the significant effect of automated accounting system on determination of audit fees
- iv. determine the significant effect of automated accounting system on audit evidence.
- v. examine the significant effect of big data analytics on audit quality
- vi. establish the significant effect of big data analytics on audit evidence
- vii. confirm the significant effect of automated accounting system and big data analytics on external audit process

1.4 Research Questions

The problem was examined and answers were descriptively provided for the following questions:

- i. What is the significant effect of automated accounting system on audit independence?
- ii. What is the significant effect of automated accounting system on audit quality?

- iii. What is the significant effect of automated accounting system on the determination of audit fees?
- iv. What is the significant effect of automated accounting system on audit evidence?
- v. What is the significant effect of big data analytics on audit quality?
- vi. What is the significant effect of big data analytics on audit evidence?
- vii. What is the significant effect of automated accounting system and big data analytics on external auditor process?

1.5 Hypotheses

From the above stated questions, the following hypotheses were tested;

- Ho1 Automated accounting system has no significant effect on audit independence in South-West Nigeria.
- Ho2 Automated accounting system has no significant effect on audit quality in South-West Nigeria.
- Ho3 Automated accounting system has no significant effect on determination of audit fees in South-West Nigeria.
- Ho4 Automated accounting system has no significant effect on audit evidence in South-West Nigeria
- Ho5 Big data analytics has no significant effect on audit quality in South-West Nigeria
- Ho6 Big data analytics has no significant effect on audit evidence in South-West Nigeria

H₀₇ Automated accounting system and big data analytics has no significant effect on external audit process in South-West Nigeria

1.6 Significance of the Study

The accounting and audit practitioners as well as academic community will draw inspiration as to the challenges of automation and era of big data as it could affect external audit process in areas of audit independence, audit quality, audit evidence and of course, the determination of audit fees. The findings will be a pivotal for audit profession to make generational shift of the effect of manual accounting to electronic accounting in respect of the approach towards determination of audit fees, perception of independence, changing narratives on audit quality and approach towards audit evidence. This study will empirically provide support of implications of the application of automated accounting system and big data analytics in similar version to the existed contributions of scholars under the era of traditional accounting system.

In addition, standard setter's board will through this study initiate necessary appraisal of standards and formulates standards that will conform to reality of e-audit in the era of AAS and BDAs as appropriate to all areas of audit process.

The National University Commission and National Board for Technical Education will find the result useful to the extent of the need or not of nationwide introduction of automated accounting and big data analytics along with the need for proper exposure of accounting students to the basic of big data analytics which will demand a revisit to curriculum to lay

foundation for the acquisition of basic knowledge by students at both undergraduate and postgraduate studies in Nigeria.

Empirically, this study will extend frontier of knowledge in the application of information technology as well as big data analytics on external audit process as earlier comprehensive study on audit process centered on audit independent, audit fees and other variables^{30,31}. They were conducted on manual accounting system. Existing studies only look into auditors' fees with no focus on the implication of automated accounting system on the process of its determination, same goes for big data analytics but the only difference is that there are few empirical studies that focused on procedure, consequences and mostly on audit quality still under manual accounting system while the existing few empirical studies on big data analytics were more on procedure, consequences while most relevant centered on effect on quality of audit report with implication on auditing profession^{32,33,34}. The findings of this thesis therefore will form a new nucleus on comprehensive consideration of all these variables that were previously considered under manual (traditional) accounting system

The study will motivate other researchers to develop keen interest in this area and make further contributions that will enhance e-audit under present information age and enrich the space of literature as much as what had transpired with traditional accounting system..

1.7 Scope of the Study

Audit procedure and practice are global phenomenon and application of automated accounting is of general interest to small, medium and big sized companies across the

globe and not peculiar to Nigeria entities, however, the coverage of this study was restricted to external auditors in the South West geographical zone in Nigeria and data was sourced from selected audit firms and audit practitioners within the zone. The choice of the Zone is informed in one hand, with the fact that the Zone command substantial share of economic activities in Nigeria and economic characteristics of States in the Zone has similar resemblance with other states in other zones in Nigeria. In another hands, the zone is the central hub of economic and financial activities in Nigeria.

Auditing is both internal and external but this study will concentrate on the external aspect as to look into the joint areas will widen the scope that may require a life time studies to conduct. Nevertheless, the outcome of the study will not be difficult to adapt into relevant aspects of internal audit.

1.8 Limitations of the Study

- 1 The study is primary data driven and with over one hundred and sixty six questions, it became very difficult to adhere to the projected minimum sample size of four hundred and ten (410) hence five hundred and fourteen questionnaire were eventually distributed. It is also difficult to obtain necessary assistance from professional bodies and their responses could have contributed immensely to easy identification of targeted respondents.
- 2 Covid-19 negatively impacted on the distributions of questionnaire as all big four audit and few mid tiers firms were found working from home and this necessitated the need to identify appropriate respondents on linkdeln. The experience is horrifying. Even

travelling across the six states in South West during that period of semi-restriction was not friendly.

- 3 The cost of carrying this type of expansive study in an environment such as Nigeria is also challenging and no wonder most studies on external audit process were secondary data driven but there are recommendation from previous studies for the need of behavioural approach and that recommendation inform the decision to carry out the study to seek for the direct perceptions of the players in audit industry^{35,36}.

1.9 Operationalisation of the Research Variables

This study is on automated accounting system, big data analytics and external audit process in South West, Nigeria. This study is based on two major constructs, namely automated accounting system and big data analytics in one another and external audit process in another hand, that is:

$$Y = f(X), \text{ here}$$

$$Y = \text{External audit Process}$$

$$X = \text{Automated accounting system, Big data analytics.}$$

Therefore, external audit process as dependent variable for the first independent variable (Automated accounting system) is operationalised with the following indicators;

$$y_1 = \text{Audit independence}$$

$$y_2 = \text{Audit quality}$$

$y_3 =$ Audit fees

$y_4 =$ Audit evidence

Also, Automated accounting system is depicted as X1 while big data analytics is depicted as X2 and are measured with following indicators:

$X_1 = x_1, x_2, x_3, x_4$ where:

$x_1 =$ Automation of receivables

$x_2 =$ Automation of payables

$x_3 =$ Automation of inventory

$x_4 =$ Automation of payroll

While external audit process as dependent variable for the second independent variable (Big data analytics) is operationalised with the following indicators;

$Y = y_1, y_2$

$y_1 =$ Audit quality

$y_2 =$ Audit evidence

The explanatory variable is operationalised with following indicators:

$X = x_5, x_6.$

When $x_5 =$ Frequency of data collected

$$x_6 = \text{Value of data collected}$$

1.10 Operational Definition of Terms

The followings are the key terms used in this study;

Automated Accounting Systems: is a system that uses computers to input, process, store and output accounting information in form of financial reports. It is the application of computer into the act of systematic recording, analysing and interpreting economic/financial transactions that have monetary and non monetary values.

Audit Evidence: This can be described as the basis of audit report. It is on which auditor form opinion to provide expression in form of audit report

Audit Fees: Audit fees the reward for physical and mental efforts of independent auditors for audit service to clients. An economic remuneration payable by a client to an auditor for audit services.

Audit Independence: Auditor's independence is the existence of freedom to carry out audit assignment with no interference (either directly or indirectly) from anybody/circumstances and for auditor to freely and objectively express their opinion on audit assignment.

Auditing Process: This is various activities and incidents that revolve around the execution of audit engagement during a statutory auditing.

Audit Quality: Audit quality could be regarded as the worth of audit reports to the end users. Furthermore, it can be described as market assessment of auditor to be able to

discover and report a breach in a client's accounting system and report the breach. It is the extent to which an audit conforms to extant standards.

Big Data: This is vast volume of structured and unstructured data that requires using economically feasible and innovative processing methods with the aim of developing decision making and automation process.

Big Data Analytics: It is an analytical tool that promotes complete (100%) examinations of both structure and unstructured data in order to evaluate patterns that may require further test and to draw insight that promote audit assignment.

Value: This indicates the contribution of processed data into informed decision.

Variety: Composition of data that includes structured and unstructured in nature. It is the diversity of electronically provided data.

Velocity: This indicates the speed at which data are been made available and process on a platform whether in terms of numbers (100,000 per second in Facebook) or technical weight. (200 MG per second Twitter).

Veracity: It is the reliability information generated from structured and unstructured data with the application of data analytics tool.

Volume: This is the high quantity of data that are been made available through electronic system within a nanosecond.

Endnotes

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Chapter Two

Literature Review

There are various crucial and central concepts to this thesis and these ranges from the ordinary meaning of automated accounting and external audit to engagement, planning of audit, to secure just rewards for audit services, that promotes the sufficiency, appropriateness and reliability of evidence and that ensure the overall usefulness of audit report. The views on these concepts as presented by various scholars, its relevance and limitations are reviewed in the following subsections.

2.1 Conceptual Review

2.1.1 Automated Accounting

Auditing of manual accounting system often referred to as traditional accounting system that is based on paper and pencil in the recording of significant economics and financial transactions is tedious and not only challenging for staff of an organisation/entity but also for external auditors. Generally, as paper and pencil is presently given way to laptops and desktops in every business operations and activities so is the automation of accounting and auditing. Automated accounting process started with primary focus on account payable and invoice management but has evolved from compliance to one of insight and strategy^{1,2}. The major concern today is the compliance that is always ranked top in the mind of the accounting firms. Accounting tasks are so many, which includes invoicing, payroll and book-keeping, also the processing of large amounts of numerical data. Such routine transactions processing are at substantial cost burden on the organisation and the desire to

reduce these costs provided a motivation for the early introduction of computer systems. Though the numbers of the data are numerous, the processing algorithms involved are relatively in two ways which are simple and largely uniform and also between different organisations. Processing large volumes of numerical data through simple algorithms was an ideal form of application for the early Electronic Data Processing (EDP) systems and it is therefore not surprising that an accounting application provided many organisations with their first experience of computing. It was not unusual in many companies to find the Financial Director also in charge of data processing³.

The transactional roles in accounting like general ledger, accounts receivable and payable may be endangered, but other higher-skill roles like financial planning and analysis or business controlling would still be in high demand. Some accounting activities have been more affected by computerisation than others⁴. Tasks which are based on simple algorithmic processing of numerical data, such as bookkeeping, have been readily computerised and computer-based systems have almost totally replaced manual systems for most simple transaction processing tasks³. Truly, advent of large scale application of electronic accounting and automation of audit process and procedure could pose threat to traditional functions of Accountants and Auditors but that is not the focus of this study.

Automated accounting has made the several contributions to the improvement of financial reporting. However, other areas of accountancy such as insolvency which involves high level of interpersonal contact and the exercise of diverse professional judgment have proved difficult to automate⁴. In some areas such as taxation, computers are widely used but anecdotal evidence suggests that their use has not affected the fundamental modus operandi; whilst in management, for example, in the survey described later in this paper it

was found that 93.4% of bookkeeping systems in the industrial and commercial companies covered by the survey were either entirely or mainly computer based⁵. This brings into front burner the importance of information technology in accounting and auditing.

Computerised accounting has given accountants the capability to take a proactive approach to information delivery and managerial decision support through the use of various modeling techniques. Expert systems are being developed for accounting applications but as yet their effect does not appear to have been significant, and their development and use have been mainly confined to the larger professional accounting practices⁶.

2.1.2 External Audit

There are two major forms of auditing which is internal and external. This study is centered on external audit. Generally, auditing has been defined as the evaluation of a person, organisation, system, process, enterprise, project or product. External auditing can be described as examination of financial or non financial records of an entity in order to determine if financial statements that emanates from such records portray the actual positions of the records.

Auditing is performed to ascertain the validity and reliability of financial and non financial information as provided by the management. The developments of auditing are traced from its role of checking on custodianship of resources to its role in facilitating the raising of debt and equity, by providing assurances as to the reasonableness of managements' presentations in their reports⁶. Audited reports are of tremendous assistance to various interested parties hence the need for third party's need to lend credence to the statements.

Whether manually conducted or otherwise the primary roles of audit are to examine underlying records from which financial statements are drawn from and for the auditor to assert or otherwise that the financial statements are a true and fair view of the underlying documents. It is an exercise conducted by an appointed independent auditor to ascertain if the records examined represent a true and fair view of the underline records.

There are two types of audit namely internal and external. The internal audit is saddle with responsibility of ensuring that all activities within an organisation whether financial or not are in conformity with already set rules and guidelines. It is the sole responsibility of the management to maintain records and prepare financial statement that shows a true and fair view of the maintained records. External auditor comes into the picture to compliment these roles and ensure interests of others are well protected. There was clarity on the definitions of auditing stating the systematic and scientific examination of the books of accounts and records of a business in order to allow the auditor to satisfy himself that the statement of financial position and the profit or loss accounts are properly drawn up in order to exhibit a true and fair view of the financial state of affairs of the business and profit or loss for the financial period^{7,8,9}.

External auditors play important roles in every sector of Nigerian economy especially in manufacturing, banking, road construction and host of others because of the level of the business, accounting and voluminous works and processes, the external auditors foster trust in these sectors and provides check and balances and also help to put the company in a stable or balanced financial position.

In the execution of statutory audit assignment, the first and major activity is to have a better understanding of the client's environment, accounting and other laid down procedures. The activities of internal audit suppose to reduce the work load of external audit yet external audit includes test of controls which involve examination of internal control system and this compliment the activities of internal audit. Identified weakness determines the extent/scope of substantive test and this is whether in manual or automated accounting system.

The most important role of external auditors in an organisation should be to protect the interests of investors, shareholders and other ownership means of the organisation¹⁰. Effective discharge of this responsibility requires the external auditors should be independent from any influence from any quarters. External auditors will give the report of the state of a company's financial situation and also certify the validity of financial reports that may have been released. The external auditors must establish the appropriateness of the adopted accounting standards and pronouncements that guide the preparation of accounting reports whether manually or electronically prepared and also certify the principle used by the firm. Also, another role play by the external auditor is to examine various policies that ensure accountability in the company. The external auditors review the security measures that a firm has put in place against corporate fraud or corruption. Besides assessing potential risks, auditors also analyses the overall risk tolerance of the firm, as well as, all the initiatives the company has made toward mitigating risks.

In addition, external auditors can help ensure good corporate governance by developing efficient crisis management plans to be used in the event of allegations of corruption or

fraud¹⁰. This type of plan will demand that all administrative officials are assigned with specific responsibility and will be held responsible as a control process.. This will warrant external auditors' attention during compliance test.

2.1.3 Automation of Accounting System and its Application in External Audit Process

All definitions of auditing were centered on manual accounting system but now that technology have become pronounced in business world, auditing is no longer to only examine books but to examine transactions, procedures and automation process of accounting to enable audit form basis of opinion and report findings accordingly.

The potency of accounting in every organisation make it evolves from everyday activities of an organisation to produce relevant information for decision making, Information on financial activities is thus vital to organisation's existence, survival and growth. The advent of automation has brought tremendous changes into the process of both accounting and auditing, this changes has done the profession more good than harm (if any). It is an innovation that has become very essential in business life cycle and has boosted the continuity of businesses.

External audit is meant to provide assurance services to stakeholders who are not directly involved in day today management. Auditors expression of opinion is built on the examination of financial statements and this statements are now largely automated both in medium and large size firms. In the time past, auditors will have to examine books and records but such books are no longer existing or relevant in the face of automated accounting system.

Therefore, the intervention of information technology and the introduction of computers had greatly influenced the method of transmitting financial information. Automation in accounting makes the work of an auditor easier as audit depends upon arrays of computer generated reports which could be accessed in both soft and hard copies depending on the need and this makes the auditing easier and it saves time than going through bulky records of books. In some instances, information for audit is sourced on the client's system which may not be printable.

Application of information technology (IT) into every sphere of life of business process has become inevitable in this present dispensation and its application into accounting system has come of age and the use of modern IT tools to perform accounting and financial reporting functions is one of the most recent breakthroughs¹¹. The usage of this IT has become a major mean of bookkeeping as virtually all aspects of bookkeeping and accounting are now computerised/automated from first book of entries (Journals) to the presentation of financial statement. Taxation, Auditing, Consultancy functions and lot more can now be conducted using accounting software/package.

2.1.3.1 Automation of Accounts Payables/Receivables

In manual accounting system, the importance of Payables and Receivables are given prominent attention hence the development of Control Accounts or designated Ledgers for proper monitoring and control of recording activities as pertaining to this sensitive aspect of accounting system of big and medium sized entities. In vouching and examination of vouchers pertaining to receivables and payables, external auditors under manual accounting system pays special attention and develop appropriate audit procedures most suitable to a

specific engagement to ascertain correctness and the reliability of these ledgers. In the present dispensation, accounts payables of large corporations are now computerised and there is lots of software that can be deployed to perform functions from ordering through to payment for supplies which make manual audit system irrelevant for such entity audit. The accounts receivables command similar attention as the process can also be automated from point of receipt of orders to receipt of proceeds.

The features of software also take care of categorisation of debtors (receivables), monitor due date of payment, flag off overdue accounts, initiate write off process when necessary, and determination of appropriate allowances for irrecoverable debts. The system provide the needed flows for auditor examination of individual customer's outstanding balances and confirmation of customers' balances could also be carried out on real-time process (continuous accounting/auditing). In term of auditor seeking for evidence on receivable or payable that warrants confirmation directly from individual debtors through letter of confirmation, this practice may be of little relevant under the present dispensation especially when audit firm is directly linked to the client's server.

Manufacturing companies thrive on trade credit system, that is buying and selling on defer payment system and this system creates large numbers and amount of payables and receivables. This is why manufacturing companies deploy accounting software to take care of the management of trade debts. There are five stages of accounts payable process comprising: Invoicing, Reviewing, Approving, Recording and Paying¹². All these can now be automated to minimise error and safe time. It is the intention of this study to examine how automation of this process affects audit independent, fees, quality and evidence.

2.1.3.2 Automation of Inventory

Both in practice and academic, it is widely believed that

'technology has successfully penetrated the business world and there is hardly any aspect of business that is not automated such that, as simple as placing an order for materials require for production, the application of technology in this aspect has automated the inventory control system, moreso machine can now independently place order'^{13,62}.

Management of inventory is keyed to financial performance of companies and most especially the manufacturing. Inventory could comprise of raw materials, work-in-progress, finished goods and disposables. The procurement cost, safe keeping/carrying cost and funds tied down in this are always enormous. These items when not properly managed from point of requisition, storage and final product getting to buyers could open door to indiscriminative theft, spoilage, excessive holding or carry cost and to manage all these under manual system have been tasking. In addition to this is stock taken exercises scary to both auditee's staff and the external auditors especially for those companies in manufacturing industry e.g., Nestles Plc, Nigeria Bottling Company, Dangote Cement, etc that have to be physically available during the manual count. It also affects flow of production.

However, accounting package is now available to automate inventory system. Sage evolution enterprise resources planning have powerful inventory module that provide unlimited control over stock and the software could generate management reports as well as detailed operational reports as demanded by unique need of users. Another software for inventory that promote cloud solution that help companies to minimise stock-outs, release

cash tied up in excess inventory as well as to reduce to barest minimum the time spent on planning, forecasting and ordering is Sage Inventory Advisor¹⁴.

There is no doubt about this, audit approach to audit of automated inventory system will fall in line of Computer Assisted Audit Technique and this will one way or the other affect external audit process which is the main objective of this study.

2.1.3.3 Application of Automation for Payroll

The earlier attempt to introduce mechanical operations into accounting functions was on payroll. Arthurs Anderson was commissioned in 1953 by General Electric to implement an automated payroll processing system at their site in Louisville, Kentucky and this spread over the world and used in Nigeria for a particular period of time¹⁵

Most companies in Nigeria in the early eighties that have semi-computerised operations were opened to the computerisation of their payroll. Banks and some manufacturing companies contract the preparations of their payroll to UAC Nig Ltd as was then called. Payroll is a list of employees including the wages or salaries due to each employee. Computer payroll system as personnel system that provides keeping of employees' records, pay band, savings and deduction¹⁶.

Computation of employees' emoluments in any business organisation is very crucial in the maintenance of industrial/labour harmony that translates to motivated workforce and productivity. Most previous studies centered on development of appropriate software for computerisation of payroll functions¹⁶. However, this study look into the influence of this

aspect of automated accounting system on external audit process in the area of audit independence, fees, quality and evidence.

Generally, automated accounting system relies on both hardware and software in the performance of various accounting functions. Automated audit rely heavily on the provisions of Computer Assisted Audit Techniques (CAATs) while there are many information technology hardware/software that a company could own in-house or engage vendor to deplore for their accounting need (Outsourced). Following accounting software are common in use¹⁷.

(i) Busy accounting, (ii) First-class accounting, (iii) Invex accounting (iv) Microsoft Dynamics (v) Microsoft Navision, (vi) Peachtree now called Sage 50 (vii) Sage Pastel Accounting, (viii) Tally Enterprise Resources Planning and (ix) Sun Small Business Accounting.

In addition, it was reported that 33% of Nigeria firms use Sage 50, 22% use QuickBooks and 13% use Tally ERP^{175,18}.

2.1.3.4 Automation of Internal Control System

An effective internal control system is an antidote for reliable accounting information system whether manual or electronic and the major advantage of the computerised accounting system over manual system include their ability to perform the various tasks in the accounting cycle automatically and the provision of built-in internal control functionalities to enhance accuracy and security of data as well as safeguarding assets against fraud¹⁶.

The effectiveness of internal control will determine the level of reliance which external auditor will place on the accounting system and form the basis of both compliance and substantive tests needed which will affect the audit fee chargeable, provide platform to source for sufficient evidence both will effect on the quality of work that will be executed after all.

2.1.4 Automation of Accounting, Big Data and External Audit in Nigeria

The history of the first computerised accounting system was claimed to have started in 1953, when Arthur Anderson Consultancy which is now referred to as the Accenture was asked by General Electric to implement an automated payroll processing system at their site in Louisville, Kentucky¹⁶. It later spreads all over the world and used in Nigeria for a particular period of time. The system comprised of a UNIVAC1 (UNIVERSAL Automated Computer-1) computer and printer. It was the first commercial computer system ever implemented and became the first computerised accounting system¹⁸.

However and before the advent of UNIVAC 1 was ENIAC 1 (Electronic Number Integrator and Calculator, this was introduced by the International Business Machine (IBM) in 1945 but invented by J..Presper Eckert and John Mauchly at University of Pennsylvania in 1943. Similarly, EDSAC (Electronic Delayed Storage Automatic Computer was in operations in May, 1949 at Cambridge, England and that this was the first true computer in the present use of the word¹⁸.

Two historical events took place in 1978. In addition to Apple's introduction of the Apple II microcomputer and the creation of the first commercially available off-the-shelf

spreadsheet programme, the Intel 8080 and MOS 6502 processors drastically reduced the cost of microcomputers. Visicalc was, of course, extremely primitive by today's standards, but it was ground-breaking at the time. A microcomputer allowed for the first time the execution of financial modelling. A major factor in the acceptance of microcomputers for small and medium-sized businesses, Visicalc revolutionised microcomputers in the business. Personal computers (PCs) were a standard component of office life in Nigeria's economy by the middle of the 1980s, simplifying workplace recordkeeping. Accounting in the digital age: Adding value by enhancing job efficiency and dependability using paperless decision support tools. Microsoft Windows replaced the Apple II, followed by Lotus 1-2-3, Microsoft Excel, and eventually Visicalc. By the late 1990s, most firms in Nigeria were using PCs for accounting, thanks to the use of accounting software like ACT and SAGE¹⁹.

2.1.5 Big Data, Big Data Analytics and External Audit in Nigeria

Notable changes to accounting are mostly as a response to changes in business environment and business accounting need. Book-keeping, a written manifestation of merchants' affairs was developed to meet business needs²⁰. Financial accounting reporting is provision of information to both internal and external users, most especially the management of an organisation to appraise performance and to the investors to determine the overall value of their investment in an organisation. The process of this information disclosure warrants that accountants collect process and analyses vast financial and non financial data. It is claimed that accounting and data 'have a strong interdependency, which is a consequence of ongoing business transactions.

Whatever, affect accounting in practice always have corresponding effect on auditing. Amazingly, the linkage between the business process external data is dramatically changing data environment and information technologies influence the business world and our social life altogether today than ever before²⁰. This innovation in technological advancement has rendered the manual system of accounting inadequate for decision making purpose²¹. This of course has necessitated audit review of approach and procedure. The quantum of data being generated to support business operations, decision and measures performance is becoming enormous. The requirements of audit to meet the necessities of a changing operational environment with attendance significant growth in 'the volume of transactions, increasing (complexity and volume) of available audit evidence, motivated auditors to seek more cost effective approaches to audit planning²².

The ever increasing volume of data has therefore given birth to the concept of Big Data (BD). Big data refers to structured and unstructured data set that is commonly described according to four Vs: Volume, Veracity, Velocity and Variety²³. Similarly, when a comprehensive view is considered big data is then described as high-volume, high-velocity and high 'variety information assets that demand cost-effective, innovative forms of information processing'^{20,24}. This enhances insight, decision – making and process of automation. Data available in today business space is not limited to structure data but also include very vast unstructured data such as data sourced from email, twitter, Google and other social medium as these are continuously increasing in volume then the need for sophisticated tool called data analytics to retrieve and analyse relevant information.

Clients are no longer looking into auditors' traditional role of expression of opinion on financial statement but expect auditing to provide backup service that enhances business growth and values. In this age of big data both accounting and auditing functions aligning with the demand hence traditional approaches have changed along with absolute dependence on modern information technology. Today accountants depend on both hardware and software technologies to carry out major accounting functions and also ensure timely reporting and this has inspired the creation of highly sophisticated technologies deployed for collection, processing and storage of financial information¹². The existing application of technology of the decades make accounting easily adaptable to advent of big data and that has positively affected the practice of auditing but there are lot yet to be resolved when it comes to the employment of big data analytics

If advance economies are coping with the challenges of big data in accounting and auditing, the same cannot be claimed of emerging economies such as Nigeria. While there is evidence that the big four are leveraging on application of modern tools in the conduct of business within their portfolio yet this cannot be asserted of numerous mid-tier audit firms in Nigeria. The importance of Big Data in auditing lies on the platform it serves in analytical tools hence the term big data analytics (BDA) as relate to big data is the process of analysing data with the objective of drawing meaningful conclusions²⁵. Technological advances and new ways such as exploration of large sets of relevant data from internal and external sources that may produce audit evidence used in risk assessment, analytical procedures, substantive and control testing²⁶.

These provide the importance of big data analytics especially in the enhancement of audit report quality and in the obtaining of evidence through compliance and substantive tests.

2.1.6 Automated Accounting system and Auditor independence

Auditor's independence is the existence of freedom to carry out audit assignment with no interference (either directly or indirectly) from anybody/circumstances and for auditor to freely and objectively express their opinion on audit assignment. This requires the auditor to exhibit integrity and professionalism in audit process. The audit process must be objectively carried out and auditor independence is the cornerstone of audit as audit provides assurance to stakeholders and lends credibility to the financial statements as prepared by the management²⁷. It is therefore imperative for auditor to be independence in mind and in fact.

The provision of assurance to stakeholders and to lend credibility to the financial statements as prepared by the management rest squarely on the ability of auditor to reports their finding with no influence²⁷. "Independence is commonly accepted as fundamental to auditing and has been the subject of significant public discussion and debate for more ten a century²⁸" Generally, lack of audit independence for any reason posses great danger to the users of accounting information. However, there is lack of common definition of audit independence and evidence of this abound²⁹. It has been defined in various ways such as:

- "The conditional probability of reporting a discovered breach"³⁰. This is associated with auditor's self reliance, such that professional judgments is not subordinated to the wishes or desires of others, including client³¹.

- “A function of character, with the attributes of integrity and trustworthiness being key”³².

It is freedom from those pressures and other factors that compromise, or can reasonably be expected to compromise an auditor’s ability to make unbiased audit decisions”³³. All these are consideration for auditor reaction, attitude, approach or perception towards risk of becoming a surrogate in the hand of the auditee (the client). A working definition different from all these established ones for this study is that auditor’s independence is the existence of freedom to carry out audit assignment with no interference (either directly or indirectly) from anybody/circumstances and for auditor to freely and objectively express their opinion on audit assignment but the fact is that auditor independence ‘rather than being an absolute concept,’ that it is ‘a matter of degree’³⁴. This is very necessary as to promote confidence of investors and other stakeholders in the financial reports of various audited entities lack of which can jeopardise the interest of all and sundry¹⁷².

There are three identified classes of auditor’s independence and these can be explained to be: Programme, Investigative and Reporting independences²⁹. Programming independence. This is freedom to adopt and apply strategy consider most appropriate for an audit assignment with no influence from any source. In programming independent, this promote the fact that there is no inhibition in any way as to how to execute and report audit assignment and this implies that information for successful assignment is ready made available by both the management and relevant third parties.

- i. Investigative independence. Both control and substantive tests involve investigation towards obtaining necessary evidence upon which opinion could be reached and in

essence availability of information both from the management and relevant third parties are not hindered.

iii. Reporting independence. This provides leverage for the auditors ability to choose to reveal to the shareholders any information that should be disclosed. Auditor reporting independence therefore implies whether it is a negative report or not, the auditor will not succumb to any threat, pressure or whatever to sweep such report under the carpet.

The need for auditors' independent is not farfetched as ushers of financial statements need assurance that figures and facts as presented in the statements are the facts in the entity's books and result of operations. The International Organisation of Securities Commissions ('IOSCO') regulation was developed to ensure that auditor independence requirements contribute to the promotion of investor' confidence in a published financials²⁷. There are two important distinctions to independence as relate to audit and this is real independence or independent of mind which was equally regarded as epistemic independence which is all about possessing essential knowledge of the audited party which enhances capability to make independent judgments³⁵. In fact, an auditor who is independent in fact (independence of mind) has the ability to make independence decisions³⁶. Lack of believe of the existence of independence should have no bearing and this was corroborated with the assertion that independence in fact is associated with auditor's mindset and 'entails self-reliance, such that professional judgment is not compromised'³⁶.

There are two major factors that need to be displayed by auditors to guarantee this independence regardless of legal and professional provisions and these are (i) personal integrity of an auditor and (ii) objective approach to audit process. An auditor may possess unquestionable integrity but environmental factors may subdue the integrity by

compromising the audit process. Objective approach may be hindered by indirect interference from management or other sources. This is pronounced under manual accounting system as auditors relies on provision of materials by the auditee to facilitate auditing of the entity, in addition, there is frequent one on one interaction between personnel of audit firm and the auditee's and this can create unnecessary bound in between, unlike under the present dispensation in big organisation where accounting system is now largely electronically. The other is independence in appearance which is also regarded as epistemological dependence³⁵. Epistemological connotes what is perceived of audit by others that it seems auditor is quite independence of clients manipulations³⁷.

Various regulatory bodies across continents have comprehensively addressed these two forms of audit independence and a comprehensive attention of professionals across continents on what audit independence whether of appearance or of mind should be is holistically reproduced as follows:

“IFAC, Australia

Comments on independence

The use of the word ‘independence’ on its own may create misunderstandings. Standing alone the word may lead observers to suppose that a person exercising professional judgment may be free from all economic, financial and other relationships. This is impossible as every members of society has relationships with others. (IFAC, 8.9, Australia, principle 12)²⁹.

Independence of mind

The state of mind that permit the provision of opinion without being affected by influences that compromise professional judgment, allowing an individual to act with integrity, and exercise objectivity and professional skepticism (IFAC, 8.8 Australia)²⁹.

Independence in appearance

The avoidance of facts and circumstances that are so significant a reasonable and informed third party, having knowledge of all relevant

information, including any safeguards applied, would reasonably conclude a firm's or a member of the assurance team's integrity, objectivity or professional skepticism had been compromised (IFAC, 8.8, Australia, principle 14)²⁹.

European Community

Independence is not an absolute standard which statutory auditors must attain, free from all economic, financial and other relationships that could appear to entail dependence of any kind. Such a state is manifestly impossible as everyone has some dependence or relationship with another person. (Annex A1)²⁹.

Independence of mind

Objectivity as a state of mind

Independence in appearance

The avoidance of facts and circumstances which are so significant that a reasonable and informed third party would question the statutory auditor's ability to act objectively (Annex A 1)²⁹.

UK (ICAEW Ethical guide)

Threat to objectivity can be general in nature or relate to the specific circumstances of an engagement or appointment (1.200.2.6). The easiest way of avoiding such threats would be for members to decline to act in any circumstances where the slightest threat to objectivity might exist. This could deny to clients and employers proper access to a member's breadth of expertise and knowledge of the...business, and in deciding whether to include such a prohibition, the Institute always bears in mind the need to maintain a balance that respects the interests of clients and employers and the possible wider public interest (1.201.1.6)²⁹.

Independence of mind

Integrity implies not merely honesty but fair dealing and truthfulness (1.201.01). Objectivity is the state of mind which has regard to all considerations relevant to the task in hand but no other. It is sometimes described as 'independence of mind' (1.201.02)²⁹.

Independence in appearance

Members should therefore take into consideration the public interest and reasonable and informed public perception in deciding whether to accept or to continue with an engagement or appointment bearing in mind the level of public interest will be greater in larger entities and entities that are in the public eye. (1.200.2.5). The term 'public interest'

relates to matters of public concern, not public curiosity (1.200.2.42)²⁹.

US SEC rules

In determining whether an accountant is independent, the Commission will consider all relevant circumstances, including all relationships between the accountant and the audit client and not just those relating to reports filed with the Commission (SEC, part 210.2-019b)²⁹.

Independence of mind

Objectivity is a state of mind and except in unusual circumstances a state of mind is not subject to direct proof. Usually it is demonstrated by reference to circumstantial evidence (Discussion of Final Rules, C. The general standard for auditor independence)²⁹.

Combined Statement on of independence of mind and in appearance

The Commission will not recognise an accountant as independent, with respect to an audit client, if the accountant is not, or reasonable investor with knowledge of all relevant facts and circumstances would conclude that the accountant is not, capable of exercising objective and impartial judgment on all issues encompassed within the accountant's engagement (Part 210.2.01(b))²⁹.

Ontario ICAO Rules

Chartered Accountants (CAs) cannot practice their profession or participate in the affairs of their community without being exposed to circumstances that any place pressure upon their objectivity and integrity, and it would be impossible to impose detailed proscriptions intended to cover all conceivable situations. To do so on a rigid basis would be to inhibit the rendering of useful services when the likelihood of impairment of the CA's objectivity is relatively remote. It may be difficult for a CA always to appear completely free of any disabling influence, interest or relationship in respect of his or her client's affairs (Rules of Professional Conduct, Foreword)²⁹.

Combined statement on independence of mind and independence in appearance

A member who engages or participates in an engagement (a) to issue a written communication under the terms of any assurance engagement of (b) to issue a report on the results of applying specified auditing procedures, shall be and remain free of any influence, interest or relationship which in respect of the engagement impairs the member's professional judgment or objectivity (rule 204.10)²⁹.

Independence in appearance

The public must be assured of the chartered accountant's freedom from any conflict of interest. The profession tests the existence of this freedom against the criterion of whether a reasonable observer would conclude that a specified relationship between a chartered accountant and a client posed an unacceptable threat to the chartered accountant's independence of judgment. Only thus can public confidence in the objectivity and integrity of the chartered accountant be sustained. The reasonable observer should be regarded as a hypothetical individual who has knowledge of facts which the chartered accountant knew or ought to have known, and applies judgment objectively with integrity and due care (Foreword, principles governing conduct)''²⁹.

From positions of various bodies as presented above it will not be difficult to agree with the general saying that 'there is no perfect system anywhere' hence there is need to examine the attainment (or otherwise) of relative auditor independence under automated accounting system which bring about the concept of automated audit.

2.1.7 Automated Accounting System and Audit Quality

Audit quality could be regarded as the worth of audit reports to the end users. It is the perception of the capital markets and others that rely on the assurance report for decision making. Some authorities claimed that series of litigation or none of such emanating from audit reports could be used in the measurement of the quality of audit process that bring about the assurance report as submitted by auditor. Emphasise had been laid much on the usefulness of audit report to capital markets' operators but much more than this, the importance of this reports is also notable to other users e.g., the internal management, the shareholders, government agencies and of course, the employees of a company. Therefore, the determination of the relative worth of audit report is as determined by the stakeholders.

Audit quality both in practice and existing literatures failed to attract a globally accepted definition and this is same when it comes to the indicators of audit quality³⁸. In fact, The controversy between seasoned professionals defining audit quality during the debate of Public Company Accounting Oversight Board's Standing Advisory Group (PCAOB's SAG), this group could not agreed on a common definition³⁹. However, prior to and after that meeting, authors had proffered differing definitions and some of this is: that it is defined as 'the market assessed joint probability that a given will both discover a breach in a client's accounting system and report the breach³⁰. This definition which had been subject of criticism⁴⁰. Another dimension to this is that audit quality is seen as 'greater assurance, and that to attain greater assurance will require more audit work'^{41,42,43}. This definition of greater assurance was however reserved for higher audit quality.

Similarly, key elements that create an environment under which audit quality will be achievable is when engagement team;

- “(i) exhibit appropriate values, ethics and attitudes;*
- (ii) is sufficiently knowledgeable, skilled, and experienced and had sufficient time allocated to perform the audit work;*
- (iii) Apply a rigorous audit process and quality control procedures that complied with law, regulation and applicable standard;*
- (iv) Provides useful and timely reports; and*
- (v) Interact appropriately with relevant stakeholders”⁴⁴.*

A quality audit is paramount to the operations of capital market and to the growth of an economy. Reports of a low quality audit will not only be misleading to the whole market but it will lay premise for the demise of the audited firm with attendance consequences on all stakeholders involved.

Finding common measurement or proxies for audit quality is as controversial as the definition itself.

2.1.7.1 Measuring Audit Quality

The size of audit firm is a major factor hence firms are classified to big and small^{30, 173}. However, audit firms are categorised into big four, mid and small tiers in Nigeria. KPMG, Akintola Deillote, Ernest and Young and PwC are recognised as big four while the likes of Baker Tilly, SAPRO, Index Manager, HLB Z. O. Ososanya & Co, Grand Thornton, Pedabo, Howarth (Crowde) Dafinone, Ijewere & Co, J.K Randle Professional Services, Balogun Badejo & Co, and Kunle Egbeleke & Co, just to mention a few are categorised into mid-tier with numerous firms in the lower tier.

The big four and some of the mid-tier firms in Nigeria with vast resources at their disposal are believed to be in position to execute audit assignment in such a way that will enhance ability to discover and report any infraction whereas, the small firms face limitation in doing similarly. The big four and the mid-tier are prone to serve clients whose operations are wholly dominated in electronics transactions and are well exposed to big data activities and these poses to influence the type of audit approach to adopt in the auditing of such clients.

Audit as a process terminate at the formation and expression of opinion. The expressed opinion will be regarded to be of quality if all parameters related to the audited financial statements are clearly presented, anomalies discovered are not scantily discussed and areas needed further investigation reported otherwise the audit process and report would be perceived to worth nothing.

Capital market reaction to the release of the report is an essential measurement. The reaction of the informed participants in the market will accurately gauge the value relevant of audit report. A positive and general acceptability of report will indicate that the report is of high quality and the reverse will be the case when market is skeptical of audit report. Finally, the number of litigation against audit firm arisen from the failure of the process is another measurement of the quality of the audit.

As literature fails to present common definition of audit quality so also it is when it comes to what constitute audit quality or by what measurement could quality of audit be measure. Some of the yardstick suggested by authors are: Firm size: a large audit firm has more technological and human capacities to conduct a thorough audit than the small sized and so audit firm size is considered one of the determinants³⁹. Many are of opinion that audit firm's size play a domineering role in the quality of audit functions and reports^{40,46 ,47}. Others are audit-firm factors, audit team and firm experience, audit contract type, audit fee, non-audit service and audit tenure/rotation which were all considered as factors for determinant of audit quality^{48,49 ,42 ,43}.

Another effort was to classified audit quality indicators into engagement level which include audit hour, training hours, personnel assignment, audit fees, auditor partner tenure, tailoring of audit test to reflect client risk, audit budgeting and individual specialisation. The second classification is Firm-level indicators which comprise of: size of audit firm, independence, and audit firm compensation plan. This classification is an aggregation of previously suggested indicators of audit quality but it simplify the measurement of audit quality which could be employed under a specific demand. A comprehensive study conducted to examine most of the indicators of audit quality establish the fact that all the

previous acclaimed indicators were not truly representing audit quality and it was suggested a truly representative of the determinant should be established⁵¹.

The most logical classification of determinants was that called AuditQual⁵². It should be regarded as broad based of all classifications. This classified the factors into technical and service qualities with nine sub-elements. This classification appears to be in tune with technology driven accounting system, audited electronically. This is because issues such as audit size, audit tenure/rotation plays little influence under the dispensation of electronic driven audit.

AuditQual model was developed in two stages and in the final stage, four higher-order quality factors were identified and these are: Competence, Independence, Relationship and Service quality. This four were further segregated into nine elements wherein competence is made to comprise of reputation, capacity and assurance; independence is made of independence and expertise while relationship have experience and empathy (all these belongs to technical elements) and for service elements, it is made up of responsiveness and non-audit services^{174,53,54}.

More so, the traditional factors had been subject of critics as recent studies comprehensively considered most of these indicators for measurement of audit quality and found that all straight jacket proxies should be discarded and that indicators should be selected based on the purpose which audit quality is meant to serve⁵³.

However, a critical examination of these elements (AuditQual Model) will reveal that after all it is old wine in new bottle because for example independence of audit had severally been adjudged to affect audit quality so also is competence of audit team in term of technical skills while relationship between partners, firm and client had been severally

considered as proxies for audit quality under traditional (manual) accounting system. Presently, there appears little or no literature on the effect of AuditQual model under an automated accounting system

For this thesis, 2009 revised model of AuditQual is found most appealing as the elements are well suited as perceived indicators of audit quality in an automated accounting system environment. This is because audit firm size does not matter as both medium and big sized audit firm can leverage on software and modern analytic data to conduct the engagement. Also, audit fee under automated accounting system is expected to be determined on the considerations that are mostly technological driven and these and some others are why this study will look at Reputation, Capacity, Expertise, Experience, Responsiveness and Empathy as necessary factors in assessing audit quality in both automated accounting system and big data analytics environments.

2.1.7.2 Big Data Analytics and Audit Quality

Conceptually, the application of BDA in auditing with the potential of enhancing opportunities for continuous audit and 100% examinations of clients' relevant data will provide the possibility of a better quality audit. Complete test is in the opposite of sample testing, samples that are drawn within a specific confidence level. With the majority of transactions conducted electronically, powerful data analytics tools and techniques, enables auditors to analyse more data points than ever before, which can enhance audit quality and confidence in the capital market⁵⁵. Employment of data analytics stand to support audit quality in that it allows audit teams to start analysing client's data early in the audit process, enable the teams to tailor the audit approach and deliver a higher-quality audit¹. BDA

provides opportunity not only to test entire population but to spot out areas that require extra examination and discreet judgment of audit team. Big data analytics promotes forum for application of a rigorous audit process and quality control procedures that complied with law, regulation and applicable standards and this application in audit process will enable external audit to produce an enhanced quality report that will be beneficial not only to stock market but that will guarantee higher degree of confidence/assurance to other stakeholders.

The better quality of audit is assured with the application of big data analytics as this makes continuous audit possible and this possibility also allow external audit to provide useful and timely reports to Board, Audit committee and compliment efforts of internal audit in some instances, all in an attempt to provide quality and value based services. The AuditQual model is best achieved in a big data environment especially the technical aspect that involves the audit firm's reputation, capacity and assurance.

2.7.2.1 Big Data and Audit Quality: Frequency and Value of Data

Frequency of Data

One of the characteristics of big data that can define the quality of audit report is the frequency (Velocity) at which data is generated. For example, Walmart collect more than one million customers' transaction per hour while Facebook is claimed to collect more than 200GB per night⁵⁷.

External auditors have to examine this data in order to obtain evidence on which fast data can be examined and through which the quality of audit service could be enhanced.

Velocity of data is the speed at which data are collected, analysed and two kinds of velocity were identified, namely; frequency of generation and frequency of handling, recording, and publishing⁵⁸. The process ability and capability of instrument of big data analytics on the handling, examining, and drawing informed judgments by audit engagement team will in no doubt guarantee high quality of audit.

Value of Data

The most prevalence of big data is in its capability to provide a population (and not sampling) audits, ‘the results of which should generate relevant audit evidence’⁵⁹. This provides access to external auditor to conduct 100% (full population auditing) of substantial test of transactions which invariably translates to reduction in risk of misstatement of failure to discover material errors⁶⁰. Regardless of where big data is generated from and shared to, with the reality of big data comes the challenge of analysing it in a way that brings big value and with so much value residing inside, big data has been regarded as today’s Digital Oil⁵⁸.

Application of big data analytics in the examination of both structure and unstructured data portend great opportunity to the external auditor to discover a breach in the client’s accounting system and to provide basis of reporting such breach. One of identification of big data is about value and this is all about its contribution towards taking a sound decision in this case by auditors⁶¹.

2.1.8 Automated Accounting System and its Implication on Audit Fees

With accounting automation and advent of technology assisted audit, the remuneration of audit efforts by clients require a revisit as the conventional model was largely built on

traditional (manual) audit. It was submitted that “greater part of audit work are now being carried out without (auditors) leaving office, with less time, labour and costs⁶². This should ordinarily translate to reduction in audit fees, but the level of technical skills and acquisition of other resources by audit firm to conduct audit in IT environment is also additional costs. However, whether manual or electronic audit, the concept of audit fees remain the same. Audit fee from supply (audit firm) perspective is income generated for audit service rendered while the auditee – client from demand perspective will regard audit fees as cost incurred to secure the service of audit firm.

There are series of definition or descriptions of audit fees by different authors and authorities. The following are the example of such efforts: It is regarded as ‘the remuneration payable to an auditor for audit services rendered’^{63,176}. In another way it is ‘the economic remuneration payable to an auditor for audit services which are an agency fee according to certain standards’⁶⁴. It is described as a ‘fee that a company pays an external auditor in exchange for performing an audit’⁶⁵.

This study however regard audit fee as reward for physical and mental efforts of independent auditors for audit service to clients. In the determination of price in a market-driven economy, there are two major factors that drive the process and this is forces of demand and supply, that is, it is a bargain between buyer and supplier taken into factors from each perspective. These two factors also come to play in the determination of appropriate audit fees of an engagement.

The early history of audit fees’ discuss, the concept of demand and supply has featured prominently. For instance, it was further submitted that ‘an audit fee is the product of unit

price and the quantity of audit services demanded by the management of the audited company^{66,67}. Audit fees when considered from demand and supply process should also follow the pattern of factors that do influence this two.

Audit firms (supply perspective) will naturally consider resources necessary for an engagement, determine unit price for each of the proposed resources, make provision for opportunity cost and provide for a normal profit from the engagement. Resources for each engagement will be determined with considerations such as client size, number of segments, amount of inventory and receivables. Number of segments could be regarded as 'complexity of the auditee's operations. Besides the above factors, level of client's profitability is another factor mentioned to be a determinant to audit fees so also is the emphasised on client risk^{68,65}.

Demand process in audit fees is considering what influences auditees (clients) in accepting or rejecting a fee or factors that will be taken into consideration while negotiating with audit firm. Audit firms will rationally look into what is termed as the 'quantity of resources utilised by the auditor in performing the audit examination' and the per unit factor cost of external audit resources to the auditor, including all opportunity costs and provision for a normal profit⁶⁵. From demand perception, auditees will also consider following factors in the determination of fees to be paid to the audit firm. These factors are regarded as audit firm's attributes/characteristics⁶⁶. These include auditor's size, reputation, industry specialisation, big four and competition.

The influence of these determinants differs from country to country and within a country it also differs from industry to industry

2.1.8.1 Regime of Audit Fees in Nigeria

The Institute of Chartered Accountants of Nigeria (ICAN), Companies and Allied Matters Act, 2014 (CAMA) as amended and rules of Securities Exchange Commission (SEC) of Nigeria are pivotal to the determination of audit fee for limited liability companies but of these regulatory bodies, ICAN plays a domineering role. The Institute is directly involved in the determination of charges for audit services and this is backed up with stipulations that exert same power of an Act of Parliament.

On 4 December, 2015, the Institute issued a Federal Republic of Nigeria official gazette named Volume 102 No 169 with government Notice No. 125 titled Institute of Chartered Accountants of Nigeria (Scale of Professional Fees, etc.) Regulation, 2015; B761–770. This gazette provides fees' regime for all audits and non-audit services. Part I Section 1 sub section A clearly stated the objectives of audit fees regime, Part II Section 2 sub section 1 states that "the scale of professional fees contained in these regulations is the minimum scale of fees for all categories of practitioners based on hourly rates"(B763)⁶⁹. The regime is basically formulated on time required for an audit engagement, number of audit personnel required which is influenced by level of experience required for and engagement, this is technically in conformity with Sunmic's model⁶⁶.

Part II Section 4 (Minimum Scale for audit and assurance services) provides that " with effect from commencement date of these regulations, the following minimum hourly charge should be employed in the determination of appropriate audit fee for an audit engagement and this is reproduced below:

| | N |
|----------------------|--------|
| a) Partner | 40,000 |
| b) Senior Manager | 30,000 |
| c) Manager | 25,000 |
| d) Senior | 20,000 |
| e) Qualified Trainee | 12,500 |
| f) Semi-Senior | 10,000 |
| g) Junior | 5,000 |

However, the suggested hourly rate is the minimum and this therefore leave it to audit firm and client (auditee) to negotiate for jointly acceptable hourly rate. The regulation also support the need for both parties to put into consideration the assignments and risk involved in carrying out an assignment but the hourly rate agreed should not be less than the minimum stated above for each level of the audit team. (Part II Sec 2 Sub sec 2).

The scale as provided for partner to junior by ICAN is perceived to have been conceived in line with individual auditor's characteristics. There was a claim that 'auditors at the same firm receive different remuneration which means that the firm believes that the value created by the auditors is different'. Corroborating this claim that 'the differences between auditors who are direct implementers of audit projects can affect audit quality, which is also recognise by the market'⁶⁴.

ICAN price regime fails to provide a clearer parameter on which to quote individual auditor hourly charge is based. This is contrary to practice in Brazil where it is reported that price regime was built on factors such as; cost of services, estimated hours, market opportunities, risk factor inherent to client's sector⁷⁰. However, this thesis intends to examine the implication of both supply and demand factors/characteristics of audit firm and client (auditee) in this technology driven age

2.1.8.2 Automated Accounting System and Audit Fees Determination: Audit Firm's Attributes

These are characteristics associated to an audit firm that a client (from demand side) will take into consideration while negotiating fee with audit firm. These include;

a) Auditor Size

The size of audit firm plays a significant role in the determination of fees formulation. Firms will endeavour to cover cost of maintenance of all resources employ to manage their operations and overall cost will be influenced with the size. Relatively, auditor size is determined with company's assets, market share and number of employee. Ordinarily, size of firm will affect ability to render quality service and no wonder there are empirical evidence that associate big audit firm with high audit fees⁷¹.

b) Big Four

The issue of big four is majorly dominant in the US and UK while it is big six in Brazil, but big for is equally dominant in Nigeria. This is the dominant accounting/auditing firms in

the world, namely: PricewaterhouseCoopers (PwC), KPMG, Akintola Deilotte, and Ernst and Young. All attributes that auditee always want to consider in the determination of audit fees are well presented in the big four. The big four possess a huge size in terms of asset, employee and market share. They are well experienced, almost unquestionable reputation; they also possess monopolistic stature⁶⁶. Hardly could any of them lack in industry specialisation. No wonder, any auditee that wants to engage any of this four must be ready to pay a price premium to secure their services.

c) Reputation

This is acknowledgement of excellence in audit services built over the years by an audit firm. It is attestation to quality of opinion expressed that has not resulted into question or litigation on auditee or on the firm. It is described as ‘the perception that same audit firm can provide higher quality auditing than others’. It was also opined that ‘the better the reputation of the audit firm the more is the demand on its audit service and the higher audit fees are⁶³.

d) Industry Specialisation

This is auditor’s depth of understanding of specific natures and requirements of client’s industry operations. An audit requirement of oil and gas industry differs extensively from that of banking as well as to that of hospitality industry. Having a pool of experts among audit managers will place the firm in better position to render quality audit services that meet specific need of a particular industry and the auditee would be glad to pay premium to secure the services of such audit firm^{72,64}.

e) Competition

This is legitimate efforts of other audit firms to establish relationship with a client which business is already under an audit firm. When reappointing, competition brings new offers both in services and related charges, if such offer lead to terminating an existing appointment, often, it comes with reduction in price (fees). However, the reduction doesn't last as the incoming audit firm will change tune later on and this is what is regarded as "low balling". In nutshell, competition among audit firms can be considered as one of the factors affecting audit service pricing. It is difficult to call whether technology will affect the direction of competition but one thing that is certain is that firms that have deposit of a human resource with appropriate edge on the use of technology will be favoured with patronage by big clients^{63,64}.

2.1.8.3 Automated Accounting System and Audit Fees Determination: Auditee (Audit client) Attributes

Auditors will measure audit fee chargeable against the attributes of a particular client and this is looking into audit fee from supply perspective. Normally audit firm will examine what is required for a successful execution of an engagement. These requirements will have far reach implication on the determination of audit fee of a particular assignment. Such factors as auditee's size, profitability, risk, complexity^{63,73}.

a. Auditee (Client)'s Size

Previous studies had established a strong association between the size of an audit client and

audit fees. All the big four pays attention to client's size in determination of appropriate audit fees. Parameters such as receivable, payables and inventory had been used to measure the size of a client. Additionally, number of personnel, total revenue and total assets were used as proxies for the measurement of a client's size⁷⁴. It is expected that size should have reasonable influence on audit fees because it will determine time needed for an engagement, efforts, skills and other resources needed to conduct an audit. Likewise that auditee's size has a dire and important impact on the efforts taken and the time spent by auditor in the process⁶³.

b. Auditee's Complexity

The more complex a client's operations the more efforts that will be required during audit process and of course, this will influence fees quoted by audit firm. Number of subsidiary and number of branches of a client are good enough to measure how complex a client's firm is for determination of audit fees^{74,64}. Client's complexity could also be measured by type of organisational structure in place. Whether a company adopt decentralised or centralised structure will have effect on how complex the operation's process of such firm and this with a direct association with audit work necessary to carry out a quality audit. It is expected that a more complex operation will require more attention with consequence for a higher audit fees.

c. Risk of the Auditee's operations

Auditor will take into consideration the implication of arriving at a wrong conclusion on their image and possibility of litigation for misstatement of financial statements⁷⁵. Client's

debt ratio, gearing ratio and returns on total assets were suggested to be appropriate measure of client's risk⁷³. Also, liquidity and others were listed for measurement of same⁷⁰.

d. Auditee's Profitability

"Corporate profitability" is claimed to be an important variable in pricing of audit services and is regarded as a significant sign of management performance and its effectiveness in allocating variable resources. It was further corroborated that audit fee is significantly influenced by profitability⁷⁶.

However, client's profitability has been severally considered a factor influencing the determination of audit fees but it is difficult to understand the rationale behind this. From supply point of view, why must profit of a client serve as basis for price determination? If size, complexity and risk had been factored, then what is the place of profitability? Nevertheless, and for this study, behavioural measurement of implications of profitability in the determination of audit fees will be considered. This is because the higher the level of client's profitability the higher the level of auditor's perceived level of risk and the calibers of audit team needed in the performance of engagement. The level of profitability could also be influencing factors on the extents of compliance and substantive tests necessary before an opinion could be formed.

e. Auditee's Seasonality

End of financial year have been considered a busy season and as a factor that can affect audit fee since it is reasoned that demand for audit service will be at peak during that period when accounting year end is uniform in a particular industry^{77,169}. An audit firm

when negotiating for audit fee will look into its existing clients' accounting period and compare these with the proposed appointment and if the proposed appointment maintains same period with most of the existing clients' end of the year period, then the firm may want to factor this into price quotation.

In Nigeria, most companies listed on Stock Exchange are mandated to maintain accounting period ending 31 December and so it is a busy season for audit process. With the fact that all companies ends their accounting period same time, this may appears no company is favoured or disadvantaged any longer and so this factor may no longer influence price quotations.

2.1.9.1 Automated Accounting System and Audit Evidence

Independent audit can generally be described as systematic inspection of a business or organization's books and records to identify or verify and report upon the facts surrounding the financial activities and consequence thereof⁹. Audit becomes necessary to lend credence to the financial reports on an entity by the management to the owners and other interested parties. Auditors are therefore appointed as independent party to affirm or otherwise of management's reports of their stewardship and render financial statements that shows the results from the deployment of resources committed to their hands.

The examination of books and records by the auditors is to enable them ascertain the truthfulness and fairness of these books and records from which financial statements are drawn from. These financial statements are the major report prepared by the management for the use of various stakeholders which include the owners. The auditors are to express their opinion on these financial statements as primary role of auditing is to provide an

independent third party opinion on the truthfulness and fairness of financial statements with underlying records and in accordance with international audit standards and appropriate legal framework in existence in the firm's country of operations.

The essence of audit, whether manually or electronically conducted is to provide assurance on the annual reports (financial and accompanying statements) as prepared by a firm's management. The auditor, after the examinations of books and records issues a report expressing their opinion on the financial statements. Auditors do not apply rule of thumb in the determination of the type of opinion which is appropriate rather auditors rely on evidence obtained in the course of audit process. Audit evidence is therefore very crucial to the success or failure of an audit engagement and a major cornerstone in the provision of an assurance services by auditors to their clients.

Sarbanes-Oxley Act (in the United State of America) calls for accuracy of evidence that will serve as basis of their opinion and the only visible way to achieve this is to ensure detailed examination – substantive test conducted – on the whole items and not on sample². Ordinarily, this should be very easy to achieve under electronic accounting/electronic audit system for a large sized client or client with vast branch networks/subsidiaries.

In traditional audit, detailed collection of evidence can be quite costly⁹¹. In the present dispensation of electronic accounting system where continuous auditing exists, detail collection of evidence becomes practicable with minimal cost.

Evidence is generally defined as “objects, documents, official statements, etc., that are used to prove something is true or not true especially for legal or insurance purposes. In nutshell, it is one or more reasons for believing that something is or is not true”⁷⁹. In legal term, it could be described as “Anything that is used to demonstrate whether a claim,

incident, or occurrence is real or false, particularly for legal or insurance purposes, including items, papers, official declarations, etc⁸⁰. It can also include oral testimony of witnesses, including experts on technical matters, documents, public records, objects, photographs and depositions” Both of these find space in audit definition of evidence but it is however defined by the profession as: "All the information reviewed by the auditor in establishing the findings on which the audit conclusion is based, including the information that appears in the accounting records supporting the financial statements and additional information"^{81,82}. Audit Standard defined it as all the information utilised by the auditor in reaching the judgments that the auditor's assessment is based, whether it was gathered through audit processes or other sources⁸³. It is information obtained through compliance and substantive tests conducted by auditors upon which opinion will be built.

The major elements of these definitions are the fact that auditor’s opinion depend largely on the evidence obtained on the activities of their clients and that evidence obtained will shape the type of opinion the auditors will express for the benefits of all stakeholders in the activities of a particular client. Process both internally by the internal auditors and externally by the independent (external/statutory) auditor appreciates the importance of audit evidence.

Whether evidence is sourced from sample or through full test, the major intention of audit is to obtain appropriate sufficient and reliable evidence. Auditors in quest to buttress their opinion will strive to obtain sufficient appropriate audit evidence and this entails;

Sufficiency of Evidence

Sufficiency which is measured with quantity of evidence. This could be described as

obtaining enough evidence during audit process. This is relative to a particular engagement and an item under verification. The extent of substantive test on an item or group of items depends on the auditor's judgment and on how efficient is the internal control of the client. Quantity of evidence is determined by the "sample size" subjected to substantive test and this will be influenced by the quality of available evidence⁸⁴. It is presumed in audit standard on audit evidence that the better the quality of evidence the less is quantity needed to corroborate an assertion. In manual accounting environment, audit procedure is designed and carried out to ensure sufficiency of evidence and the advent of electronic accounting environment has in no wise change the narrative rather the system has elicited for a shift in quantity to persuasiveness of evidence.

However, sufficiency of audit evidence in automated audit environment is no longer from the perception of quantity of audit since:

The ASB believes that this change is important because, with the arrays of automated tools and techniques available to the auditor in today's environment and the different nature and sources of information available the quantity of audit evidence, in itself may not be determinative of its sufficiency⁸⁵.

This fact was earlier emphasised that with the advent of big data, quantity of evidence is hardly an attribute with which is to be concerned⁷⁸. It is possible that full substantive test could be conducted even in large corporations²⁰. This is far from reality in emerging economies such as Nigeria where larger number of firms are mostly small scaled and accounting system not fully automated. In this peculiar circumstance, both appropriateness and quantity of evidence are quite still relevant.

It is apparent that quantity of evidence could still be necessary but obtaining more evidence will not compensate for lack of appropriateness. What matter most under the present dispensation is how persuasive is the evidence to the independent auditor. Furthermore, the standard went further to say that audit evidence will be sufficient, that is persuasive, when an auditor would be convinced to reach conclusions for the auditor's purposes based on consideration of the evidence at their disposal.

Whether manual or automated accounting/auditing system, what matter in term of sufficiency of audit evidence is whether the auditor will be convinced enough to believe in information obtained through various tests e.g., control, substantive or analytical. Furthermore, the present automated accounting system is gradually becoming the main system in most conglomerate companies and so auditing of such companies becoming automated as well. This now making persuasiveness of evidence relevant than quantity as measure of sufficiency.

Persuasiveness is all about the judgment of an independent auditor in respect of obtained information. It is how convincing is the information to serve an audit purpose and in furtherance of obtaining assurance by the auditor that item under consideration is not only attributable to the client but that it is a true reflection of monetary value state in the financial reports.

Appropriateness of Evidence

This is the measurement of the quality of audit evidence and the relevance of evidence obtained to the audit objective. Relevance of evidence to the purpose of audit and as appropriate to the level of perceived audit risk is most crucial. 'A relevant statement is a

statement in the financial statements that presents a reasonable opportunity to directly relate to the item under audit¹⁷¹ Also, it is how reliable is the evidence to the audit assignment? Acceptable audit evidence and its usefulness will be influenced by its relevance and reliability. Reliability of evidence has been on literature and research front burner for awhile and standard has not been left out to specify the basic requirement for audit practice^{86, 87}. Reliability is described as “the consistency, dependability, or trustworthiness of a statement or financial records”¹⁷⁰. The most important when it comes to reliability is on the source, nature and circumstances of the evidence. Questions such as the following could be of assistance toward determination of how reliable is an audit evidence, such questions as: Is it internally generated by the audit team? If yes, then the evidence may be very reliable in as much as the auditor that obtain the evidence is technically skilled enough in the handling of the engagement. Is there any restriction, limitations or disclaimers on evidence obtained? If yes, then the evidence is not very reliable. What level of reliability should auditors place on evidence obtained from member of management? This require the effectiveness of internal control system existing in the client’s operation and even at that, the auditors need to corroborate such evidence with additional supportive information whether through observation, interview or data analysis. Accounting records are presently maintained manually or electronically depending on the size of a business entity. Manual accounting information system will demands for traditional audit approach while electronic (automated) accounting information system will require the audit conducted with computer audit assisted tools (CAATs). Nevertheless, accounting information systems has evolved since 1954 when the first mechanised accounting system was introduced and presently most businesses now maintains their

financial records electronically. 'Traditionally, auditors' schedule includes discrete phases of planning but in today's continuously evolving technology-driven world of financial statements, auditors may have to revise the traditional audit schedule due to changes in technology and perform tests on continuous basis'⁸⁸.

Most large and medium sized organisations in Nigeria had fully computerised their accounting system and in this fully electronic driven accounting system which is pronounced in banking and food and beverages sectors, examination of books and records could only be done electronically. In automated accounting system environment 'there is no difference in the manual systems, the only difference is the specific methods that fit the situation of the existing accounting information system'⁸⁹. However, the challenge of the demand of current dispensation is that it is not only difficult but also most impracticable to conduct manual audit of an electronically maintained accounting records⁹⁰.

The profession had long ago recognise the need to embrace electronic auditing and this led to the development of computer audit assisted tools (CAATs) but presently and in continuous accounting system the provisions of CAATs is no longer sufficient especially when it comes to sourcing for evidence.

Audit will search for facts to buttress their expressed opinion and this gathered fact is what is commonly regarded as evidence – the premise on which auditors' opinion rest upon. According to Statement of Audit Standard 400, Paragraph 102, auditors are required to gather enough relevant audit material to allow them to form an opinion that is supported by reasonable inferences. Audit evidence is defined as "all the information used by the auditor in reaching the conclusions on which the audit opinion is based" and is divided into two

categories: other information and the underline accounting records kept by management to support the preparation of the entity's financial statements^{91,82}.

Audit evidence is source through the conduct of compliance (control) and substantive tests.

However, sourcing for audit evidence could be through the following process;

- Establish the transaction through source document i.e. sales/delivery invoice, purchase order etc.
- Examine the accounting and financial reporting process instituted by the management
- Independently assess the allocation/computation
- Investigate reconciliation process and repeat the arithmetical calculation of accounting records
- Decide if evidence is appropriate, sufficient and reliable enough to form opinion within risk permissive level.

All the above process could be easily carried out if big data analytics is amenable to an engagement. The changes in the manual to electronic accounting system have had similar effect on the approach to auditing especially to obtaining sufficient appropriate and reliable evidence. The audit profession and regulators must be aware of the impact that a more advanced technological environment is expected to have on some traditional forms of audit evidence since the traditional perspective of audit evidence may no longer be sufficient but regardless of environment, audit evidence should be evaluated in the light of its sufficiency, completeness and reliability. However,

electronic audit's evidence is increasingly used into practice of auditing as auditors have to gather electronic information and this electronic audit evidence differs in several respects out of which two differences stand out and these are:

- It consists of information in a digital format whose logical structure is independent of the information.
- The information's origin, destination and sent and received dates are not an integral part of e-document, message or other information format⁹⁰.

Nevertheless, the nature of tools and techniques an auditor utilises before arriving at a particular decision (opinion), h/she is ultimately responsible for the judgment,' and since auditors could face liability for error in judgment, it becomes necessary that all judgments should be anchored on the premise of appropriate, sufficient and reliable evidence

2.1.9.2 Big Data Analytics and Audit Evidence

Audit evidence in big data environment has positive and negative sides. The most reliable source of evidence is that that are obtained from outside and the advent of big data, sources of data are now formal and informal. External data can be sourced from Facebook, Twitter, Path, Instagram, Email etc. Both structured and unstructured data are now stored and retrieved from the cloud. The flows of these data are not so easy to trace or follow like under traditional accounting system and this is a major usefulness of big data to provide reliable evidence needed to support expression of audit opinion.

It is argued that BDA has the potential to improve technical efficiency in audits by enhancing the quality of both the evidence that auditors collect and their professional

judgments based on that evidence⁹⁵. This is made possible in that in the era of big data, the volume and veracity of data at the disposal of auditors can be reasonably accessed and processed in an efficient manner with the application of BDA tools.

In the old dispensation, auditing rely mostly on direct verification of transactions i.e., receipt, counting of inventory at regular intervals which could be monthly, quarterly, semi-annually or annually but this has changed as it is no longer efficient or relevant any more under present dispensation especially for clients that fit the big or some medium sized firms. There is no gain saying in that traditional auditing practice, the technology-enabled audit comes with higher quality of evidence, which is derived from many new sources which includes big data, exogenous data, and ability to analytically link different processes, database-to-database confirmation, and continuous monitoring alerts⁹².

However, big data analytics has changed the course of audit evidence that auditors gather both in nature and competence in a big data environment. External auditors now possess a very powerful tool most especially for audit of big firm as BDA stand to enhance the effectiveness and reliability of the audit result⁹³. In fact, 'auditors have more resources available in order to gather evidence needed for their audits and opinion statement'⁹⁴. Big data is relevant for audit evidence when considered from sufficiency and appropriateness as the later provide means for test of reliability and relevance while its sufficiency is all about 'Volume and Variety of data' hence big data analytics is appropriate for evaluation of different types of businesses as well as different forms of evidence⁹⁵.

Audit evidence sourced through both control and substantive tests were limited to sampling under traditional accounting system especially for large size clients. This was demonstrated on how statistical sampling was portrayed as addressing the alleged inability of traditional

techniques of gathering evidence at the time to satisfy the demands of a changing corporate environment, which was marked by a considerable increase in the amount of transactions, in the early 1960s⁹⁶. Moreso, it is reasoned that ‘auditors cannot assume that data from third party sources is complete and accurate because external data obtained from third party providers may only be an aggregated of data obtained from multiple sources and may not have been subjected to procedures to validate completeness, accuracy and reliability of data⁹⁶. These are cornerstone of appropriate evidence.

By the provision of International Standards of Audit (ISAs), perceive evidence obtained independently from external source to be a strong and appropriate than evidence that obtained from other sources^{86,82}. However, that position appears no longer tenable under big data big data analytical tools. The major challenge of BDA in the establishment of evidence is that standard does not indicate what type of evidence analytics provides²⁶. This provision is restricting the usage by auditors especially the statutory (external) auditors.

Similarly, auditors’ concern is how to obtain substantial and reliable audit evidence with the effective application of big data analytics in this era of high volume, velocity and veracity of data available from sources that are hardly imagined couple of years back. For example, to establish fair value of intangible assets can no longer be reasonably conducted using traditional process. Data analytics is most appropriate to collect and analyse vast data on intangible assets. Alteration of transactions’ details in the ledger can easily attract auditors’ attention in traditional audit procedures but it is not so easy to identify/locate any alteration in big data environment except with BDA tools. In addition, auditors could decide to replicate the accounting system of a client to ascertain the reliability of the system but this pose a challenge in big data environment. The twins effect of the above is

the undermining of reliability and appropriateness of evidence obtained in big data environment.

Overall, BDA 'will now transform audit beyond sample-based testing to include analysis of entire populations of audit-relevant data (transaction activity and master data from key business processes), using intelligent analytics to deliver a higher quality of audit evidence'²⁶. Evaluation and assessment of large volumes of structured and unstructured information quickly which results into better appreciation of the concerned client and its system provides a fertile ground for sourcing for independent evidence.

2.1.10 Electronic Audit Evidence (EAE) and Computer Assisted Audit Techniques (CAATS)

Sourcing for and obtaining audit evidence in electronic accounting system environment requires auditors to employ software specifically written for the conduct of audit engagement and this brought for the designing and implementation of a computer assisted audit techniques. With the introduction of the software the entire process of sourcing for evidence can now be done with the application of various audit software developed within the frameworks of CAATs. Conceptually, authors differ in the presentation of CAATs as auditing software for conduct of audit electronically, for example CAATs is 'audit software used to interrogate a client's accounting system'. It was further claimed that CAATs are effective because they are used to gain and process audit evidence and information⁹⁸. Similarly, it is further submitted that application of CAAATs enhances audit quality¹⁶⁸. CAATs are defined as 'the use of devices and

techniques for auditing computers applications and retrieving and analysing data⁹⁹. This is substantially in agreement with the main objective of this study in that modern day business has vastly moved away from traditional methods of processing of data.

CAATs application in auditing can leverage on so many software such as Monetary Unit Sampling Plan (MUS); General Audit Software (GAS); Integrated Test Facility, (ITF); Embed Audit Module (EAM); Audit File Review Control System (SCARF); Monitor and Control Architecture (MCL); Audit Command Language (ACL); Interactive Data Extraction and Analysis (IDEA)¹⁰⁰. Audit System 2; Lotus Notes and host of others had been deployed to the conduct of electronic audit. The software could be in-house by audit firm or could be vendor based and mostly used to conduct end of year audit and lack comprehensive applications to modern demand of continuous auditing.

In addition, emerging audit techniques such as Audit Data Analytic (ADA), and emerging technologies such as artificial intelligence (AI), robotic process automation and blockchain, offers both opportunities and challenges in the process of audit of clients that automates accounting functions or that activities fit into big data description.

2.2 Theoretical Framework

Audit process stems for the need of auditing both in medieval and modern societies, the need for auditing has been associated with many theories and propositions but the primary theories that capture the reasons, essence and importance of external auditing are

considered for this study. The theories considered in this study are agency, policeman, inspire confidence and lending credibility.

Agency Theory

The origin of this theory has been a source of concern as it has been attributed to different propounders by different researchers. Some modern day researchers ascribe it to Hayes *et al* while Haynes *et al* ascribed the origin to Watts and Zimmerman¹⁰¹. However, the fact of this is that the theory was first proposed by Ross and Mitnick. Ross was the first to develop economic theory of agency to address problems of contract-compensation: this was briefly and clearly in December, 1972 and published in AER Proceedings issued in May, 1973¹⁰².

It was proposed that this agency theory will redress issues surrounding agent compensation that will prompt appropriate activities of agents to be in agreement with the expectation of the principals. Mitnick also had independently proposed same agency theory but much more of institutional in character. His theory on agency was first presented to the meeting of America Political Science Association in 1973. It was believed that this effort develops logic about agency that permits the generalisation of the theory to wider sphere of social contexts. This was then regarded as 'institutional theory of agency'¹⁰³. "The first regular non-proceedings journal article on agency as a general theoretical approach was published by Mitnick in 1975¹⁰⁴.

While the widely-cited work of Jensen and Meckling that proposed agency theory of firms was not published until almost a year later¹⁰⁵. Although the Jensen and Meckling paper has had enormous influence in the literature all because their study emphasise that "firms are legal fictions, where some contractual relationships exist among the persons involved in the firm"¹⁰⁶. It is incorrectly and occasionally cited as the principal founding paper in the agency. In fact, it was a variation of the company, not agency theory in general, that was

conceived¹⁰⁷. The fact is that their studies only leverage on agency and other costs to enable them develop a theory of firm and not agency theory. There was nowhere in their study where reference was made to agency theory rather they extensively and mathematically studied agency cost implication on theory of firm. It is therefore lack of diligent search that led to the erroneous attributing of agency theory to their 1976 study.

Agency theory is the cornerstone of auditing. Auditors are agents of the owners of organisation and are so employed to protect the interest of this group in another agent-principal relationship between the owners and the managers of organisations. This becomes necessary as there is need from the owners of business to demand for periodical information from the managers in form of financials. This information is to enable the managers give account of their stewardships to the owners

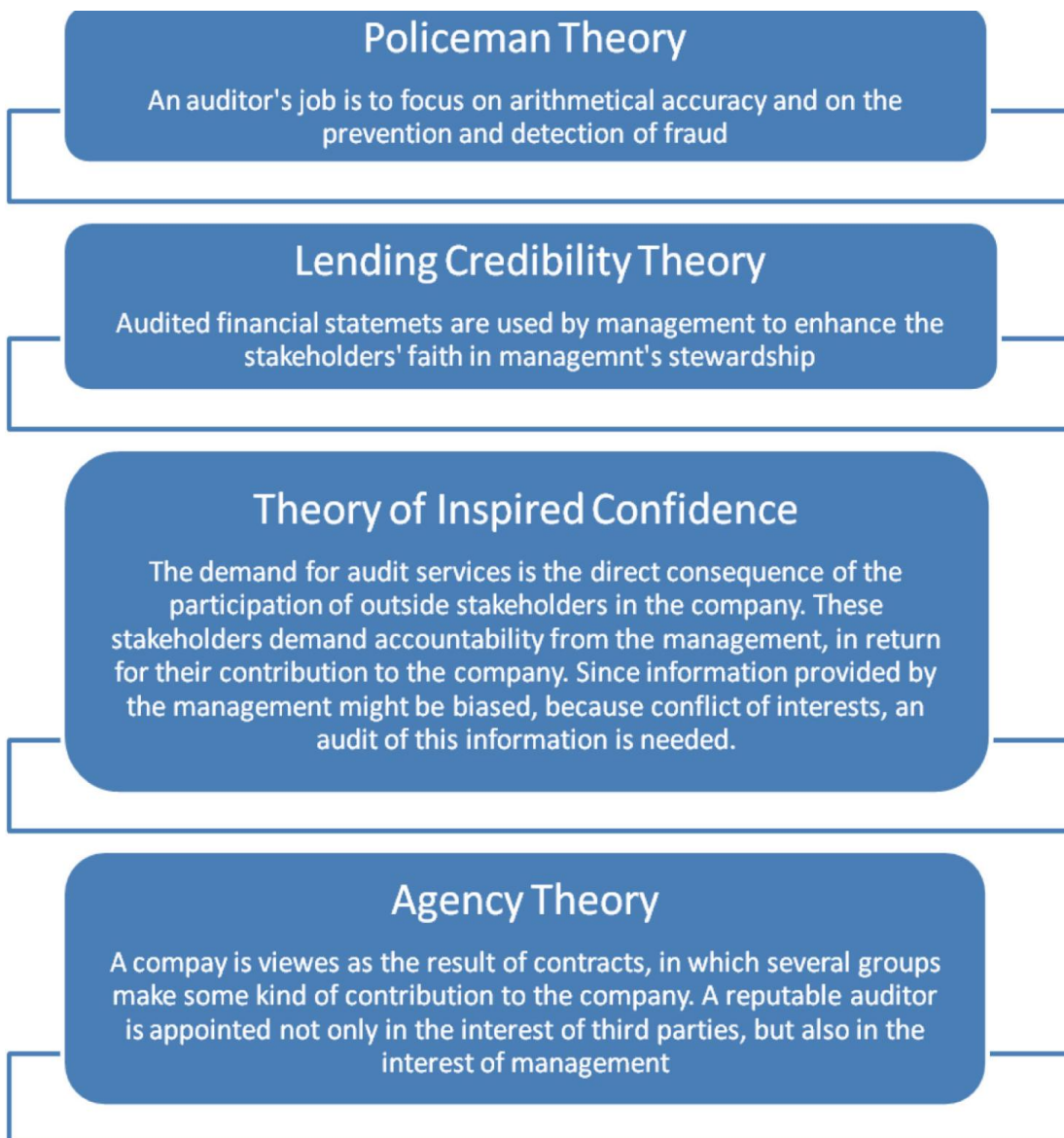


Figure 2.1* *An Illustration of Four Theories of Auditing*¹⁰¹

***Acknowledgment:** The researcher sincerely appreciates the express permission of the publishers to copy extensively from the textbook for the expansion of frontier of knowledge. Most discussions on the four theories of auditing were adapted from the publisher of *Principles of International Auditing and Assurance*, 4th Edn. Amsterdam. Amsterdam University Press. pp 30 – 32. (See Appendix D)

The owners are not ignorant of the fact that there could be conflict of interest with the managers in the running the affairs of the business and this is what prompt the appointment of another agent regarded as reputable auditors. It is this need that gives birth to the widely cited work of Watts and Zimmerman on the appointment of a reputable auditor – an auditor who is perceived will meet the expectations of interest of third parties and that of the owners of a firm¹⁰¹. A firm is seen as the outcome of more or less formal "contracts," in which many organisations contribute in some way to the company for a set "price." The management of the company works to get these contributions at the best possible terms, which include: high share prices for stockholders, low employee wages, and low interest rates from bankers. Management is viewed in these partnerships as the "agent," attempting to elicit contributions from "principals" like bankers, stockholders, and employees. In these relationships, management is seen as the "agent," trying to obtain contributions from "principals" such as bankers, stockholders and employees. Managing the consequences of agent-principal relationship is not free of cost. Monitoring expenses (the cost of overseeing the agents), bonding costs (the fees incurred by an agent to guarantee that agents will not act inadvertently against the principals), and residual loss are all associated with agency relationships (effective loss that results despite the bonding and monitoring costs incurred). Once more, company is seen as the outcome of more or less formal contracts, in which several organisations contribute in some way to the firm for a set fee. A reputable auditor is appointed not only in the interests of third parties but also in the interests of management, the government, or creditors. Based on the information they receive, these parties must make decisions, and they must have faith that this is an accurate representation of the economic value of the firm. Once again, company is viewed as the result of more or less

formal contracts, in which several groups make some kind of contribution to the company, given a certain price. A reputable auditor is appointed not only in the interest of third parties, but also in the interest of management, government, or creditors have to make their judgments based on the information they receive, they must have faith that this is a fair representation of the economic value of the firm. In audit research terms this reduces the “information asymmetry”. However, there is an efficient markets theory that holds that audited information does not form the primary basis for investors’ investment decisions.

Several types of complexities arise in these agent–principal relationships, such as information asymmetry. The agent (management) has a considerable advantage over the principals regarding information about the company. Basically, management knows more about the company’s ability to repay loans than the banker does, and it knows better than the stockholders what the actual profit is, or whether it enjoys excessive perquisite.

Furthermore, management knows better than the employees whether the company’s financial condition is such that everybody will still be employed next year. However, management needs the principals to look favorably on them, because they ultimately depend on principals for the financial structuring of the business that management supervises.

In order for the principals (who buy shares in the company, loan the company money, or work for them) to have faith in the information given by management, it must be reliable. This means that there is an incentive for both managers and outside investors to engage reputable auditors.

This appointment of agent by Principal to manage business interest and engagement of auditor by the principal to provide assurance function is depicted in the underneath figure. Despite the fact that the theory is the central theme of modern day audit engagement especially to protect the interest of management (shareholders/owners) yet it is reported that the theory fails to capture the need of all stakeholders, for instance, other stakeholders

such as regulators, who have an interest in the audit were observed not to have a simple or complete explanation of their expectation¹⁰⁸.

This appointment of agent by principal to manage business interest and engagement of auditor by the principal to provide assurance function of an audit to third parties (as depicted in figure 2) is basically determined by the probability that the auditor will detect errors in the financial statements (or other irregularities, such as fraud or illegal acts) and the

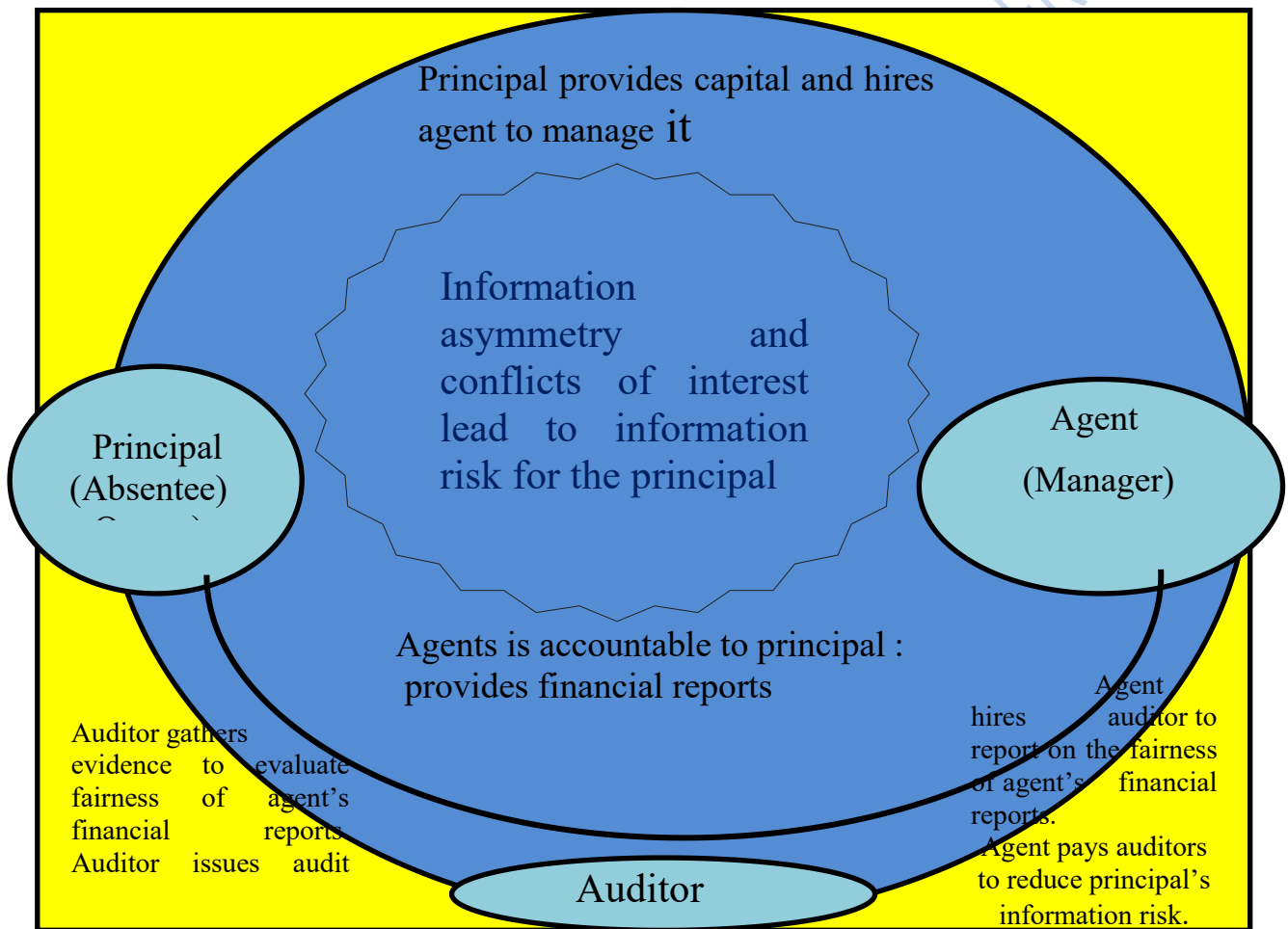


Figure 2.2 Managers-Principal –Auditor Relationship¹⁰⁹

auditor's willingness to report these errors (e.g., by qualifying the auditor's report) even against the wish of the auditee is what constitute what is as known as audit independence.

Agency theory can also be used to explain the supply side of the audit. This supply side of audit gave birth to what is now known as “Policeman Theory of Audit”. Agency theory is central to this study as it is to the whole process of auditing whether internal or external. The theory is the live wire of relationship between auditors and clients in one hand and between management and the owners of businesses. In fact, other theories of auditing are offspring of agency theory.

Agency theory can also be used to explain the supply side of the audit market. The contribution of an audit to third parties is basically determined by the probability that the auditor will detect errors in the financial statements (or other irregularities, such as fraud or illegal acts) and the auditor’s willingness to report these errors (e.g. by qualifying the auditor’s report), even against the wish of the auditee (auditor independence). This supply side of audit gave birth to what is now known as “Policeman Theory of Audit”. Agency theory is central to this study as it is to the whole process of auditing whether internal or external. The theory is the live wire of relationship between auditors and clients in one hand and between management and the owners of businesses. In fact, other theories of auditing are offspring of agency theory.

From figure three above, it is clear that agency theory provides lead to the fact that auditors or public accountants serve as agent of the owners of entities and stemming from this fact are numerous supplementary theory of auditing such as Policeman Theory

The point is: Is an auditor responsible for spotting fraud, like a policeman, as this idea mandates that they regulate the financial activity of entities? Consider this theory to be the policeman theory. It was widely believed up until the 1940s that an auditor's responsibility was to concentrate on mathematical accuracy as well as the prevention and detection of

fraud. However, the definition of auditing changed from the 1940s to the turn of the century to include the verification of the accuracy and fairness of the financial accounts. Financial statement frauds in the recent past, such those at Ahold, Xerox, Enron, Tyco, etc., similarly and in Nigeria, Cadbury Plc, Lever Brothers Plc, African Petroleum Plc all have governance or/and financial issues one time or the other. The 2008's banking industry's crises that brought changes to the managements and corporate identities to Union Bank, Intercontinental bank, Afribank (just to mention this three) were reference point to have resulted in careful reconsideration of this theory. There is now an ongoing public debate on the auditor's responsibility for detection and disclosure of fraud, returning us to the basic public perceptions on which this theory derives its "Management Knows More" – Information Asymmetry

In addition, a rational constraint arises from the division of functions; for the assurance sought, the *accountant* is required only to care for and guarantee the correctness of the financial statements, in so far as this lies within the boundaries of his expertise.

Policeman theory is found relevant to the study of automated accounting, big data analytics and external audit process as the first motive of auditing in early history is for the auditor to search for fraud and departure from this function in early nineteenth century gave birth to what is known as audit gap. For external auditor to credibly perform the near policeman functions require that auditors should be independent of a firm's management.

Agency theory did not only give birth to policeman theory of auditing it also created a new perspective into Auditors – Owners' Principal-Agency relationship between the parties and this is the expectation of potential investors and other stakeholders that expect the external auditors' unqualified reports to serve as assurance that all is well with the audited firm and

this is what is referred to as Inspired theory of confidence. This theory was propounded by Professor Theodore Limperg between 1922 and 1933 which was reported in four parts but the foundational work of the theory started with his paper for 1926 He established the fundamental guidelines for the role of the public accountant, his duties, and most importantly, his responsibilities, on which the theory and practise of the profession could be rationally based, at the Accountants' Congress^{110,101}. 'At this moment, the public accountant enters on the social scene as a private representative of the general public, especially as a private representative for the financing of production^{111, 101}. That in that function, the independence of the accountant is a condition for the effectiveness of the work of the office holder. It was then argued that:

"An unqualified view from the enterprise's staff accountant is not sufficient if the community wishes to be properly served by the function of the confidential agent." The community requests an objective view on the managers' stewardship accounts, but it seems unreasonable to expect that of someone who is working for that management and is, organizationally speaking, required to follow that manager's instruction^{111,101}.

Therefore, the auditor-confidential agent derives his general function in society from the need for expert and independent examination and the need for an expert and independent opinion based on that examination and "it is true that confidence plays a part in more or less every function in society; particularly confidence in the proper fulfillment of the function, in the honesty of the holder of the function, etc. But in relation to the function of confidential agent, the significance of the confidence is of a very special kind; it is the essence of the function itself. The function of the confidential agent arises, does it not, precisely because society has little or no confidence in the communication and the opinion

of other officials? The confidence in the effectiveness of the audit and in the opinion of the accountant thus forms the *raison d'être* of his function”^{111,101}.

When the theory is put into practise, the faith each individual accountant places in each specific function is eventually at risk, and here is where a personal aspect enters the picture. As long as the accountant's evaluation of the degree of trust he inspired over his work remains fair, he won't be held accountable. The accountant must gradually revise his estimate to take into consideration the changing demands due to the expanding community. The central tenet of Limperg's theory, however, is the assertion that the authority and social justification of the audit are dependent on the confidence that is generated, firstly, by the relationship between the public's expectations and the auditor's interpretation of his role, and, secondly, by the relationship between the confidence inspired in the public. This idea was echoed forty years later in a paper for the Cohen Commission on the role of the auditor. The two quotations that follow clearly state the Limperg argument.

The necessity for an expert and independent examination and the requirement for an expert and independent conclusion based on that examination is what gives the auditor—a secret agent—his general duty in society. The purpose of the function is grounded in society's faith in the audit's efficacy and the accountant's professional judgement. Because of this, this confidence is a requirement for the existence of that function; if it is betrayed, the function too is destroyed because it is rendered useless and this warrant the auditors to obtain sufficient and reliable information on which basis he/she forms opinion which stakeholders can rely upon.

The accountant (auditor) must do his or her duties in a way that assures he or she does not fall short of the expectations that a reasonable layperson has of him or her; on the other

hand, the accountant may not raise more expectations than are warranted by the job performed. The hypothesis anticipates that the accountant will identify the expectations he raises in each unique situation and recognise the level of trust he has inspired.

For auditing to inspire stakeholder confidence in the financial reports examined by them then the auditor must be independent of their principal and this where the strength of this theory rest in this thesis. The theory is all about the importance of auditors' independence and this in effect demand that external auditors must only be independent in mind but must be independent in fact. The major requirement lacking in internal auditor and which makes them unqualified to inspire confidence of users of accounting information that of is when there is either perceived or real lack of independence. This therefore make the theory of inspire confidence is a driving theory of auditors' independence.

“Another common misconception about agency theory in connection to auditing's main purpose is that it gives financial statements more credibility. This is what we would refer to as the Lending Credibility Theory. Management uses audited financial statements to increase stakeholders' trust in its stewardship. If decision-makers like investors, the government, or creditors must base their decisions on the information they get, they must have confidence that it accurately depicts the economic worth of the company. In terms of audit research, this lessens "information asymmetry." However, the efficient markets hypothesis asserts that investors' investment decisions are not primarily based on audited information”¹⁰¹. Public accountants that execute audit functions independently will be able to defend the veracity of financial accounts but if auditor independent is compromised in any form the auditor report will fall short of lending credibility rather it will be misleading to the various users and that was the case with Enron. This theory therefore is the anchor to

auditor's independent but if auditor independent is compromised in any form the auditor report will only fall short of lending credibility rather it will also be misleading to the various users and that was the case with Enron. This theory therefore is the anchor to auditor's independent.

Theories of inspired confidence and lending of credence are both crucial to this study as both in one way supportive for the need of auditors' independence while in another way, for auditor to inspired needed confidence in the audit reports, the quality of such audit should not be in doubt and to ensure a quality outcome of audit engagement, there is need of auditors to a obtain appropriate and reliable evidence to corroborate its findings on both compliance and substantive examination of clients' activities.

In summary, the importance of agency theory, policeman theory, inspired confidence theory and lending credibility theory to this study is in the fact that agency theory is the bedrock of external auditing while policeman theory is at the root of original purpose of audit. Theory of inspired confidence is supportive to auditors' independence. Lending credibility theory is indirectly associates to audit quality and directly related with audit evidence. It will be inappropriate to associate one of these theories as the underpinning to the study as a whole.

2.3 Review of Empirical Studies

The effects of automated accounting system, big data analytics and external audit process have been investigated severally by various scholars and series of empirical studies have been conducted for proper examination of various variables involved. However, the researcher reviews various related empirical works that covers developed and developing

countries including Nigeria conducted by other scholars from related area of study. This review is necessary to highlight previous efforts and provide constructive gap that necessitate this thesis in the direction of automated accounting, and big data analytics on external audit and intends to bridge. For clarity and flows of findings, the review is presented as a class for independent variable (Automated accounting system) and proxies with which dependent variable (External audit process: audit independence, auditors' fees, audit quality and audit evidence). In addition, the joint independent variable: Big Data Analytics is also considered on external audit process proxied with audit quality and audit evidence.

Big data analytics was not separately considered on audit independent and audit fees as the findings on these through automated accounting system will be sufficient enough to determine their implications on what should be obtainable in big data environment.

Automated Accounting System

A paper attempts to highlight the usage of information technology for auditors at different levels and positions in audit firms in Malaysia. Factors influencing the usage of information technology in the audit processes are also investigated. Questionnaires were distributed to external auditors in Klang Valley. Descriptive statistics and regression analysis were carried out to analyse the data. Telephone interviews were also conducted to support the results. The result indicates that information technology is widely used in the audit processes. Information technology is especially used to generate the audit working papers and audited financial statements and to select samples during audit processes. The results indicate that information technology is mainly used by the senior auditors and audit

managers in their organisations. The results appear to suggest that the auditors are motivated to use information technology because it helps to shorten the time of the audit process and get their job done in a more efficient manner¹¹².

To ascertain the effect that information technology has on the audit profession, an analytical research was carried out. Forty copies of the questionnaire were given to account managers and auditors in Iraqi banks. The study concludes that there is a positive impact of information technology on the auditing profession through the high degree of efficiency represented by more than (87.73 percent), which results from the analysis of the responses and opinions of the sample in relation to testing the research's hypothesis. The data collected were analysed using descriptive analysis of mean and percentage. It was determined that information technology aids in the growth of the auditing profession and helps to lessen some of the issues and bad characteristics that come with this line of work. and that information technology has an impact on the reduction of audit risk through electronic data processing and auditing, which aid auditors in lowering the possibility of audit work mistakes and raising the likelihood of discovery, which in turn results in a decrease in audit risk¹¹³.

Although the importance of computerized accounting system, there are many private companies which have not implemented this system in Tanzania. Due to non-adoption of computerized accounting system, there are incidences of accounting malpractices, delays in preparation of financial reports, misreporting of financial statements, misrepresentation of financial information which results into distorted information. At the same time, there are no study that had earlier examined the impact of computerized accounting in the financial performance in the private sector. For this reason, A study was carried out to examine the

impact of accounting information system in financial performance in selected private companies in Arusha, Tanzania. Specifically, the study adopted a description-exploratory research design. The population was generated from the number of employees working in the accounting and financial department in 10 private companies located in Arusha region. The 10 private companies were randomly selected in Arusha region. The population was 71 personnel working in the accounting and finance department. The overall sample was 61 participants. However, the questionnaire retrieved were 56 in total. The findings indicated that cost and management support are significant contributors toward the implementation of computerized accounting system for selected private companies in Arusha Tanzania. The researcher recommended that management should support the efforts to adopt computerized accounting systems to improve the overall performance of selected private companies in Tanzania¹¹⁴.

An investigation on how computerised accounting systems (CAS) affect the efficiency and effectiveness of internal audit. A sample size of 35 workers was used for the study's initial phase, which was performed at Zanko Bank. Only 30 were able to complete the surveys, though, as the others were unavailable. To guarantee that each responder had an equal chance of being chosen, the researcher first utilised stratified sampling and then random sampling. In order to analyse the data from the study and evaluate if the proposed hypothesis was valid, descriptive statistics and paired sample t-tests were utilised. The findings indicated that CAS, by accelerating transaction processing and reducing mistakes, moderately aided in the effectiveness and efficiency of audit. The results also showed that audit efficiency, substantial, and other CAS concerns do not have a major impact on the auditing process, however audit effectiveness has a considerable impact on it.

Contributions from CAS were shown to be favourably connected with audit efficiency and other factors, but adversely correlated with audit effectiveness and serious issues^{20,115}.

To determine the effect of automating financial accounting systems on the audit procedures of chosen enterprises in Nigeria, a research was conducted. The goals were to evaluate how an automated data capturing system and audit planning interact, as well as to determine how an automated data capturing system affects the collection of audit evidence. Purposive sampling was used to choose four businesses, two from the industrial sector and two from the telecommunications industry. Additionally, four audit firms that serve as these corporations' auditors were purposefully chosen. The complete staff of these businesses plus the personnel of the audit firms made up the study's population. The study made use of primary data sources. For data display and analysis, Product-Moment Coefficient Correlation and Simple Percentage were employed. The findings showed a tenuous positive correlation between the audit planning and audit evidence, as well as an automated data collection method. The research advised, among other things, that audit companies should increase the staff's ability through workshops, seminars, and retraining so that auditors can handle these kinds of operations with a high level of professionalism and competency. Additionally, it stressed the importance of educating management at all levels of businesses about the dangers connected with automated accounting systems and how to effectively handle them during auditing efforts. It also suggested that management of various firms always be informed about the hazards connected with automated accounting systems and how to handle them during an audit⁹.

The emergence of artificial intelligence: How automation is changing auditing was qualitatively discussed and the study submits that KPMG is adopting IBM'S Watson to

apply to varieties of audit process and that Watson offers a wide range of application programme interfaces (APIs) for tasks like document entity extraction and facial recognition. Additionally, it has been revealed that Deloitte collaborated with the vendor Kira Systems to do document reviews and extract the pertinent words from contracts, leases, employment agreements, invoices, and other legal documents. The integration and structuring of data using machine learning technologies is another area of research for Deloitte. In a similar vein, EY concentrated on big data and analytics in audits, focusing on "delivering audit analytics by processing massive client datasets within our environment, integrating analytics into our audit methodology, and getting firms comfortable with the future of audit." The analysis reveals that the job of auditors is not threatened in any sense but the advent of technologies will require paradigm shift in training of future public accountants¹¹⁶.

A study clarified the determinants faced by the external auditor during the process of auditing different electronic accounting information systems, at which the study included units, IT departments, administration, finance and accounting departments in banks operating in Jordan, which are (19) Banks, which represented the community and the sample of the study; the study has considered the views of a group of managers, employees and workers in the units of information security or accounting business in general. The study's analysis of the results from the practical side and use of the statistical programme SPSS revealed issues and barriers that the auditor must overcome before auditing computerised accounting information systems, such as determining the feasibility of dealing with key issues like conditions of uncertainty, how to identify those conditions, and what to do in case they arise (incidence of threat).

The study makes a number of recommendations, the most crucial of which are to increase the auditing procedures required to evaluate outdated computers, try to determine whether using them in computerised information systems is feasible, and determine the value of the data or information itself depending on the level of sensitivity of the information of the company, with the need for the auditor to prepare a preliminary report on control risk to ensure that the risks of various forms of audits, as well as the financial accounts or set of activities, and work to minimise them as much as possible¹¹⁷.

A particular study investigated the impact of a computerised accounting system on external audit functions. To achieve its purpose, research questions were raised, hypothesis was formulated and a review of related literature was made. The population consist of one hundred and eighty four (184) out of which one hundred and twenty six were (126) audit firms in Asaba, Delta State in Nigeria. The stated hypothesis was tested with the t-test. The finding of the study reveals that auditor/s knowledge of computer system enhances his effectiveness in audit of a computerised accounting system. It was therefore concluded that to enhance the effectiveness of external audit functions in a computerised accounting system that the future auditors must have adequate computer training and that a proper study of systems should be executed prior to the adoption of computerisation project¹¹⁸.

An article examined the use of computer technology by the UK accounting profession. The first part of the paper examines the nature of the accounting environment and identifies a number of reasons why accounting automation should be an issue of general concern. A particular accounting task, auditing, is examined in detail to illustrate some of the factors affecting accounting automation. The second part of the paper reports the findings of an

empirical examination of computerisation amongst a number of different accounting groups with different working environments. Practitioners' views on several factors constraining further technological innovation, and on factors motivating innovation, are analysed and examined. It was concluded that domain characteristics, historical factors and skill availability are amongst the most significant variables influencing automation¹.

Big Data and Big Data Analytics

Emergence of big data and data analytics in both accounting and auditing is as a consequence of application of information technology, data analytics wouldn't have been relevant in the absence of automation and the presence of big data. There are few studies into the application of big data into accounting and auditing and these few were more conceptual than empirical. Among the existing studies are the following reviews |

A research was conducted on blockchain and it was found that it makes possible generation of accounting real-time data such as the continuing updates on payments and inventory records. Their argument states that the blockchain can serve as the authenticator between transactions and the relevant accounting entries, this increase the difficulty of making misstatement in the financial statement and its manipulations and this in effect can better serve statutory auditor generation of evidence in automated accounting system¹¹⁹. The blockchain application will only thrive in a big data environment.

Similar to the above is a study on artificial intelligence (AI) and it reveals the rapidity with which it is bringing change to the way financial institutions are operated and this change is expected to take over the core aspects of the accounting industry. The accounting profession has changed its focus from paper and pencil era to software and computer era.

The aim of the study was to examine the impact of artificial intelligence on the accounting industry and the level of advancement of the accounting industry in automating the accounting process. Understanding artificial intelligence, robotic process automation, and how modern accountants may adjust to automation in the accounting sector is also important¹²⁰. The study was more of concept though it is related to automation of accounting system but its attention was not on the implication of automation on the external audit process. It is purely archival in method.

Among the recent studies, a research looked at the pressing need for the external auditor to use sophisticated analytics and the necessity for the audit profession to develop toward big data and data analytics since these areas provide virtually endless prospects. The study does not empirically support the opinions offered, but rather adds to the body of literature by addressing these new issues and opening up new avenues for further investigation⁷⁸.

In a report that examined this topic, it was discovered that big data methods are not as frequently used in auditing as they are in other related fields. It was discovered that audit is using less effective big data methodologies than the other research streams. The study identified potential future uses for auditing in relation to real-time data, collaborative platforms, and peer-to-peer marketplaces²³. This study only provides normative accounts of BDA just as majority of study on big data.

Another study that was conducted to investigate auditor's perceptions of and competencies in big data and data analytics within Saudi Arabia environment. A survey of literature was carried out of which questionnaire was generated and distributed to Saudi organisation for Certified Public Accountants website. In addition, social media platforms such as twitter, LinkedIn and Whatsapp were used for the distribution of questionnaire. 52 questionnaires

were returned out of which one was not found suitable for analysis. The study found that surveyed auditors were well aware of the influence on and the necessity of big data analytics in audit process. In addition, the study found the needs for further training to acquire require skills in data analytics software and programme language²⁰.

This study though an empirical one yet the focus was on awareness and training need of auditors in the era of big data and big data analytics where this thesis intended to examine the place of audit evidence and audit quality in this era of big data using data analytics tools in audit process.

An exploratory study was conducted on big data and the social relevance of auditing. A semi-structure interview was conducted to obtain necessary data from 27 individual addressing the BDA audit field. According to the findings, audit companies are promoting BDA by employing a variety of discursive techniques, either to increase public confidence in auditors' dedication to audit quality or to provide value to their clients. In order to demonstrate that BDA solves issues related to audit quality, audit companies make use of teleological, ontological, historical, and value-based arguments. On the other hand, audit companies employ cosmological and value-added arguments to demonstrate that BDA might increase their customers' operational efficiency. However, the organisations encounter difficulties when it comes to data security problems, a lack of knowledge of what BD means, and when BDA should be utilised in an audit. Additionally, audit companies utilise discursive methods to "earn hearts and minds" of auditors at all levels of the hierarchy inside organisations in order to incorporate BDA. The study is an exploratory in nature and did not involve an in depth study of the implication of BDA on audit quality or audit evidence that the present study intend to examine²².

A study centered on the motivation to use big data and big data analytics in external auditing was carried out and a two motivating factors ere established which company related and institutional are and the circumstances that could call for the usage. The research said that it contributed to methodology by utilising constructivist grounded theory for the analysis of qualitative data⁹².

Big data, Data analytics and external auditing was studied and the study reasoned that BD and BDA creates opportunities and challenges and implications for external auditing procedure and reasoned that auditor need to develop new skills and competence and educational organizations need to change their educational programs in other to be able to correspond to new market needs⁹⁴.

The goal of a study was to create accounting standards, curricula, and research to deal with the big data industry's rapid expansion. The paper identifies a number of areas where big data and various accounting methods and philosophies may merge. In the paper, six accounting issues—financial reporting, performance assessment, audit evidence, risk management, corporate budgeting, and activity-based techniques—are discussed along with how big data might overcome data constraints. It offers six intriguing research questions for further studies. The paper then discusses how agency theory, stakeholder theory, and legitimacy theory could all converge in relation to big data. By examining the literature, putting out fresh concepts, and raising new research questions, this theoretical study establishes novel convergence points between big data and accounting. On the premise that data is the core of accounting, the result suggests a considerable convergence between big data and accounting. The data constraints of accounting procedures that depend on estimates and projections might be addressed by big data and advanced analytics.

Three accounting theories and big data are suggested to have a striking confluence. In general, the study offers the accounting and auditing community useful information about the possibilities of big data¹²¹. The study was basically conceptual in approach and did not provide empirical support for the submissions in its findings.

A study was conducted on using big data analytics for accounting and auditing business insight. The study looked at how customer interactions between auditors and accountants are evolving as a result of machine learning tools, data analytics, and data visualisation software. The use of machine learning software tools by audit companies to read contracts, analyse journal entries, and aid in fraud detection was reported. Both accountants and auditors use predictive analytical techniques in data analytics to produce estimations and estimates and to improve business intelligence (BI). Predictive analytics may be complemented with data visualisation tools to assist users find trends in the business process. Therefore, it is expected that technical advancements in these many domains would quicken in the years to come. Therefore, it is crucial that auditors and accountants take advantage of these technology improvements and use these tools¹²². This study is also qualitative driven.

Auditors' Independence

A study on "A current evaluation of independence as a foundational element of the auditing profession in the United State. Although the notion of independence is theoretically alluring, the research claims that it is rife with practical issues. The necessity for auditor independence was discussed, along with the ramifications and difficulties it may have for one or more of the parties engaged in the financial reporting process. The study finds that expanded transparency concerning risks to and protections for auditor independence, as

well as increased audit committee duties for maintaining auditor independence, are deserving of further discussion and debate as a means of resolving the auditor independence issue¹²³.

An investigation was conducted into the determinants of auditors' independence as perceived by practicing auditors and non auditor's executives in Lagos, Nigeria. The study employed survey design and a total of seventy nine (79) and one hundred and twenty seven (127) structured questionnaires were retrieved from auditor and non-auditor professionals respectively. The questionnaire was subjected to internal consistency test using Cronbach's test and it was found to have alpha coefficient of 0.70. ANOVA was used to analyse the data, and it was discovered that the main factors affecting the perception of independence are economic dependency on customers, the supply of non-audit services (NAS) to clients, and competitiveness in the audit market. The danger of retaliation against the auditor and lower audit fees as a percentage of the firm's overall income were also discovered to be seen as enhancing independence¹²⁴.

A study on auditor independence and audit quality of insurance companies listed on the Nigerian Stock Exchange was conducted using secondary data sourced for period 2013 to 2016 from twenty four (24) annual financial statements of (24) insurance companies selected with the sample size which was determined with the application of Taro Yamene formulas. Data were subjected to both descriptive (Mean and SD) among others and inferential analysis with the aid of correlation and panel regression. The results of the study indicate that there is a substantial inverse association between the duration of an audit firm and the quality of the audit, as well as a positive but negligible relationship between the duration of an audit firm and the quality of the audit. Further research indicated a

substantial correlation between audit quality and firm size. The report suggests that corporations encourage regular auditor rotation and that regulatory agencies start enforcing the proposed three-year professional audit tenure rule¹²⁵.

Another study examined the elements that affected the independence of external auditors in Kenya. Data for the study was gathered using a questionnaire and a cross-sectional descriptive methodology. Both descriptive and inferential analyses were done on the collected data. Regression analysis was employed to assess the study's hypotheses, whereas descriptive analysis focused on averages and standard deviation (SD). According to the study's findings, there is a significant negative relationship between the length of an audit company and the quality of the audit as well as a slightly positive but insignificant link between these two variables. It was further found that there was no significant relationship between audit committee and audit independence. Also, there was a weak relationship between firm size and audit independence. It recommends the need for the Institute of Certified Public Accountants of Kenya (ICPAK) to develop a policy that will guide audit tenure and audit committee¹²⁶.

In the study of factors affecting the independence of auditors employed questionnaire drawn on five point Likert scales which was subjected to reliability on Cronbach test with resulting alpha coefficient of 0.911. Data collected was analysed descriptively on mean and standard deviation. The study found that advance knowledge of audit fee contribute to objectivity and impartiality audit of financial statements and that auditors' expression of opinion in accordance to standard have positive impact on audit independence¹²⁷.

A relatively recent study considered the perceived ineffectiveness of applicable regulations at its best promotes susceptibility of statutory auditors to compromise independence.

Unlike most of the existing studies, this study investigated auditor independence regulations in Nigeria with a view to appraising their effectiveness in promoting independence of audit practitioners. Survey research methodology was adopted to collect relevant data from practitioners using structured questionnaire. Collected data were subjected to descriptive analysis while inferential analysis was also employed with the aid of Relative Importance/Significance Index (RII) and Mean Index Score (MIS) to test the study's formulated hypothesis. The study found that most effective auditor independence regulation as perceived by the experts was restriction on advertising, independent review by peers and rotation of audit partners were considered to be ineffective among others. The focus of the study was not on the implication of automated accounting system to the variables considered rather the study still follow the traditional perception of audit independence¹²⁸.

A study on a review of literature related to auditor independence. It reviews whether the size of audit firm, the size of audit fees, the auditor's duration with the client, competition among other firms and the availability of non-audit services will compromise auditor independence. It was found that top determinant of auditor independence was not clear. It is therefore concluded that it is evident that independence remains a going concern when discovering how reliable and credible financial statements are to investors¹²⁹.

Users of financial statements always rely on the results of audits conducted by competent and independent auditors because the audits are carried out through quality processes and efforts. Competent and independent auditors are needed to obtain quality audit results. Because most modern information systems use information technology, the information technology audits become an important component in all

external and internal audits. This study aims to examine the effect of auditor's competence and auditor's independence on the information systems audit quality. The research sample used in this study is external auditors working in public accounting firms in West Java. The statistical test instrument used is a multiple regression test. The results show that the auditor's competence has an effect on information systems audit quality, while the auditor's independence has no effect on information systems audit quality. This singular study recognises the connection that may exist between auditor's independence in one hand and in another between technology and auditor's competence. While this is almost the focus of this thesis except that the study weigh audit independence and audit competencies against information system audit quality¹³⁰.

The study on a theoretical approach to auditor independence and audit quality reveals that regulators, institutional investors, and stakeholders are becoming increasingly concerned about auditor independence and the quality of the audit report as a number of accounting scandals have damaged auditors' credibility. The study's findings gave rise to an understanding of how auditor independence improves audit quality, how abnormal audit fees result from the auditor having to exert more effort to complete a rigorous audit engagement because the audit scope has been widened, how mandatory audit firm rotation will increase auditor independence, and how an audit committee with non-executive independence will promote audit quality.. The study also reveals that smaller audit companies that are members of professional bodies would offer superior audit quality in terms of auditor size. The key finding of this study was that audit quality will be improved when an auditor conducts an audit with complete independence and strong resistance to fee pressure. This study sheds light on how the introduction of IFRS would affect audit fees¹³¹.

A study with intent to extend literature on the effect of board characteristics and ownership structure on audit fees; these factors affect the firm's agency costs and how the auditor assesses various risks, hence the audit efforts and fees was conducted. The paper introduces political connections as a determinant of audit fees for the first time in Jordan, where the political connection is prevalent and affects decision making on the Jordanian boards. The sample consists of 109 manufacturing and service firms listed on the Amman Stock Exchange (ASE) over the years 2012-2019. Data was obtained from the ASE and the company's annual reports. Board characteristics are measured by board size, independence, leadership duality, meetings frequency, political connections, and audit committee. Ownership structure was measured by concentration, foreign ownership, and institutional ownership. The study hypotheses were tested by using Generalized Least Squares regression. The Findings showed that larger boards, politically connected firms, and firms with leadership duality are more likely to pay higher fees. Besides, Firms with greater foreign ownership pay less fees, whereas the rest of the variables are insignificant. Results suggest that political connections play a major role in determining audit fees; this provides a recommendation to policymakers in Jordan to reconsider regulations regarding political connections¹³².

The impact of firm size, profitability, risk, complexity, and independent audit committee on audit fees was specifically investigated in a research. 136 manufacturing businesses that were listed between 2014 and 2016 on the Indonesia Stock Exchange. To test the theory, multiple regression analysis was utilised. According to the study's findings, audit fees are positively influenced by a company's size, profitability, and complexity. There is no

correlation between company risk and the existence of an independent audit committee and audit fees¹³⁵.

This study examined the impact of the independence of statutory auditor on the reliability of financial statements of the manufacturing companies in Nigeria. The study adopted a survey research design, using data collected from a structured online questionnaires administered to the shareholders of listed companies in Nigeria. The population of the study comprised all shareholders in Nigerian listed companies, 150 structured questionnaires were randomly distributed from which 137 were retrieved from the respondents. The gathered data were analyzed using descriptive and inferential statistics. For unwavering quality, the Cronbach alpha was utilized to test the dependability of the instrument. The paper found that independence of statutory auditors had a positive significant effect on reliability of financial statements (RFS) ($F= 9.018$, $Adj. R^2 = 0.191$, $p < 0.05$). Also that Non-financial interest (NFI) had a positive insignificant effect on RFS, $AdjR^2 = 0.195$; $F\text{-Stat.} = 9.255$; $P = 0.000$. Audit tenure (AT) also had a positive significant effect on RFS, $AdjR^2 = 0.078$; $F\text{-Stat.} = 3.877$; $P\text{-value} = 0.005$. While Non-audit services (NAS) exhibited a positive significant effect on RFS, $AdjR^2 = 0.118$; $F\text{-Stat.} = 5.568$; $P\text{-value} = 0.000$. Based on the findings, the study recommended that audit firms should regulate the number and length of non-audit services rendered to companies they serve as external auditor and also undergo a frequent review on financial statements where their clients have interest in order to reduce self-review and self-interest threat¹³¹.

The need to ensure trustworthy and high-quality audit work has largely focused on the independence of auditors to ensure that an auditor is not overly familiar with his client. If

an auditor is overly familiar with his client, it will jeopardise their integrity and, in turn, impair their ability to form an independent opinion. The study's goal was to investigate the impact of auditor independence on the audit quality of a few Nigerian deposit money institutions. Twenty (20) Nigerian listed deposit money banks made up the study's sample. The sample size of seven (7) banks was determined using the deliberate sampling approach. Data from the audited annual report of the sample banks were utilised as secondary data. Ordinary least square (OLS) regression, correlation, and descriptive statistics were the data analytic methods used in this study. According to the study, audit fee, audit firm rotation, and audit quality are all positively correlated. The length of an audit firm's stay and the quality of the audit has a negative connection. Leverage and audit quality are strongly correlated, negatively correlated, and statistically significant. Strong, favourable, and statistically significant correlations have been found between audit quality and firm size. According to the report, numerous steps should be taken to solve the problems that might endanger auditors in order to improve their independence. The measures will consist of, but not be limited to, reasonable audit fees, a decrease in the term of auditors, and frequent rotation of auditors¹³⁵.

To ascertain how the elements affected independence, a study of the literature on auditor independence and its influencing factors was conducted. A desk system of research design was used for the study, and secondary sources such journals, books, and online content were used to gather the data. According to the review's findings, non-audit services, audit tenure, the significance of the client, and auditor-client relationships pose the greatest dangers to auditor independence. When determining how accurate and reliable investor financial statements are, independence continues to be a concern. Although the

independent auditor's impartiality was not clearly the key component, other researchers valued it high since they thought they were the ones who decided to conduct the experiment¹³⁶.

A literature review on auditor independence and non-audit services was carried out at the request of the Institute of the Chartered Accountant in England and Wales (ICAEW), and the findings showed that the majority of perception studies either investigate a very small number of crucial generic threat factors combined in experimental "case studies" or exclusively focus on actual or proposed ethical rules one-by-one. While the bulk of research demonstrate that NAS provision reduces respondents' views of their independence for at least a considerable fraction of them, some studies show that decisions might remain unaltered even when respondents' independence perceptions are severely affected.. Non-response bias and demand effects are dangers that these research face. The introduction of disclosures regarding NAS provision by auditors does not significantly alter NAS purchase decisions (the decision feedback loop) or cause negative share price reactions, according to related literature. In settings where joint provision occurs, actual auditor independence tends to increase as they become more critical when faced with the threat of self-review and increase their effort generally (which represent the perceptions of investors in the aggregate). What is evident from this analysis of the non-audit services literature is that academic studies have had a very difficult time addressing the main research question of interest, which is "Does the combined supply of non-audit services improve or undermine the quality of non-audit services?" There are two basic causes for this challenge. First, since independence in reality cannot be seen, proxy measures—sometimes with dubious validity—have been employed. Second, there haven't been pertinent publically accessible

data. For instance, even though the NAS fee's total is made public, the breakdown among service categories is not. The audit companies themselves seldom ever release any information about the various business divisions. The idea that joint provision really undermines independence has very little obvious support when taking into account all of the academic research that are currently accessible (both theoretical and empirical). However, there is a general understanding that joint provision has a negative impact on how people see auditor independence²⁹.

Audit Quality

A study looked at the factors that affect audit quality in a sample of Nigerian deposit money institutions. To collect data for the study, a survey research approach was used and a questionnaire was distributed to 120 arbitrarily chosen auditors. The study's primary data source was used. To accomplish the stated goal of the article, logit regression was utilised with both descriptive and inferential statistics. The study's findings showed that there were factors that affected the quality of auditor reports in Nigerian DMBs. It was determined that the independence of the auditor, audit fees, the auditor's professional expertise, and compliance with legislative requirements were factors in the quality of the audit report. The study suggested that in order to improve the caliber of their report, auditors should zealously guard their independence¹³⁷.

A research study seeks to provide a thorough exposition of the elements that influence how well external auditors do their jobs for Iraqi audit firms and businesses. The significance of external auditing originates from its objectivity in working to boost the level of

trustworthiness of the reports by performing high-quality audits to deliver the necessary information. The study also emphasises the significance of the auditor's performance quality. An analytical examination of the opinions of auditors working in Iraqi audit firms and corporations is part of the research's empirical field dimension, which is connected to identifying the variables influencing the quality of external auditor performance. Offices and businesses functioning in Iraq, which serve as the study's population, in order to accomplish the study's goals and validate its assumptions. All participants in the research majored in accounting and auditing in order to get accurate results that accurately represent the audit work performed by the audit offices in Iraq. In terms of statistical methodologies, the researcher has selected two proven techniques that are appropriate for the researcher's empirical findings. The Five-Point Likert Scale and SPSS were the methodologies used. The research came to a number of conclusions, the most significant of which is that "External auditing has to play a stronger role." The study came to some significant conclusions and made some key recommendations, the most crucial of which is that audit offices must adhere to the quality control system (peer review) and maintain total independence from the client, increasing the confidence that all parties dealing with the economic unit have in the auditor's report¹³⁸.

A study evaluates the effect of using computer on audit quality. The study used questionnaire drawn on seven (7) grades Likert Scale and distributed to a whole population of one hundred and nine (109) in small, medium and large sized firms. Data collected were analysed using both descriptive and inferential statistics. Pearson Correlation Coefficient was used to test study formulated hypotheses. The study found that audit software is weakly in respect of audit quality in small enterprises, it has appropriate effectiveness in

medium and large enterprises. It also revealed that there is a direct relationship between the audited firm size and effectiveness of computer audit on audit quality. The study concluded that the use of audit software in the audit operation of small, medium and large enterprises promotes audit quality¹³⁹.

In a study, 141 AAERs and 153 securities class action cases spanning the violation years 1978–2016 were identified, out of which 45 specific charges about audit flaws based on GAAS are documented. These accusations were then used to support widely utilised substitutes for audit quality. It was discovered that restatements reliably predict each of the top six most often identified audit flaws out of all the audit quality proxies. Five of the most common problems are predicted by the audit fees to total fees ratio and the existence of a municipal specialised auditor. Overall, the findings imply that in the settings that researchers are interested in and (ii) the specific audit flaws predicted to matter in the examined environment determine the predictive value of audit quality proxies. Future research on auditor independence, for instance, may take into account employing restatements and the proportion of audit fees to total fees as indicators of audit quality¹⁴⁰.

The goal of the study was to determine the relationship between the calibre of services rendered by financial auditors and its determinants, among which the auditors' initial and ongoing training holds a significant position as long as obtaining a sufficient level of education and professional training is a requirement for their authorization. It has been considered that the goals of public interest organisations have become more universal and that managing the ethical and professional problems that auditors face is getting more and more challenging.. In an effort to address the current challenges faced by financial auditors (increasing regulations, changes in financial and non-financial reporting, technological

advancements, and an increase in business complexity), it has set out from the initial and ongoing education and training requirements suggested by the International Education Standards Board. The information obtained has also been corroborated with the findings of other studies. A qualitative study was conducted to explore the researchers' concerns about the audit quality and determine the most effective approaches to address them. Financial auditor organisations and statutory audit oversight bodies can use the study to direct continuous professional development, and financial auditors and audit companies can use it to better organise their work to improve the quality of the services they provide¹⁴¹.

The impacts of audit tenure, familiarity, and trust on auditee whistle blowing were examined in a study, and it was shown that mandated audit firm rotation has been studied for decades with both support and criticism. Mandatory auditor rotation has primarily been studied at the company macro level. It was argued that the length of the client relationship is determined by the tenure of the firm and the consistency of the audit team, or auditor familiarity. Increased tenure has been demonstrated to promote trust on an intra-organizational, interpersonal, and individual level. Additionally, trust is positively correlated with employee voice, such as raising concerns about fraud (whistle blowing). An experimental investigation of whether longer audit firm employment and familiarity with auditors build trust, which increases the readiness to come forward with information. The study discovered data that implies auditor familiarity increases trust, which in turn improves an employee's intents to make a whistleblower disclosure in a favourable way. The importance of include auditor familiarity as a component in future research on obligatory audit firm rotation is one key consequence of this for the profession¹⁴².

The study which goal is to analyse how external auditors may approve or restrict a company's profits management methods in institutional contexts where there are no incentives for auditors to produce good audit quality. Signed discretionary and performance-adjusted discretionary accruals were used as stand-ins for earnings management, while the size of the audit firm (Big 4 vs. Non-Big 4) and the nature of the audit opinion (Qualified vs. Unqualified) were utilised as indicators of the audit's quality. The study reveals that there is statistically no significant difference between the earnings management practises of businesses audited by the Big 4 and non-Big 4 auditors using a sample of 183 firms listed on the Karachi Stock Exchange, Pakistan, during the five years from 2009 to 2013. Because of the earnings management efforts, an audit opinion is not being produced by firms and that Big 4 auditors do not mitigate the relationship between family company dominance and earnings management provide more evidence in favour of the entrenchment theory. Auditors tend to act opportunistically, which compromises their independence and objectivity. A small audit market combined with no litigation risk, strong economic ties between auditors and their clients, low investor protection, weak enforcement mechanisms, and firm dominance by powerful family groups all contribute to this behaviour. It concludes that regulators should strengthen enforcement mechanism and develop rules and regulations that constrain earnings management behaviour of firms and provide incentive to auditors to deliver higher quality¹⁴³.

This research looks at how quality inspectors for the UK's Audit Quality Review perceive the components and factors that influence audit quality. Quality inspectors were given a survey questionnaire with low "client service quality" and high "performance of the audit process" as pertinent qualities for audit quality. It is believed that a variety of internal

variables, including relational, technological, and behavioural ones, might have an impact on audit engagements and perhaps lead to differences in audit quality between audits. Additional considered major contextual aspects in the auditing environment impacting audit quality include audit regulation and audit market rivalry. The degree of audit quality in practise, according to the perceptions of half of the quality inspectors, differs among audit engagements. The majority cited the external auditors' lack of dispute and the sufficiency of the evidence and documentation as two significant problems that come up repeatedly throughout inspections. By gathering quality inspectors' opinions on a wider range of audit quality factors and features that haven't been previously researched in this field, this study broadens the scope of earlier research. The findings have implications for regulators and audit practitioners in monitoring and promoting audit quality in practice¹⁴⁴.

A study carried out in Jordan which aimed was to establish the link between audit quality and the quality of accounting information and the moderating impact of information technology. Jordanians' perception as auditors In order to do that, the researcher created a 47-item questionnaire that was issued to 190 questionnaires. Only 161 of those disseminated questionnaires were returned. Nine of these questions were disqualified due to their invalidity, leaving 152 with an 80% response rate. To determine how information technology affected the link between audit quality and the quality of accounting information, the data was analysed using SPSS. "Auditors' perception in Jordan." Analyses were conducted using multiple regression analysis. The study discovered that information technology had a moderating influence on the link between audit quality and the accuracy of accounting information (audit firm size, audit fees, interaction with foreign auditing

offices, and conformity with international auditing standards) (relevance and faithful representation)¹⁴⁵

The study aims to investigate the attribute of audit quality in Indonesia by considering input from groups of auditors, audit clients and external statement users. Beside the facts of the important to consider the issue from different groups of stakeholders such as audit committee chairpersons and loan officers, there have been very few published empirical studies of perceived audit quality in Indonesia from those groups' perspective. This study attempts to address the gap by identifying the main attributes that enter into the determination of audit quality in Indonesia based on the perspective of different groups of auditors, clients and external users. Survey questionnaire were sent to a random sample of the three groups. The result shows that there is significant difference perception between the groups⁵³.

A study whose goal was to document the findings of audit firm quality variances in a developing nation. The authors analyse the notion that the Big 4 major audit firms and the small and midsize practises have significantly different audit quality standards (SMPs). First, the authors construct scales for evaluating perceived audit quality in the financial services industry using qualitative information gathered from 106 audit professionals, 31 credit analysts, and 13 board members. The 13 interviews that were transcribed are analysed by the authors using NVivo, and they apply "cross-case analysis" to see the dimensions and scales of audit. The authors then use quantitative data gathered from 183 board members and senior executives in the financial services industry to run a Mann-Whitney U test to see whether there are any differences in perceived audit quality between

audit firms. The authors draw the conclusion that Big 4 audit firms, based on these metrics, ensure more compliance with accounting standards, legislation, and other regulatory requirements than SMPs. The results suggest that audit quality is a multi-dimensional concept made up of degrees of discretionary accruals, compliance of audited accounts with laws and regulations, and audit fees. However, when the three audit quality factors are combined, there are no discernible differences in the audit quality levels across the Big 4 firms and SMPs. Limitations/implications of the research. The ability of audit firms to limit discretionary accruals, to produce audited accounts that are compliant with applicable laws and regulations, and to examine the fees they charge in relation to the quality of service, rather than on their size, should all be taken into consideration when choosing and keeping an auditor. The audit conducted by The Big 4 audit firms corresponds to the most fundamental level of auditing, which only, in practise, calls for a minimal amount of judgement on the part of those doing the audit. The findings of this study also imply that the Big 4 audit firms may need to comply with accounting standards, law, and other regulatory obligations . For the Big 4, it could be beneficial and other audit companies to begin higher level auditing projects that need for higher level judgement. The tendency of auditing companies to conduct higher level judgement audits may be examined in future study⁴⁰.

This study's goal was to assess the link between audit firm reputation and audit quality using a sample of 35 listed businesses active on the Nigerian Stock Exchange's trading floor. The link between the reputation of the audit firm and audit quality was examined using information gathered from the financial statements of the firms. This relationship was examined using the Ordinary Least Square Model estimate approach. The results

demonstrate a substantial positive association between audit quality and audit firm reputation. The control factors that were looked at in addition to audit firm reputation showed that audit quality is substantially correlated with the audit committee and business size. Therefore, it was advised that businesses use the services of audit organisations with a solid track record of quality and reputation¹⁴⁷.

A study's goal was to examine how views of audit quality have changed in the UK throughout a period of major environmental change. Considered are the opinions of three audit stakeholder groups: investors (n=74 and 111), auditees (n=75 and 121), and auditors (n=109 and 183). The study compares findings from a dataset compiled in February 2002—the same month that the Enron/Andersen scandal broke—to survey data obtained in February 2005. There are three topics covered. Prior to anything else, scale scores' construct validity is evaluated. The measurement equivalency between the three groups is then taken into account. Third, a comparison of group differences and differences related to administration time is made. The findings show that four higher order factors—competence, independence, connection, and service qualities—define audit quality. Measurement equivalence was revealed by confirmatory factor analyses for groups chosen from the three samples and the two time periods. Contrary to predictions, the competence, connection, and independence "technical" audit elements' mean scores decreased from 2002 to 2005. As anticipated, there was no change in the mean ratings for service attributes throughout the course of the time¹⁴⁸.

Audit quality and auditor reputation: Evidence from Japan was the subject of research. The focus of the investigation was the circumstances surrounding ChuoAoyama's unsuccessful

audit of Kanebo, a significant Japanese cosmetics firm whose management committed a significant accounting fraud. One of the "Big Four" audit companies in Japan and a subsidiary of PwC was ChuoAoyama. ChuoAoyama was given a two-month suspension by the Japanese Financial Services Agency (FSA) in May 2006 as retribution for its involvement in the accounting scam at Kanebo. This exceptional measure came after a series of mishaps that severely tarnished ChuoAoyama's reputation for audit quality. These were employed by the research to offer proof of the significance of auditors' reputations for audit quality in an environment where litigation plays a negligible part. According to the importance of auditors' reputations for providing quality, nearly a quarter of ChuoAoyama's audit clients left the business as concerns about the audit quality grew more prominent. ChuoAoyama's exit rates were higher for larger companies and those with more potential for expansion, indicating that these companies place a higher priority on audit quality¹⁴⁹.

The majority of commercial businesses have automated their accounting processes. The quality of audit reports is favourably correlated with the usage of Computer Assisted Audit Techniques (CAATs), according to the body of existing literature. In industrialised nations, CAATs are frequently used to audit financial accounts. However, there is a gap in the body of knowledge about the audit of computerised accounting in underdeveloped nations. In order to answer the questions "Do auditors audit computerised accounts effectively?" and "Is there a positive association between the usage of CAATs and audit quality?" we take a sample from Nigeria. We offer evidence that: (1) CAATs are successfully employed; (2) there is a positive link between the usage of CAATS and audit quality; and (3) the use of CAATS is associated with higher audit quality and (3) Nigerian local businesses are

ineffective at using CAATs, which results in the production of poor-quality audit reports, in a sample that does not include the major 4 international audit firms¹⁵⁰.

A study was conducted on Auditor Groups and Audit Quality: Evidence from China and audit reports in China record the names of two signing auditors. Through co-signed audit reports, it was observed that auditor groups within large Chinese accounting firms. The study finds that these auditor groups are very stable over time. They act like autonomous units within accounting firms. They control clients, appoint signing auditors, and conduct audits. It was conjectured that there is a post-merger integration problem in these large Chinese accounting firms and audit quality is not uniform across different sizes of auditor groups. Based on the auditing literature, an hypothesis was formulated that large auditor groups are more likely to issue qualified audit opinions, and hence provide higher quality audits. The empirical results are consistent with the prediction. The results show that accounting firms in China have become bigger but not stronger¹⁵¹.

A study on the relationship between auditor size and audit quality found that regulators and small audit firms had claimed that audit firm size had no bearing on audit quality and should therefore not be taken into account when choosing an auditor. However, the study also found that, in contrast to these claims, audit quality is not independent of audit firm size, even when auditors initially have the same technological capabilities. Particularly when incumbent auditors receive client-specific quasi-rents, auditors with a larger client base have "more to lose" by neglecting to report a breach in that client's data that is identified. The quality of the audits that bigger audit firms provide is improved by this collateral factor. The AICPA Special Committee on Small and Medium Sized Firms has

recently issued certain suggestions, and these recommendations' ramifications are developed³⁰.

Audit Fees

An investigation was conducted into the factors influencing the pricing of audit services from view point of financial managers, accountants and internal auditors who are working in the listed companies in Bahrain. Questionnaire was employed for data collection and this was subjected to both qualitative and non-parametric analysis. Chi-Square was employed to test the study's hypotheses. The alternate hypotheses were all accepted. The study came to conclusion that corporate year-end and time lag between year-end and audit report, size of the public auditing firm and international link and corporate size are all important factors affecting pricing of audit services⁷⁶.

Study on the impact of external auditors' remuneration on financial development in Nigeria. Secondary data were sourced from five years annual reports and financial statement of quoted ten selected deposit money banks. The study was designed on post facto. Data were subjected to both qualitative and quantitative analysis. The study's formulated hypotheses were tested using regression model. It was found that expenditure on external auditors' remuneration has great influence on customers' deposits (financial development). It was concluded that external auditors' remuneration contributes significantly to financial development in Nigeria¹⁵².

Using a sample of listed cement businesses on the floor of the Nigerian Stock Exchange, a study was done on the impact of audit fees on audit quality in Nigeria. The study specifically examines the connections among audit fee, audit duration, client size, leverage

ratio, and audit quality. Common Least Squares To analyse the connection between the explanatory factors and the dependent variable, a model estimation approach was used. For the study, secondary data collected over a six-year period (2010-2015) from the selected firms' published annual reports was used. The study's conclusions reveal a substantial association between audit quality and the following variables: audit fee, audit tenure, client size, and leverage ratio. $F_{calc} = 7.14$, $(R^2) = 0.6006$, combined p -value = 0.001, and $(R^2) = 0.6006$. This suggests that the independent variables' predictive ability in explaining changes in audit quality is around 60%. With t and p -values of (4.04 and 0.001) and a strong positive correlation coefficient of 0.7513 with audit quality, the audit fee in particular has a considerable positive influence on audit quality. According to the report, the government should create strong policies via the different professional groups to assist enhance Nigeria's audit quality⁷¹.

An empirical study was conducted on auditors' characteristic and audit fees. Obtained secondary data from 2010 to 2015 from listed companies in China. Data subjected to regression analysis through which it was found that audit fees at individual auditors' level that age, gender, educational background, industry specialization, position and busyness, each show strong relationships with the audit fees. After then, it was advised that audit firms pay close attention to how effectively choosing the right audit services for customers would depend on the information about the qualities of individual auditors being disclosed⁶⁴.

The determinants of audit fees pricing: evidence from Nairobi Securities Exchange was studied and data from the forty-one (41) listed companies were chosen, and linear

regression analysis was utilised to assess the study's assumptions. With an F-Statistics value of 67.273 and a p-value (sig) of 0.000, the R² was determined to be 0.709. This shows that the audit charge was fairly represented and that the model has enough statistical power to forecast audit pricing. The results support the notion that audit fees in Kenyan listed companies are determined by factors such as client size, client complexity, reporting time lag, auditor reputation, Big 4 status, and audit experience. Audit fees were shown to be negatively correlated with reporting season, client profitability, and client risk. The Institute of Certified Public Accountants of Kenya was then advised to implement⁶³.

The factors influencing the determinants of audit fees in the Kurdistan region in Iraq was examined with the aids of questionnaire distributed to client firms, auditor firms and academic for data collection. Collected were analysed descriptively and quantitatively. Formulated hypotheses were subjected to factor analysis and found that complexity, size, profitability, industry type and audit risk were all significantly to firm-client while auditor were found to be significantly related to reputation, experience, industry, expertise and firm size⁷³.

For the year 2012, a research of the factors affecting audit fees for the listed businesses in Brazil's Bin and FBOVESPA revealed a favourable correlation between fees and the factors client complexity, size, and Big N auditors. The auditor's perception of risk was shown to have a varied impact on fee values for larger and smaller customers. The findings go against the theory that the auditor may demand greater fees as compensation for his risk and imply that the auditor charges lower fees to riskier and more leveraged customers. The findings also show that with bigger customers, auditing costs are often greater for clients

with higher risk (as determined by liquidity and leverage) or stronger governance systems. Regarding switching auditors, the findings revealed that larger clients pay less in the first year of the audit, indicating the necessity for more study using a chronologically broader basis⁷⁰.

A study that examined the firms' characteristics and audit fees in Nigeria claimed the justification for the study arose from the fact that, auditing profession has come under increased scrutiny over the years about the growing amount of fees paid by audit client and the contributing impact of such fees on auditor independence and the need to investigate the firms' factors that affect audit fees in Nigeria. The study employed a employed time series and cross-session data (panel data) of firms listed at the Nigeria Stock Exchange and data used was gathered from secondary source (annual financial statement) of firms quoted at the Nigeria Stock Exchange from 2013-2017. A sample size of eighty-nine (89) firms was used through the aid of Yaro, (1964) formula for sample size determination. And the statistical tool used in the study was Panel Least Square Regression with the aid of Eview 7.0 and SPSS 20. The study found that, auditor type, client's firm size, client's complexity, client's firm risk and audit committee independence have significant effect on audit fees, while firm's profitability has no effect on audit fees. The study recommended that, further academic researchers should employ more corporate governance variables on audit fees and period covered should fall between six to seven years for the purpose of analyzing the data. Similarly, future researchers in relation to this study should equally cover a period of six to seven years using the same panel least square or any other related statistical tool¹⁵³.

An audit fee research was carried out as a tool to aid in negotiations between auditors and clients. These negotiations often take place across the world and mostly depend on the

elements present in the particular auditing/accounting settings. The study's goal was to investigate the factors that influence audit fees using actual data from the Ghana stock market. The study specifically looked at the factors that affect audit fees, such as client size, profitability as defined by ROA, loss, client risk as assessed by debt ratio, YEAR (season), and MNC. The Simunic (1980) model is used in this study, which demonstrates that the client's profitability, connection with audit companies worldwide recognition, and size of business are key factors influencing audit fee in Ghana. Results in study indicate that ignorance of risk factor by the auditors may pose serious threat to fame and reputation of audit firm along with indication of feeble legal regime in Ghana. The study's findings point to a weak legal system in Ghana as well as the possibility that auditors' ignorance of risk factors might seriously endanger the firm's image and good name. The findings of the study have important ramifications for Ghanaian auditors and businesses negotiating audit rates. The findings of this study are noteworthy because they are the first to comprehensively examine the factors that determine audit fees for listed companies in Ghana. They also show that audit firm rotation requirements will increase auditor independence and that nonexecutive independence on the audit committee will promote audit quality. Abnormal audit fees result from the auditor's increased effort to conduct rigorous audit engagements. The study also reveals that smaller audit companies that are members of professional bodies would offer superior audit quality in terms of auditor size. The key finding of this study is that audit quality will be improved when an auditor performs an audit engagement completely independently and with strong resistance to fee pressure. This study sheds light on how the introduction of IFRS would affect audit fees⁶⁵.

A study was conducted the critical factors influencing how the Omani firms listed on MSM pay audit fees. The study focuses on five factors that affect audit fees, including company size, profitability, audit risk, auditor type, and audit report latency. Using secondary data, samples from 30 audit companies were gathered between the years of 2015 and 2018. The findings of data analysis using a correlation tool indicate that there is a little relationship between audit remuneration, business size, profitability, and auditor types; other results indicate a negative association between audit risk and audit remuneration. The study comes to the conclusion that, due to its limitations, it cannot be used as conclusive proof of the variables influencing the payment of audit compensation¹⁵¹.

A study was conducted on corporate characteristics, audit fees and the Nigerian corporate environment a panel data strategy. For this investigation, a panel analysis was used. Panel analysis was used to analyse secondary data that were taken from the annual reports and financial statements of the sampled organisations. Using panel regression, the relationship between audit fee and corporate socio-economic factors as proxies for company size, leverage, business type, board size, profitability, and board independence was examined. The study indicated that while Leverage (LEV) and Board Size (BDSIZE) had negative effects on Audit Fees ($=-19.5350, -2333.0214, >0.0000$), they had positive significant effects on Firm Size (FS), Audit Firm Type (AUDTYPE), Board Independence (BDIND), and Profitability (PROFIT). The study suggested that audit customers of distributive businesses should concentrate on the management of the connection between Asset and Liability, or leverage, in order to sustain present profitability levels and offset audit fees without noticeably impairing audit quality¹⁵⁵.

A research was carried out on the pricing of audit services: Theory and Evidence. Sample size of three hundred and ninety seven auditors was selected for a survey study on the audit fees. Of the 397 auditees 289 were using big 8 while 108 were those using non Big 8. The data obtained were analysed using time series regression analysis equations. Results include the identification of a number of significant audit fee determinants as well as failure to reject the hypothesis that price competition prevails through out the market for financial audit services irrespective of the share of a market segment which is serviced by the Big 8 firms⁷⁵. (As was then regarded)

A study on the determinants of audit fees in Brazil became possible with the mandatory disclosure of audit expenses in 2009. Thus, the objective of the research was to identify the determinants of the fees paid by Brazilian publicly traded companies to independent auditors in 2010 to 2014. The analysis took place through regression with data arranged in panel. Size, performance, complexity, audit firm size, adoption of corporate governance practices, audit rotation, industry and litigation risks have all been found to have an impact on the fees. Therefore, the aspects that can be used by companies for the purpose of information management or that require more auditing time for signaling points of greater risks are highlighted. In addition, understanding the determinants allows companies to plan future expenditures with audit fees and assists regulators and inspectors in defining and comparing key determinants of firms for identifying abnormal payments. These results were found complementary to the research in Brazil, Australia, Bangladesh, Norway, Bahrain, England, Jordan, Kuwait, USA, Malaysia, Nigeria, Abu Dhabi, Italy and Indonesia¹⁷⁷.

Audit Evidence

A PhD Thesis was carried out on “Auditing in electronic environment from an actor-network theory perspective: A case study of Egypt. The study elaborated on audit functions in electronic environment and considered issues about auditor educational background, in-house training various attempts of accounting professional bodies to provide framework to auditors for effective performance in an electronic accounting driven environment. Among the identified elements of external audit process, only audit evidence was examined. The study considered electronic audit in a computerised accounting system and this was in relation to integrated transactions on audit trail along with the essence of reprocess of client’s back up data file to conduct confirmatory test of client’s system¹⁵⁶.

A studied the E-Auditing and effect on persuasiveness of Evidence: Evidence from Bahrain. Was conducted where seventy (70) questionnaires were distributed and sixty eight (68) analysed. Hypothesis of the study was tested using one sample t-Test. It was reported that e-audit impact on the enhancement of the persuasiveness of evidence obtained by the auditor¹⁵⁷.

Similarly, another study was conducted on impact of automated financial accounting system on audit process of selected companies in Nigeria. With the aid of questionnaire, data was collected and analysed both descriptively and inferentially. The result among others revealed that there is weak but positive relationship between automated data gathering and audit evidence. The study considered audit planning and audit evidence as the only proxies for audit process⁹.

A study was conducted on the big data and analytics in the modern audit engagement: Research needs. The study is purely a positional opinion on audit evidence and business analytic. It does extensively and qualitatively address the elements of audit evidence in electronic environment and these were found appropriate for literature review on audit evidence⁸.

In another PhD thesis the effect of sufficiency and appropriateness of audit evidence obtained by Libyan auditors was comprehensively considered. The study examined six factors: source of evidence, directness of evidence, types of evidence, professional and academic qualifications of auditor, consistency of evidence and amount of evidence on audit evidence. A mixed approach of distribution of questionnaire and interview was employed and the study establishes that all the six factors create impacts on audit evidence and recommended that Libyan legislation to address the challenges auditors face in gathering audit evidence¹⁵⁸.

Big Data Analytics and Audit Quality

A study examined the impact of data analytics on audit quality. Using hand-collected information on data analytics skills of employees of audit firms, we find that human capital investment in data analytics improves audit quality. Analytics capability of both frontline and back-office employees contributes to audit quality. The impact is particularly noticeable for audit customers whose company operations are complex, for clients whose accounting estimates are difficult, and for clients who are more digitally advanced. The study results imply that when taken collectively, an audit office's an analytics capability is a significant office characteristic that might impact audit quality¹⁵⁹.

A study of the effect of Big Data Analytics on Audit: An exploratory qualitative study of data analytics on auditors' skills and competence, perception of professional judgment, audit efficiency and audit quality with the primary goal to provide a deeper understanding of how big data affect professional judgment, audit efficiency, and perceived audit quality. It also aims to explore the effect of Big Data Analytics (BDA) on the skills and competence required by auditors to perform an audit in a big data environment. Theoretical concepts base on previous research and publications by practitioners and regulators on BDA, professional judgment, audit efficiency and audit quality. Literature was used to derive the research gap and research questions. The research is based on semi-structured interviews with auditors from big four audit firms in Sweden. Empirical evidence was generated through an interview with seven auditors at different levels of the professional hierarchy. Empirical data was analyzed using a thematic data analysis approach. The found that using BDA in the audit methodology affects the required skills and competence by auditors to carry out audit engagement activities. More IT related skills and knowledge gaining prominent in the audit field. Implementing data analytics will not be efficient in the early stage but will save time as auditors become more familiar with the tools and that data analytics improve audit quality¹⁶⁰.

A study was carried out to know how the auditing process is carried out in South Africa by auditors using analytical techniques. Investigating how South African auditors used analytical processes during the audit process was the study's main goal. Data was gathered by conducting interviews with senior audit managers at significant audit companies in South Africa. A qualitative research technique was chosen, utilising three units of analysis. According to the study's results, South African auditors do believe that analytical methods

offer value to the audit and that using them increases audit effectiveness and efficiency. Analytical techniques are used by South African auditors throughout the whole audit process. The business risk approach, the rapid improvements in technology, and the expanding use of non-financial information to evaluate the reasonableness of financial data are some of the factors that have an impact on the usage of analytical techniques¹⁶¹.

A study which aim was to clarify the importance of big data analytics and its role in changing the accounting profession and the roles of accountants, in addition to testing the impact of big data analytics on improving financial reporting quality in the Saudi environment was carried out and to achieve the goals of the study and validate hypotheses, relevant previous literature and research are referred. Also, a field study was conducted by distributing a questionnaire of (154) individual academics, financial analysts, accountants, and experts in the field of analyzing big data in the Kingdom of Saudi in 2019. Data are analyzed by using the program of Statistical Package for Social Science (SPSS 17.0). The study concluded that although business organisations face several challenges when analysing data, big data analytics has a significant role in achieving high competitiveness for institutions, improving the accounting information quality, providing appropriate information that helps in rationalising decisions within the economic unit, and providing future information affecting stakeholder's decisions. The study also has proved that there is a statistically significant effect of big data analytics on improving the quality of accounting information, as big data analytics clearly affects the characteristics of the accounting information quality, positively affecting the quality of financial reports. The researcher recommends the necessity of teaching big data and business analyses in accounting education curricula at universities to promote students' knowledge. The researcher also

recommends holding workshops and training courses for researchers and academics to know the importance of analyzing big data and how to process, store, manage and use the analyzed data in the financial and accounting field. In conclusion, this research is an open intellectual invitation for conducting further applied and scientific research in the field of big data¹⁶.

A study was conducted on the influence of big data on Anambra State's audit report quality. Three specific objectives were considered in that study: first, to assess the impact of data collection volume on the appropriateness of audit reports in Anambra State; second, to evaluate the impact of data collection frequency on the promptness of audit reports in Anambra State; and third, to assess the impact of data collection value on the verifiability of audit reports in Anambra State. Along with the pooled Ordinary Least Square (OLS) regression, the survey study design, descriptive statistics, and the survey results were also taken into consideration.. Volume of Data Collection (VDC) has a favourable influence on the sufficiency, timeliness, and verifiability of audit reports, but had a positive but negligible effect on their sufficiency, according to the study's findings from the three models studied. In Anambra State, Value of Data Collection (VALDC) has a negative significant impact on verifiability but a positive insignificant impact on sufficiency and timeliness, whereas Frequency of Data Collection (FDC) has a positive significant impact on sufficiency, timeliness, and verifiability of audit reports. The study advises that Auditor-Offices General and Auditing companies should embrace the sufficiency, timeliness, and verifiability of audit reports as they have a positive and substantial impact on audit reports and may choose to disregard them as though they were not significant statistically. Last but not least, it was discovered that the usage of sufficient and verifiable audit reports had a beneficial impact,

but this influence was statistically negligible. Instead, because it has a negative, substantial influence, individuals who wish to utilise big data to improve the quality of their audit reports through the Value of Data Collection (VALDC) in Anambra State should concentrate on maintaining good timeliness of audit reports⁵⁸.

Big Data Analytics and Audit Evidence

A study on Big Data and its impact on the quality of audit evidence and the level of assurance aimed to establish the relationship perceived the customers. At the moment, auditors rely on sampling to provide them a reasonable assurance that a company's financial statements are substantially in line with the GAAs of the nation (GAAP). With the use of big data, auditors can reduce the risk associated with sampling and so offer a respectable degree of assurance. The study looked at how financial statement consumers perceived the level of certainty when auditors used Big Data to provide unqualified views throughout the audit engagement. It makes note of this problem in the context of an audit when the financial statements include errors⁹².

Big data and audit evidence was examined from perspective of laying the literature background on conceptualisation of the topic. The study looked at the many kinds of evidence that are coming from the new data environment, how they may be incorporated into the old audit process, and whether the assurance process should fundamentally alter. The research found a number of difficulties, including how to formalise the procedures for evaluating evidence, how existing audit may develop into a Big Data-enhanced assurance approach, and what the auditor's assurance outputs in this environment should be. The above study is also a qualitative in nature while this PhD thesis built on all the conceptual

studies and lunched into quantitative analysis of the big data environment into audit process as affects quality and evidence²¹.

In a study on empirical research frameworks in a changing world: The case of audit data analytics with the main objective to develop a holistic, multidimensional framework in order to better understand the dynamics of diffusion of audit data analytics and to address issues related to change, especially from the perspective of empirical research. The framework developed covers categories related to the diffusion of data analytics (the technology, the actors using it, and the external rules that regulate it) and to the actors reproducing rules and technologies (focusing on the audit process, and cognitive processes). Examining these different categories and their relationships helps to understand the evolving issues, and to view existing problems from a new angle. The study also analyse key findings of 37 empirical studies within and across the interrelated categories in order to identify new directions for impactful empirical research. By illustrating the insights that emerge from this holistic perspective, the paper is especially of interest to audit researchers as well as to standard setters and audit practice³.

The Public Company Accounting Oversight Board is worried about auditors' propensity to disregard pertinent data that is at odds with management's underlying assumptions for complicated estimations. It was discovered that prompting auditors to think about how management reached a certain assumption helps prevent aggressive reporting by getting them to focus on the tangible, low-level reasoning that supports the assumption. Auditors are more sensitive to pertinent contradicting facts when they are thinking concretely and at a low level. The study concludes that aggressive assumptions behind a complicated estimate are viewed with greater skepticism by auditors assessing graphical evidence as

opposed to textual evidence. Evidence shows that this is because activities involving comparisons and linkages between data points are better suited cognitively to graphs. The study is significant for practitioners, regulators, and researchers because it clarifies the relationship between a straightforward prime and the presenting style of audit information¹⁶³.

The purpose of a study was to highlight a main issue regarding reliable audit evidence derived from Big Data—that of secure data provenance. External audit evidence has often been thought to be preferable to other types of evidence. External "messy" Big Data sources, on the other hand, could lack provenance and verifiability while yet being important to certain auditing features. That instance, the data's sources may be obscure and its log files may be insufficient. Such evidence should be regarded as less trustworthy for audit evidence, per the requirements. Since they are independent of the client, external auditors should be able to replicate the data lifecycle or transaction path, which would not be achievable in an electronic setting with a shoddy provenance. Additionally, this mapping or provenance of the sources and history of the data should be securely kept in order to prevent obstruction. In its rush to use Big Data, the business world has largely overlooked the requirement for safe data provenance, but current systems research has identified this as a problem that has to be addressed.

Through the perspective of public company auditing, where the provenance and dependability of data sources and audit evidence are of utmost significance, the study contributes to the issue of big data provenance. The Big Data Provenance Black Box method of safe provenance collecting is also proposed in this work and is developed from various streams of active research¹⁶⁴.

2.4 Synthesis of Gap Identified

From the empirical reviewed conducted above, it is apparent that there is knowledge (literature) gap¹⁶⁵. The knowledge gap is not only in respect of implication of automated accounting system but also of data analytics on external audit process as existing efforts had been concentrated on audit independence, audit quality, audit fees and audit evidence with no emphasis on their relationship with electronic accounting. In addition, the very few studies on automated accounting were not directed to establish implication on elements of external audit process rather on efficiency, on audit profession and the like and thereby supporting the assertion that there is knowledge gap that need to be redressed. It is the same with the effect of big data analytics to external audit process and majority of extant literatures were conceptual in nature with handful of empirical studies on its implication on audit evidence and audit quality.

The extant literatures revealed extensive efforts to empirically establish various positions of manual accounting system on elements of external audit process. The interrelationship effect between audit fess and audit quality, audit independence and audit fees were also abound but there are few attempts of empirical studies on automated accounting system and external audit process thereby creating empirical gap¹⁶⁶. Studies on this should have attracted researchers' attention in this information age.

In addition, it is found that audit process had been given adequate attention both in Europe, North Africa and Asian countries whereas the same cannot be claimed in Nigeria as existing literatures and empirical studies are still very few and none comprehensive at this level found.

This thesis in attempt to provide comprehensive attention on the influence of accounting automation and big data analytics on external audit process therefore intends to bridge these apparent knowledge and empirical gaps:

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2.5 Conceptual Framework

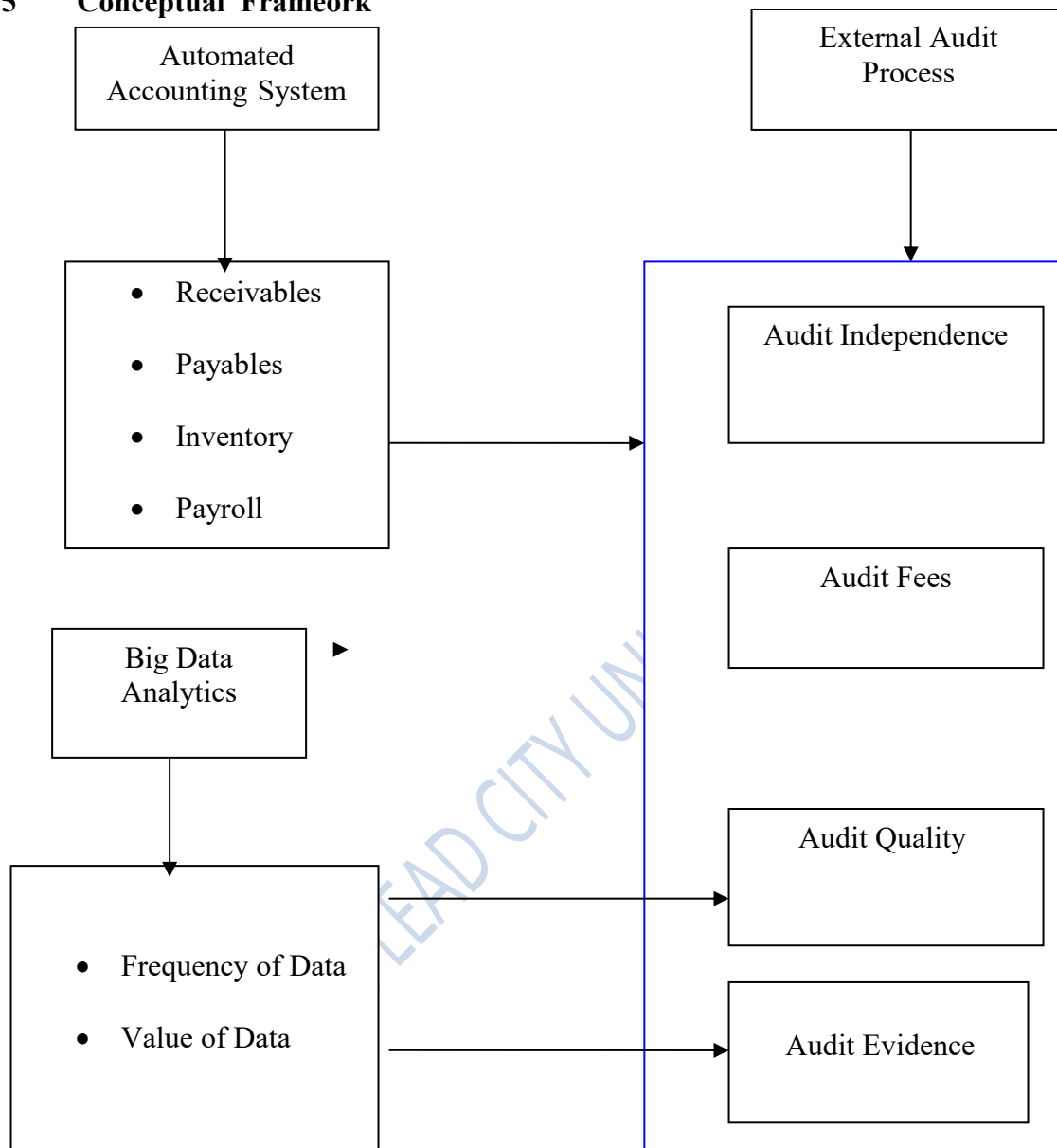


Figure 2.3: Automated accounting system and big data analytics on external audit process

Source: Author's Conceptualisation (2021)

The above represent the connectivity between independent variables and dependent variable and they constitute the central theme of the study

Endnotes

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Chapter Three

Methodology

The preceding chapter introduced the conceptual, empirical and theoretical frameworks of this study, while in this chapter; attempt will be focused on identification and justification of methods employed in the studies of the effects of automated accounting on external audit process in food and beverages companies in South West, Nigeria.

The chapter discusses the research design, the population of the study, the sampling and sampling techniques, the research instruments and source of data, the conceptual model of the study, the research instrument's validity and reliability, the procedures for data collection and the methods of data analysis

3.1 Research Design

The aim of this study is to establish the influence of automated accounting system along with the big data analytics in specific areas of external audit process such as auditor's independence, audit quality, audit fees and audit evidence and offer more inclusive analysis of practicing accountants (external auditors) perceptions of the influence.

This study therefore adopt descriptive (cross sectional) survey^{1,2}. This is so as the study was carried out on one time to solicit for the opinion of respondents to answer research questions and testing of hypothesis. Furthermore, this design was preferred as this is most appropriate for a primary data driven study where the study is not amenable to control of subjects

The designed questionnaire provided the mean through which opinion was sought and obtained from participants on the various constructs of the study.

3.2 Population of the Study

This study empirically established the perception of external auditors in the South West geographical zone, Nigeria on the influence of automated accounting system and big data analytics on external audit process. Accounting firms that carry out statutory audit can be categorised as either big or mid-tier. The big are universally recognised as big four and these are: PricewaterhouseCoopers. (PwC), Deloitte and Touches, Ernst and Young (E/Y) and KPMG while all others are regarded as mid-tier. However, this study discovered that there should be three classifications of accounting firms which should be big, mid and small-tier. In Nigeria context, there is a list of identified accounting firms in the South-West geo-political zone, in Nigeria (See appendix B). The list contains firms in the big and mid-tiers while there are so many other firms not listed but yet are players in audit industry in Nigeria. This other not listed in the one hundred firms could be regarded as the small tier. The population of this study therefore is all chartered accountants performing statutory audits within the zone.

The population therefore comprised of professional accountants in private practice and with operation offices in the South West geo-political zone, in Nigeria, preferably members of the Institute of Chartered Accountants of Nigeria (ICAN)

In Nigeria, there are two major accounting professional bodies and these are The Institute of Chartered Accountants of Nigeria (ICAN) and The Association of National Accountants of Nigeria (ANAN). However, ICAN members constitute the population for this study because of the wide base and the fact that most private business in Nigeria chooses the member of the body ahead of ANAN member and the reason may not be unconnected with the fact that ICAN is far older than ANAN. Moreso, the outcome of this study will not

suffer lack of generalisation since both body's members operations under same International Accounting Standards (IASs) and International Standard of Audits (ISAs) hence their external audit functions are subjected to the same process.

There are twenty two districts the Institute of Chartered Accountants of Nigeria in the South West Zone were identified (See List of ICAN Districts in South West, Nigeria - Appendix C) but to establish the population of ICAN professional financial members of the Institute of Chartered Accountants of Nigeria as at 31 May, 2022 (the most recently released) in its 432 pages consist of on average 21,559 members³. This population was relied upon for the study in the determination of minimum sample size.

The choice of South West was merely for distribution of research instrument (questionnaire) as external auditors are not restricted to practice in a particular political zone in Nigeria, however, South West geo-political zone was considered for questionnaire distribution as all major accounting firms maintain operational office in the zone and the zonal have a fair command of sizeable numbers of big and medium sized private companies that are amenable to the adoption of automated accounting system with volume and frequencies of activities that qualify them for operation of big data for both structured and unstructured data.

The distribution was proportionally done in line with number(s) of ICAN's districts in the selected states. (See appendix C for districts in the Zone as at 30 June, 2022). In addition, thirty six questionnaire were distributed to official email addresses of chartered accountant firms within the zone while sixty five were distributed through LinkedIn social platform (questionnaire distributed through email and LinkedIn were on google form).

3.3 Sample and Sampling Techniques

The sample size of the study is determined with popular formula usually referred as Taro Yamene⁴. The formula is expressed as follows: $n =$

$$\frac{N}{1 + N(e)^2}$$

Where n = Sample size sought

N = population size of the study

1 = constant figure

e = the level of precision required for a study (5% or 0.05)

Solving for the sample size n where 21,559 is the population of the study therefore

$$N = \frac{21,559}{1 + \{21,559\}(0.05)^2}$$

$$n = \frac{21,559}{1 + \{21,559\}(0.0025)}$$

$$n = \frac{21,559}{1 + 53.8975}$$

$$n = = 392.71$$

$$= 393 \text{ (approximation)}$$

Sample size 'n' require for this study is taken as 393.

This sample size of three hundred and eighty six (393) was regarded as minimum and this was planned to increase with at least five percent (5%) which on approximation takes sample size to minimum of 410 for physical distribution. The 5% increase was to make provision for invalid responses that may occur, all the same. The initial proposed 410 was expected to be least number for physical distribution. In all, five hundred and fourteen (514) copies of questionnaire were judgementally distributed physically, while a total of one hundred and four (104) were virtually (with aid of google form) distributed to professional

accountants in private practice within South West Zone through. Convenience random sampling was employed in the selection of participants. Physical distributions of questionnaire were directly executed in all the six states in South West and also with the employment of Research Assistants. The selected states maintain the same economic, social and political characteristics common to the region as a whole. This selection is in no way undermining the generalisation of the findings not only to the region but to the whole country if that inference is desired.

3.4 Description of Research Instrument

This study adopts quantitative method of data collection which involves the use of structured questionnaire drawn of four likert scale. The questionnaire was developed based on extensive review of extant literatures on automated accounting system in one hand and on the other hand, on big data analytics that relies on big data with effect on external audit process. All questions on automated accounting system and external audit process originated through thorough consideration for the study's research problem, objectives of the study and research questions, while questions on big data were adopted⁵. The questions that were raised to address all the related independent variables tailored from the reviewed related literatures.

A structured questionnaire was designed on four likert scale and this was divided into eight parts; Part A to H. Part A was designed to solicit for bio-data information of respondents. Part B was to ascertain the operationality of automated accounting system by various audit firms' clients and the type of accounting software commonly in use by audit firms' clients. Part C-H addresses relevant questions that assisted to address explanatory and dependent variables of the study.

The respondents were given options from Strongly agree, Agree, Disagree and Strongly disagree to choose from, a choice that represent an expressed opinion on each of one hundred and sixty six questions in the questionnaire (See appendix A for a copy of the questionnaire)

3.5 Validity and Reliability of Research Instrument

This study adopted both content and constructs validity in line with⁶. In order to ascertain content validity of the research instrument, the researcher's supervisors and other experts on the subject matter both in academic and in practice were given the measurement tool in order to provide feedback on the effectiveness and relevancy of each question in measuring the constructs. Informed decisions were made based on their feedbacks. Wrongly worded items were reconstructed/rephrased.

The research instrument for this study was subjected to the following validity tests:

Face Validity

Questions as raised were worded in such a way that did not require a third party interpretation/explanation. Also, the classifications of questions were directly tailored with proxies for explanatory variables that elicited for relevant responses and promoted appropriate analysis that was tailored to the achievement of the objective of this thesis.

Content validity

The entire instrument was subjected to critical review by academic in Accounting, Auditing and information technology and audit practitioners. The questionnaire was holistically reviewed to determine the relevance of each of the independent and dependent variables. Accounting and Audit practitioners holistically reviewed the questions relevance to each proxies of audit process.

A pre-test was conducted and the results prompt a revisit to format and mode of distributions for the final test. The pre test distribution was carried in Osogbo, Oyo and Ogbomoso towns and it involves physical distribution of twenty copies of questionnaire in each of the aforementioned towns. The questionnaire was subjected to Cronbatch test and the results of pre test shown in table 3.1 below

Table 3.1 Cronbatch Coefficient of Internal Reliability of Instrument

| | Audit Independence | Audit Quality | Audit Fees | Audit Evidence | Frequency of Data | Value of Data |
|--------------------|---------------------------|----------------------|-------------------|-----------------------|--------------------------|----------------------|
| Reliability | 0.931 | 0.934 | 0.918 | 0.975 | 0.886 | 0.883 |
| No. of Item | 60 | 60 | 60 | 60 | 60 | 60 |

Source: Researcher's Computation (2022)

From table 3.1 above, results of alpha coefficient that ranges between 0.883 and 0.975 as against the benchmark of 0.70 which indicates a good level of internal consistency of the instrument and translates to excellent internal consistency. However, the test was re-conducted with the valid collected three hundred and thirty seven questionnaires from field survey carried out in the selected states in Nigeria which result is presented below:

Cronbach's alpha was determined for each items of the study, the result which is as shown in table 3.2 below. All the constructs had Cronbach's Alpha above the minimum acceptable coefficient of 0.7 and thereby confirm good internal consistency of the research instrument.

Consruct Validity

Factor loading test was carried out which assisted to eliminate questions of low or no value to the study while average variance extracted (a sub set test commonly called discriminat

test) of construct validity was conducted and the result as shown below indicate that 99.9% of variables were above threshold hold of 0.5^{7,9,10}.

Table 3.2 Reliability and Validity Tests

| Variables | Items | Factor Loading | Cronbatch's Alpha | Composite Reliability | AVE | |
|---|--------------|-----------------------|--------------------------|------------------------------|------------|-------|
| Application of Automated Accounting System | Item 1 | 0.858 | 0.779 | 0.916 | 0.785 | |
| | Item 2 | 0.947 | | | | |
| | Item 3 | 0.849 | | | | |
| Audit Independence: Freedom to Best of Approach | Item 1 | 0.857 | 0.941 | 0.978 | 0.889 | |
| | Item 2 | 0.781 | | | | |
| | Item 3 | 0.720 | | | | |
| | Item 4 | 0.757 | | | | |
| | Item 5 | 0.809 | | | | |
| | Item 6 | 0.880 | | | | |
| Free Access to Information | Item 1 | 0.800 | 0.959 | 0.941 | 0.768 | |
| | Item 2 | 0.691 | | | | |
| | Item 5 | 1.154 | | | | |
| | Item 6 | 0.939 | | | | |
| | Item 7 | 0.715 | | | | |
| Unrestricted Right of Decision | Item 4 | 0.716 | 0.815 | 0.556 | 0.392 | |
| | Item 5 | 0.522 | | | | |
| Audit Quality Technical: | Item 1 | 1.167 | 0.922 | 0.910 | 0.786 | |
| | Reputational | Item 3 | | | | 0.711 |
| | | Item 4 | | | | 0.837 |
| | Capacity | Item 1 | | | | 0.627 |
| | Item 2 | 0.820 | | | | |
| Expertise | Item 1 | 0.724 | 0.928 | 0.692 | 0.533 | |
| | Item 3 | 0.572 | | | | |
| Experience | Item 1 | 0.724 | 0.814 | 0.799 | 0.450 | |
| | Item 3 | 0.572 | | | | |

| | | | | | | |
|-------------------------|---------------------------|--------|-------|-------|-------|-------|
| Service Quality: | Item 2 | 0.827 | | | | |
| | Responsiveness | Item 3 | 0.516 | 0-845 | 0.632 | 0.475 |
| | | Item 4 | 0.669 | | | |
| | Item 1 | 0.556 | | | | |
| | Empathy | Item 2 | 0.642 | 0.929 | 0.735 | 0.489 |
| | | Item 3 | 0.864 | | | |
| Audit Fees | | | | | | |
| | Item 1 | 0.879 | | | | |
| | Client's Complexity | Item 3 | 0.600 | | | |
| | | Item 6 | 0.934 | 0.971 | 0.953 | 0.778 |
| | | Item 7 | 1.088 | | | |
| | | Item 8 | 0.947 | | | |
| | | Item 9 | 0.762 | | | |
| | Item 1 | 0.725 | | | | |
| | | Item 2 | 0.772 | | | |
| | Client's Size | Item 3 | 0.772 | 0.909 | 0.861 | 0.554 |
| | | Item 4 | 0.807 | | | |
| | | Item 6 | 0.635 | | | |
| | Item 2 | 0.641 | | | | |
| | Profitability | Item 3 | 0.827 | 0.941 | 0.806 | 0.554 |
| | | Item 4 | 0.810 | | | |
| Audit Evidence | | | | | | |
| | Control Testing | Item 1 | 0.982 | | | |
| | | Item 2 | 0.801 | 0.959 | 0.929 | 0.814 |
| | | Item 3 | 0.914 | | | |
| | Item 1 | 0.738 | | | | |
| | Assert Fin Stat in AAS | Item 2 | 0.901 | | | |
| | | Item 3 | 0.791 | 0.968 | 0.917 | 0.651 |
| | | Item 4 | 0.886 | | | |
| | | Item 5 | 0.618 | | | |
| | | Item 6 | 0.871 | | | |
| | Suff of Aud Evid in AAS | Item 1 | 0.815 | | | |
| | | Item 2 | 0.723 | 0.948 | 0.844 | 0.644 |
| | | Item 3 | 0.864 | | | |
| | Item 1 | 0.685 | | | | |
| | Relv & Reliab Evid in AAS | | | | | |

| | | | | | |
|-------------------------------|--------|-------|-------|-------|-------|
| | Item 2 | 0.679 | 0.887 | 0.635 | 0.500 |
| BDAs: App in Ext Audit | Item 1 | 0.850 | | | |
| | Item 2 | 0.951 | 0.894 | 0.897 | 0.813 |
| Frequency of Data | Item 1 | 0.734 | | | |
| | Item 2 | 0.995 | 0.937 | 0.852 | 0.664 |
| | Item 3 | 0.681 | | | |
| Value of Data | Item 1 | 0.750 | | | |
| | Item 2 | 0.698 | 0.938 | 0.688 | 0.525 |
| Control Testing | Item 1 | 0.633 | | | |
| | Item 2 | 0.750 | | | |
| | Item 3 | 0.698 | | | |
| | Item 4 | 0.635 | 0.913 | 0.851 | 0.491 |
| | Item 5 | 0.830 | | | |
| | Item 6 | 0.747 | | | |
| | Item 7 | 0.747 | | | |
| Suff of Aud Evid | Item 1 | 0.665 | | | |
| | Item 2 | 0.610 | 0.927 | 0.847 | 0.587 |
| | Item 3 | 0.878 | | | |
| | Item 4 | 0.874 | | | |
| Rel & Reliab of Aud. Evid | Item 1 | 0.959 | | | |
| | Item 2 | 0.684 | 0.919 | 0.815 | 0.694 |
| Assers on Fin State in BDAs | Item 4 | 0.906 | | | |
| | Item 6 | 0.553 | 0.910 | 0.709 | 0.563 |

Source: Researcher's Computation (2022)

3.6 Method of Data Collection

There were two major methods employed for the distribution of questionnaire to participants. The first was direct distribution and this involved the researcher and two

trained assistants and visited the business premises of accounting firms in the selected states where administrative manager collected and distributed to audit engagement team.

The second method was the distribution of questionnaire electronically through email addresses and linkedIn platform, The email addresses were obtained on telephone interactions with contact person while large number were through audit staff contacted on LinkedIn platform. Google form was used for the electronic distribution. The distribution was done proportionately to number of ICAN Districts in each of the selected states. The distribution and mathematical basis of the distribution is as shown in table below:

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Table 3.3 Proportionately Distributed and Returned questionnaire to number of ICAN District in each State

| S/N | STATE | Number of ICAN District in the State | PHYSICAL DISTRIBUTION Calculation (using) ¹⁰ | Number of Questionnaire | Number of Valid Questionnaire Returned |
|-------------------------------------|-------|--------------------------------------|---|-------------------------|--|
| 1 | Ekiti | 1 | $\frac{1 \times 410}{22}$ | 19 | 11 |
| 2 | Lagos | 9 | $\frac{9 \times 410}{22}$ | 167 | 141 |
| 3 | Ogun | 5 | $\frac{5 \times 410}{22}$ | 93 | 56 |
| 4 | Ondo | 2 | $\frac{2 \times 410}{22}$ | 37 | 22 |
| 5 | Osun | 2 | $\frac{2 \times 410}{22}$ | 37 | 18 |
| 6 | Oyo | 3 | $\frac{3 \times 410}{22}$ | 56 | 44 |
| Sub Total | | | | 410 | 292 |
| Distribution on Google Form: | | | | | |
| Email/Whatsapp | | | 36 | | |
| LinkedIn | | | 68 | 104 | 45 |
| Total Distributed/Collected | | | | 514 | 337 |

Source: Researcher's Computation (2022)

The formula for computation of physical distribution of questionnaire in the selected states was adopted Bowler Proportionate allocation formula¹⁰. The formula is:

$$N_h = \frac{n \times n_h}{N}$$

Where; N_h = Number of units to be distributed to each group

n_h = Total population of respondents in each group

n = Determine sample size

$N_h = \frac{\text{Determined sample size multiply by total population of respondents in each group.}}{\text{Total population}}$

3.7 Method of Data Analysis

Data collected on respondents' bio data, application of automated accounting system and application big data (the two explanatory variables of the study) were descriptively analysed using means, standard deviation and percentage. This was employed to answer the study research questions while each measurement of dependent variables was subjected to quantitative analysis. Questions raised were to address the study's hypotheses which were subjected to inferentially analysis of PL-Structural Equation Model. PLS-SEM is found appropriate as it is a more advanced multivariate analytical technique which performs multiple regressions, factor analysis and provide pictorial model of the interaction of variables in a study⁸. The SmartPLS statistical platform offers a robust and strict analysis compared with outcomes of SPSS⁹

TABLE 3.4 Tools for Hypothesis Analysis

| S/N | Hypothesis | Tools of Analysis |
|-----|--|---------------------------|
| 1. | Automated accounting system does not affect audit Independence | Structural Equation Model |
| 2. | Automated accounting has no influence on audit quality | Structural Equation Model |
| 3. | Automated accounting system has no effect on Determination of audit fees | Structural Equation Model |
| 4. | Automated accounting system has no influence on audit evidence | Structural Equation Model |
| 5. | Big data analytics has no influence on audit quality | Structural Equation Model |
| 6. | Big data analytics has no effect on audit evidence | Structural Equation Model |
| 7. | AAS/Big Data Analytics on External Audit Process | Structural Equation Model |

Source: Researcher (2022)

All analyses were subjected to 5% level of significance.

Partial Least Square Structural Equation Model (PLS-SEM) was preferred because PLS-algorithm's command which is appropriate for predicting effect-relationship, has facility to ascertain the level of significant of the prediction and to determine the predictive relevance of the structural model specified. It is also provides a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using SPSS⁸. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS⁹

3.7.1 Model Specification

External Audit Process as the dependent variable was proxied with Auditors' independence, audit quality, audit fees and audit evidence while the independence variables are Automated Accounting System and Big Data Analytics. Automated Accounting System was proxied with application of information technology on Receivables, Payables, Payroll and Inventory while Big Data is proxied with application of big data in term of data frequency and data value. Mathematical function for the study is expressed as:

$$EAP = f(AAS, BDA)$$

Where :

- EAP = External Audit Process
- AAS = Automated Accounting System
- BDA = Big Data Analytics

Arisen from the above function is the full model applied for this which is stated as follows:

$$AUDIN = \beta_0 + \beta_1REC + \beta_2PAY + \beta_3INV + \beta_4ROLL + e_i \dots\dots\dots 3.1$$

$$AUQLY = \beta_0 + \beta_1REC + \beta_2PAY + \beta_3INV + \beta_4ROLL + e_i \dots\dots\dots 3.2$$

$$AUDFEES = \beta_0 + \beta_1REC + \beta_2PAY + \beta_3INV + \beta_4ROLL + e_i \dots\dots\dots 3.3$$

$$AUDEVID = \beta_0 + \beta_1REC + \beta_2PAY + \beta_3INV + \beta_4ROLL + e_i \dots\dots\dots 3.4$$

$$\begin{aligned} \text{AUDQLY} &= \beta_0 + \beta_1 \text{BDA} + e_i \dots\dots\dots 3.5 \\ \text{AUDEVID} &= \beta_0 + \beta_1 \text{BDA} + e_i \dots\dots\dots 3.6 \\ \text{EAP} &= \beta_0 + \beta_1 \text{AAS} + \beta_2 \text{BDA} + e_i \dots\dots\dots 3.7 \end{aligned}$$

Where:

- β_0 = Estimate of the y-intercept
- β_1 = Slope of the regression line
- AUDIN = Auditors' Independence
- AUQLY = Audit Quality
- AUDFEES = Audit Fees
- AUDEVID = Audit Evidence
- REC = Application of automated accounting to Receivables
- PAY = Application of automated accounting to Payables
- INV = Application of automated accounting to Inventory
- ROLL = Application of automated accounting to Payroll
- BDA = Application of Big data analytic

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Chapter Four

Results and Discussion of Findings

This chapter presents the results of the automated accounting system and data analytics on the external audit process in southwest Nigeria. The chapter is structured into two major sections: descriptive and inferential statistics. The descriptive statistics show the summary of the variables used in the study through percentage, mean, and standard deviation. The inferential statistics reveal the effect of automated accounting systems and data analytics on the external audit process in southwest Nigeria. All the hypotheses of this study were subjected to PLS-Structural Equation Modeling (PLS-SEM) using the SmartPLS Version 3.3.9 platform. This algorithm's command is most appropriate as both the independent and dependent variables are multivariate in design hence this advanced multivariate analytical tool applied. The results of these analyses and testing are therefore presented below:

4.1 Presentation of Data

Demographic outcome, descriptive results and inferential results of analysis are presented below. The demographic revealed the number and the percentage contribution of class of respondents while for descriptive results, the mean, Standard deviation from mean overall decision on each questions are proffered while inferential statistics provide the predictive power, the significance of results, critical (p) value that serve as basis for empirical interpretation of analysis and Geisser's Stone (Q^2) predictive relevance of the model for the study.

4.2 Demographic Data Presentation

This comprises of social and economic characteristics along with the descriptive analysis

and these as shown below;

4.2.1 Data Analysis and Interpretation

Table 4.2.1: Socio-economic characteristics of the Respondents

| Questions | Category | Frequency | Percent |
|--|-----------------------|------------------|----------------|
| <i>Category of Staff</i> | Audit Staff | 337 | 95.2 |
| | Others | 17 | 4.8 |
| <i>If Audit Staff, Please state status</i> | Associate | 84 | 24.9 |
| | Semi-Senior Associate | 64 | 19.0 |
| | Experienced Senior | 84 | 24.9 |
| | Assistant Manager | 33 | 9.8 |
| | Manager | 27 | 8.0 |
| | Consultant | 11 | 3.3 |
| | Partner | 21 | 6.2 |
| | Principal Partner | 12 | 3.6 |
| | Managing Partner | 1 | 0.3 |
| <i>Highest Educational Qualification</i> | HND/B.Sc. | 257 | 76.3 |
| | M.Sc./MBA | 77 | 22.7 |
| | Ph.D | 3 | 0.9 |
| | | | |
| <i>Professional Qualification</i> | ACCA | 3 | 0.9 |
| | ANAN | 9 | 2.7 |
| | ATS | 29 | 8.6 |
| | ICAN | 273 | 81.0 |
| | ICAN in view | 22 | 6.5 |
| | NIM | 1 | 0.3 |
| | | | |
| <i>Working Experience in Years</i> | Less than 3 | 60 | 17.8 |
| | 3-10 | 146 | 43.3 |
| | 10-20 | 78 | 23.2 |
| | Above 20 | 53 | 15.7 |

Source: Researcher's Computation from Field Survey (2022)

From the above table 4.2.1 and under category staff, a total of 354 questionnaire were returned properly by physical or Google form filled but 337 of these were found to be filled by respondents in external audit function making up 95.2% while 17 of the total (4.80%) were filled and returned by those not in audit function. These 17 were regarded as invalid as their opinion will only constitute 'noise'. From the valid response about (43) 12.76% are Partners (Partner, Principal Partner; Engagement Partner and Managing Partner) and these are mostly the upper level of managements that are involved in the critical decisions as to engagement, planning the audit, evaluating evidence obtained in the course of an engagement and interfacing with clients' management as to the administrative aspect of all engagement. Their involvement in this study proffers the necessary impetus not only on the content validity but also to face validity of the research. Also middle level managements (Experienced/Senior; Assistant Manager; Manager and Consultants) that are the real players in all audit engagements constitutes 45.99% (155) of the respondents while their expressed opinion are highly influential to operationalisation of audit process. Lastly, those in Junior; Associate and Semi Senior Associate constitute 46.29% (156). Overall, the mixes of respondents appear stratified, reasonable enough for the purpose of the study.

As regards academic and professional qualifications, all respondents are graduates while 285 84.57% are chartered accountants while 38.87% (131) had been in audit industry for over ten years, whereas 43.32% (146) had been in the industry for between three (3) and ten (10) years.

Table 4.2.2: Accounting packages/software usage

| Questions | Frequency | Percentage |
|------------------|------------------|-------------------|
| Quick Book | 41 | 12.2 |
| Sage 50 Cloud | 228 | 67.6 |
| Wave Financial | 12 | 3.6 |
| Xero Accounting | 4 | 1.2 |
| Zoho Book | 1 | 0.3 |
| Others | 51 | 15.1 |
| Total | 337 | 100 |

Source: Researcher's Computation from Field Survey (2022)

Table 4.2.2 above shows the accounting packages/software usage of various respondents. Based on the table above, 73.1% uses sage 50 Cloud, 8.4% uses other applications not mentioned and 13.1% uses Quickbooks. Few (1.5%) uses Wave financial and Xero accounting.

The most commonly used accounting package in South West, Nigeria from this result is Sage 50 Cloud with 73% of respondents submitting that their clients uses the accounting package. The next in usage is QuickBooks accounting package and with 13% of respondents confirm that their clients use the accounting package. These results aligned with a study that provides that provided that Sage 50 Cloud is the most common accounting package in Nigeria¹

4.2.1.1 Automated Accounting System and Audit Independence

The section provides the opinion of the respondents on this study six main questions and it

is presented below:

Research Question One: What is the significant effect of automated accounting system affected audit independence?

A. Freedom to best of approach

| Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|--|----------------|----------------|---------------|---------------|------|-------|----------|
| Automated accounting system has narrowed the extent of physical intimacy between audit personnel and client staff and management | 77 (22.8%) | 179 (53.1%) | 52 (15.4%) | 29 (8.6%) | 2.9 | 0.85 | Agree |
| Possibility of continuous audit in an AAS environment has contributed to promotion of audit independence | 96 (28.5%) | 226 (67.1%) | 7 (2.1%) | 8 (2.4%) | 3.22 | 0.60 | Agree |
| AAS has created effective platform for auditor to obtain information freely and directly from third parties | 138 (40.9%) | 189 (36.1%) | 10 (3.0%) | 0 (0.0%) | 3.37 | 0.57 | Agree |
| Advent of AAS has created the platform for external auditor toward any form of interference on the choice of audit approach | 113 (33.5%) | 183 (54.3%) | 29 (8.6%) | 12 (3.6%) | 3.17 | 0.75 | Agree |
| External auditor now have direct access to staff and management member of client without physical | 98 (29.1%) | 116 (34.4%) | 93 (27.6%) | 30 (8.9%) | 2.81 | 1.00 | Agree |

contact under AAS

| | | | | | | | | |
|--|---------------|----------------|---------------|--------------|------|------|-------------|--------------|
| AAS and electronic audit provides antidote against advocacy threat to independence | 92 (27.3%) | 168 (49.9%) | 53 (15.7%) | 24 (7.1%) | 2.97 | 0.85 | Agree | |
| Grand Mean | | | | | | | 3.07 | Agree |

Source: Researcher Computation from Field Survey (2022)

Table 4.3.1 above shows the analysis of respondents on the freedom to best of approach. According to the analysis, respondents agree that automated accounting system has narrowed the extent of physical intimacy between audit personnel, client staff and management. Moreover, they agreed that the continuous possibility of AAS in audit has really contributed to promotion of audit independence. It has also created an effective platform for auditors to obtain information freely and directly from third parties. Furthermore, respondents agreed that external auditors can have direct access to staff and management member of client without physical contact under AAS; they believe everything is going digital and they also agree that AAS and electronic audit provide an antidote against advocacy threat to independence.

The grand mean of 3.07 is supportive to the agreement of respondents that freedom to best approach by external auditors is crucial to audit independence

Table 4.3.2: Free access to company's information as a measure of audit independence in an Automated accounting system (AAS)

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|---|----------------|----------------|---------------|---------------|------|-------|----------|
| 1 | AAS coupled with electronic audit eliminates any form of interference from client during audit assignments as to how to obtain information on client's activities | 71 (21.1%) | 205 (60.8%) | 53 (15.7%) | 8 (2.4%) | 3.01 | 0.68 | Agree |
| 2 | AAS has effectively limit encroachment of clients on the use of audit approach | 79 (23.4%) | 165 (49.0%) | 72 (21.4%) | 21 (6.2%) | 2.90 | 0.82 | Agree |
| 3 | AAS promote timely availability of information to the external auditor compare with under manual accounting system | 115 (34.1%) | 197 (58.5%) | 16 (4.7%) | 9 (2.7%) | 3.24 | 0.66 | Agree |
| 4 | AAS opens door for application of cloud auditing which in turn promote unrestricted access to information on client activities | 128 (38.7%) | 176 (52.2%) | 25 (6.9%) | 8 (2.2%) | 3.26 | 0.70 | Agree |
| 5 | Accounting and non-accounting functions are now easier to access in automated accounting system environment | 181 (57.2%) | 127 (37.7%) | 20 (5.9%) | 9 (2.7%) | 3.42 | 0.74 | Agree |
| 6 | Opportunity for information suppression under AAS is highly impossible as information are | 52 (15.4%) | 178 (52.8%) | 65 (19.6%) | 41 (12.2%) | 2.70 | 0.89 | Agree |

| | | | | | | | | |
|---|---|---------------|----------------|----------------|---------------|-------------|------|--------------|
| | sourced and obtained through client server | | | | | | | |
| 7 | Suppression of financial and non financial information by client's staff is no longer possible under | | | | | | | |
| | ASS as issues arisen out of laid down regulations are flagged off on both the controlling Authority and responsible audit team member | 53 (15.7%) | 150 (44.5%) | 110 (32.6%) | 24 (7.1%) | 2.68 | 0.84 | Agree |
| 8 | Identity of audit personnel on a specific assignment is no longer in realm of client's staff general knowledge | 16 (4.7%) | 68 (20.2%) | 169 (50.1%) | 84 (24.9%) | 2.05 | 0.80 | Disagree |
| | Grand Mean | | | | | 2.91 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Based on the analysis above in Table 4.3.2 the respondents agreed that AAS coupled with an electronic audit can eliminates any form of interference from clients during audit assignments so as to obtain information on clients' activities and it has effectively limited encroachment of clients on the use of audit approach. Furthermore, they agree that the opportunity for information suppression under AAS is impossible because information is sourced and obtained through client-server, hence whether financial or non-financial information it is now difficult for client's staff to deny external auditors access to necessary information under AAS. It was generally indirectly agreed that the application of

automation into accounting system have nothing to do with interaction between client's staff and member of engagement team.

Nevertheless, the respondents disagreed that AAS promote timely availability of information to the external auditor compared with under manual accounting system and that it opens door for application of cloud auditing which in turn promotes unrestricted access to information on client activities. Finally, the grand mean of 2.91 is suggestive that there is moderate agreement to this effect.

Table 4.3.3: Unrestricted right of decision as a measure of audit independence

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|----------------|----------------|----------------|---------------|------|-------|----------|
| 1 | AAS and electronic audit grant external auditor absolute freedom toward expression of audit decision | 115 (34.1%) | 129 (38.3%) | 88 (26.1%) | 5 (1.5%) | 3.04 | 0.83 | Agree |
| 2 | AAS has minimise the incident of attempt whether diplomatic or otherwise of client's management to influence audit decision as most are compiled and written on real time. | 101 (30.0%) | 159 (47.2%) | 72 (21.4%) | 5 (1.5%) | 3.06 | 0.76 | Agree |
| 3 | Necessary information that provides basis of decision is freely available in AAS environment without need to resort client staff or management | 63 (18.7%) | 147 (43.6%) | 111 (32.9%) | 16 (4.7%) | 2.76 | 0.81 | Agree |

| | | | | | | | | |
|-------------------|--|---------------|----------------|---------------|-------------|-------------|------|--------------|
| 4 | AAS the application of CAAT possible and with enhanced facilities available in the various software, auditor decision is free from client contribution whether directly or not | 98 (29.1%) | 223 (66.2%) | 15 (4.5%) | 1 (0.3%) | 3.24 | 0.54 | Agree |
| 5 | AAS provide the platform for audit team to own data that promote quality decision without relying on client management or/and staff. | 90 (26.7%) | 179 (53.1%) | 67 (19.9%) | 1 (0.3%) | 3.07 | 0.69 | Agree |
| Grand Mean | | | | | | 3.03 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.3.3 shows the analysis of respondents on external auditor's unrestricted right of decision as a measure of audit independence. According to the analysis, respondents agree that AAS and electronic audit grant external auditor freedom toward expression of audit decision. This indicates that clients under AAS will find it difficult to interfere with audit opinion deem fit by the external auditor. The grand mean of 3.03 indicates that the majority of respondents agree to the fact that AAS promote the unrestricted right of auditors to freedom of decision, that is that the decision of external auditors in term of type of opinion to express on financial statements audited by them is not subject to any form of interference under AAS environment.

In summary, the outcome of this study suggest that auditors independence is guaranteed in an automated accounting system

4.2.1.2: Automated Accounting System and Audit Quality

Audit quality in automated accounting system has two sections which are technical quality and service quality and each section is also divided into sub-section.

Technical Quality

The sub-sections under technical quality include reputational, capacity, expertise as a measure and experience as measures of technical quality.

Research Question Two: What is the significant effect of automated accounting system on audit quality?

Table 4.4.1: Reputation as a Measure of Technical quality

| Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|---|----------------|----------------|--------------|---------------|------|-------|----------|
| 1. .Adaptation of audit process to electronic audit flows from automated accounting system (AAS) and this enhances quality of audit report. | 171 (50.7%) | 139 (41.2%) | 20 (5.9%) | 7 (2.1%) | 3.41 | 0.69 | Agree |
| 2. System designed for compliance and substantive tests are such that protect external auditor's reputation in AAS environment | 134 (39.8%) | 169 (50.1%) | 27 (8.0%) | 7 (2.1%) | 3.29 | 0.69 | Agree |
| 3. Electronic audit approach is design in automated accounting system of client to protect auditor against audit risk that can | 135 (40.1%) | 166 (49.3%) | 18 (5.3%) | 18 (5.3%) | 3.25 | 0.77 | Agree |

| | | | | | | | | |
|---|---------------|----------------|---------------|--------------|------|-------------|--------------|--|
| undermine audit reputation | | | | | | | | |
| 4. Reputation of audit firm is most projected in AAS environment through efficiency and effectiveness.. | 77 (22.8%) | 191 (56.7%) | 45 (13.4%) | 24 (7.1%) | 2.95 | 0.80 | Agree | |
| Grand Mean | | | | | | 3.23 | Agree | |

Source: Researcher's Computation from Field Study (2022)

Based on the available data in Table 4.4.1, the respondents agreed to adaptation of audit process to electronic audit flows from automated accounting system (AAS) and this enhances quality of audit report. They also agreed on that system designed for compliance and substantive tests are such that protect external auditor's reputation in AAS environment. Like the previous responses the respondents agreed that electronic audit approach is designed in automated accounting system of client to protect auditor against audit risk that can undermine audit reputation. Furthermore, the respondents agreed that the reputation of audit firm is most projected in AAS environment through efficiency and effectiveness and grand mean of 3.23 corroborate this fact.

Table 4.4.2: Capacity as a measure of technical quality

| | SA | A | D | SD | | | |
|---|----------------|----------------|--------------|--------------|------|-------------|--------------|
| Items | Freq(%) | Freq(%) | Freq(%) | Freq(%) | Mean | Std.D | Decision |
| 1. Selection of audit team for an engagement in automated accounting system environment is driven with individual fit for specific assignment | 91 (27.0%) | 203 (60.2%) | 20 (4.7%) | 23 (6.8%) | 3.08 | 0.77 | Agree |
| 2. Competence information technology (IT) is key to selection of members of engagement team | 77 (22.8%) | 218 (64.7%) | 18 (5.3%) | 24 (7.1%) | 3.04 | 0.75 | Agree |
| 3. Ability to interact with client's electronic system seamlessly is criteria for audit team selection | 135 (40.1%) | 159 (47.2%) | 22 (6.5%) | 21 (6.2%) | 3.22 | 0.82 | Agree |
| 4. Technical knowhow of a specific customer's electronic accounting software is given utmost consideration in selection of audit team | 107 (31.8%) | 186 (55.2%) | 26 (7.7%) | 18 (5.3%) | 3.14 | 0.77 | Agree |
| Grand Mean | | | | | | 3.12 | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.4.2 shows that the respondents agreed to selection of audit team for an engagement in automated accounting system environment is driven with individual fit for specific

assignment. They also agreed that competent information technology (IT) is key to selection of members of engagement team. Respondents also agreed that the ability to interact with client's electronic system seamlessly is criteria for audit team selection. They agreed that technical knowhow of a specific customer's electronic accounting software is given utmost consideration in selection of audit team. Overall mean of 3.12 shows that respondents generally agreed that AAS promote the expertise of auditor which eventually has positive influence on overall quality of audit.

Table 4. 4.3: Expertise as a measure of technical quality

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|---|----------------|----------------|---------------|---------------|------|-------|----------|
| 1 | Team lead is the key man for an audit assignment in automated accounting system environment and do possess both IT and Accounting/Auditing know how expected of a leader. | 169 (50.1%) | 155 (46.0%) | 11 (3.3%) | 2 (0.6%) | 3.46 | 0.59 | Agree |
| 2 | IT expert are engaged to provide on line backup service to the team on the engagement field. | 124 (35.1%) | 183 (56.9%) | 19 (4.4%) | 11 (3.6%) | 3.25 | 0.70 | Agree |
| 3 | Arisen issue(s) on substantive test is subject to the joint responsibility of all team member | 109 (32.9%) | 122 (37.8%) | 58 (16.0%) | 48 (13.3%) | 2.87 | 1.03 | Agree |
| 4 | Compliance and substantive tests are conducted | 80 (23.5%) | 243 (72.1%) | 14 (4.4%) | 0 (0.0%) | 3.20 | 0.49 | Agree |

electronically

| | | | | | | | | |
|-------------------|---|----------------|----------------|---------------|-------------|-------------|------|--------------|
| 5 | Team lead has been exposed to AAS and electronic auditing for three years and above | 108 (31.5%) | 192 (57.5%) | 34 (10.2%) | 3 (0.8%) | 3.20 | 0.65 | Agree |
| Grand Mean | | | | | | 3.20 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

In detail the data in Table 4.4.3 reveals that the respondents agreed that team lead is the key man for an audit assignment in automated accounting system environment and do possess both IT and accounting/auditing know how expected of a leader. They agreed to IT expert being engaged to provide on line backup service to the team on the engagement field. The respondents also agreed that arisen issue(s) on substantive test is/are subject to the joint responsibility of all team members and that compliance and substantive tests are conducted electronically. They also agreed that team lead has been exposed to AAS and electronic auditing for three years and above. The cumulative response amount to the fact that expertise are seen as a measure of technical quality of audit service in an automated accounting system environment and this can be buttressed with the overall mean of 3.20.

Table 4. 4. 4: Experience as a measure of technical quality

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-------------------|--|----------------|----------------|---------------|---------------|-------------|-------|--------------|
| 1 | Team members are both experienced in AAS and electronic audit | 88 (26.1%) | 156 (46.3%) | 90 (26.7%) | 3 (0.9%) | 2.98 | 0.75 | Agree |
| 2 | Not less than 75% of audit team members has been on the field work for not less than three years in an AAS audit Environment | 90 (26.7%) | 230 (68.2%) | 9 (2.7%) | 8 (2.4%) | 3.02 | 0.59 | Agree |
| 3 | Junior audit are seconded to understudy the assignment and client's activities in an AAS environment | 90 (26.7%) | 230 (68.2%) | 9 (2.7%) | 8 (2.4%) | 3.19 | 0.59 | Agree |
| 4 | Members are adequately knowledgeable of client Automated Accounting System (AAS) | 100 (29.7%) | 208 (61.7%) | 19 (5.6%) | 10 (3.0%) | 3.18 | 0.66 | Agree |
| Grand Mean | | | | | | 3.09 | | Agree |

Source: Researcher's Computation from Field Work Survey (2022)

It can be deduced from the table above that the respondents agreed that team members are both experienced in AAS and electronic audit. They also agreed that not less than 75% of audit team members have been on the field work for not less than three years in an AAS audit environment. It was also agreed that junior audit staff are seconded to understudy the assignment and client's activities in an AAS environment. Likewise, they agreed that

members are adequately knowledgeable of client's automated accounting system (AAS). The grand mean of 3.09 support the general agreement of respondents on all questions raised to provide the respondents perception in regard of auditors' experience in an automated accounting environment in relation to the technical quality of financial statements' report.

Service Quality

The sub-section under service quality includes responsiveness and empathy as measures of service quality

Table 4.4.5: Service Quality - Responsiveness

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|----------------|----------------|--------------|---------------|------|-------|----------|
| 1 | There is frequent on-line communication between audit team and management | 84 (24.9%) | 222 (65.9%) | 28 (8.3%) | 3 (0.9%) | 3.15 | 0.59 | Agree |
| 2 | AAS has enhanced continuous communication between the firm and client over flagged matters | 83 (24.6%) | 240 (71.2%) | 13 (3.9%) | 1 (0.3%) | 3.2 | 0.51 | Agree |
| 3 | AAS provide platform for audit team to continually monitoring ongoing activities of the client | 100 (29.7%) | 226 (67.1%) | 10 (3.0%) | 1 (0.3%) | 3.26 | 0.52 | Agree |

| | | | | | | | | |
|-------------------|--|----------------|----------------|---------------|----------------|-------------|------|--------------|
| 4 | Advent of AAS coupled with electronic audit have brought both team and client closer than under manual accounting system | 106 (31.5%) | 188 (55.8%) | 40 (11.9%) | 3 (0.9%) | 3.17 | 0.66 | Agree |
| 5 | Inventory taking disruption is totally eliminated as continuous is facilitated through application of AAS. | 32 (9.5%) | 121 (35.9%) | 82 (24.3%) | 102 (30.3%) | 2.25 | 0.99 | Disagree |
| Grand Mean | | | | | | 3.01 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

From the results as shown in table 4.4.5 above reveals that respondents agreed that there is frequent online communication between audit team and client' management. Furthermore, the respondents also strongly agreed that AAS has enhanced continuous communication between the firm and client over flagged matters. Also the respondents agreed to the fact that AAS provides platform for audit team to continually monitoring ongoing activities of the client. Likewise, the respondents agreed that the advent of AAS coupled with electronic audit have brought both team and client closer than under manual accounting system whereas, the respondents disagreed inventory taking disruption is totally eliminated as continuous is facilitated through application of AAS. However, computerization of inventory does not remove annual disruption of inventory activities, especially during inventory taking exercise. With the grand mean of 3.01 it can be reasonable concluded that responsiveness between members of engagement team and

clients enhances the service quality of audit in an automated accounting system environment.

Table 4. 4. 6: Empathy as a measure of service quality

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|---|----------------|----------------|--------------|---------------|------|-------|----------|
| 1 | Engagement leader is better placed in AAS environment to be proactive and contributory to team and client performance | 131 (39.9%) | 189 (56.1%) | 15 (4.5%) | 2 (0.6%) | 3.3 | 0.59 | Agree |
| 2 | Client server connects Team Lead and Finance Director of client to facilitate direct and individual contact and this enhance healthy and harmonious relationship | 127 (37.7%) | 193 (57.3%) | 9 (2.7%) | 8 (2.4%) | 3.30 | 0.64 | Agree |
| 3 | Audit team members are all interconnected to provide seamless personal and joint attention to audit issues. | 87 (25.8%) | 236 (70.0%) | 5 (1.5%) | 9 (2.7%) | 3.20 | 0.58 | Agree |
| 4 | Suspicion between audit team members and client's staff is now reduced to barest minimum and this promote cross peaceful and healthy understanding between the two in an AAS environment. | 102 (30.3%) | 211 (62.6%) | 7 (2.1%) | 17 (5.0%) | 3.18 | 0.70 | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.4.6 above shows empathy as a measure of quality service. From the table the respondents agreed that engagement leader is better placed in AAS environment to be proactive and contributory to team and client performance. Furthermore, the respondents agreed that client server connects Team Lead and Finance director of client to facilitate direct and individual contact and this enhance healthy and harmonious relationship. In addition, the respondents also agreed that audit team members are all interconnected to provide seamless personal and joint attention to audit issues. Likewise the respondents agreed that suspicion between audit team members and client's staff is now reduced to barest minimum and this promote cross peaceful and healthy understanding between the two in an AAS environment.

Generally, the results of descriptive analysis provides that majority of respondents agree that automated accounting system (through various measurements of quality) have influence on the quality of audit and the grand mean of 3.27 is confirmatory of that conclusion.

4.2.1.3 Automated Accounting System and Audit Fees

Audit fees in automated accounting system environment has three sections which are client's complexity as a measure of audit fees, client's size as a measure of audit fees and profitability as a measure of audit fees. Respondents' perceptions of the effect of the three measurements are as presented in the following tables.

Research Question Three: What is the significant effect of automated accounting system on determination of audit fees?

Table 4. 5. 1 Effect of Client's complexity as a measure of audit fees

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|---------------|----------------|----------------|----------------|------|-------|----------|
| 1 | Number of receivable should influence fee quotation under AAS regime | 67 (19.9%) | 178 (55.8%) | 69 (17.7%) | 23 (6.6%) | 2.86 | 0.81 | Agree |
| 2 | The spread of receivables have no bearing on fee quotation under AAS regime | 26 (9.4%) | 80 (26.5%) | 88 (24.6%) | 143 (39.5%) | 1.97 | 0.99 | Disagree |
| 3 | Number of payables is not a necessary factor for audit fee determination | 75 (23.5%) | 150 (45.9%) | 92 (25.4%) | 20 (5.2%) | 2.83 | 0.84 | Agree |
| 4 | The spread of payables shouldn't warrant consideration when making quotation for audit fee | 35 (10.5%) | 73 (21.8%) | 131 (40.6%) | 98 (27.1%) | 2.13 | 0.95 | Disagree |

| | | | | | | | | |
|-------------------|--|---------------|----------------|----------------|----------------|-------------|------|--------------|
| 5 | Spread of stores for inventory management is not a factor for consideration in audit fee quotation | 36 (12.4%) | 42 (16.0%) | 153 (41.7%) | 106 (29.8%) | 2.02 | 0.94 | Disagree |
| 6 | Items mixed for stock taking should be considered for audit fee determination | 49 (13.8%) | 180 (55.8%) | 78 (22.1%) | 30 (8.3%) | 2.74 | 0.82 | Agree |
| 7 | Number of personnel manning store location is a factor for audit fee quotation | 31 (9.7%) | 218 (66.9%) | 58 (15.2%) | 30 (8.3%) | 2.74 | 0.75 | Agree |
| 8 | Number of personnel engaged on receivable management influences audit fee quotation in AAS environment | 46 (13.6%) | 154 (45.7%) | 103 (30.6%) | 34 (10.1%) | 2.87 | 0.73 | Agree |
| 9 | Number of personnel on payable management does not influence audit fee quotation in an AAS environment | 46 (13.6%) | 154 (45.7%) | 103 (30.6%) | 34 (10.1%) | 2.63 | 0.84 | Agree |
| Grand Mean | | | | | | 2.53 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.5.1 is on client's complexity as a measure of audit fee and the responses to the set of questions under this section is dichotomous in nature. A careful observation of responses reveals that respondent agree to all questions raised to probe the implication of client's

complexity of operations as to the determination of audit fees in an automated accounting system environment. Questions 1, 5, 6, 7, 8 were direct questions and the response of agreement reflect direct perceptions of external auditors on those issues while questions 2, 3, 4, and 9 were indirectly enquires and attracted disagreement responses which ordinarily translate to agreement assuming they were direct questions. This is therefore a general agreement to factors of complexity on the determination of audit fees. In addition, the grand mean lend credence to the above submission that complexion of clients' operation in an automated accounting system will be taken into consideration by external auditors when it comes to audit fees negotiation.

Table 4.5.2 Effects of Client's size on audit fees

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|----------------|----------------|---------------|---------------|------|-------|----------|
| 1 | Number of subsidiaries is a factor for audit fee quotation in an AAS environment | 113 (31.2%) | 235 (64.9%) | 11 (3.0%) | 3 (0.8%) | 3.27 | 0.55 | Agree |
| 2 | Sub-national spread of subsidiaries is a factor for audit fee quotation in an AAS environment | 93 (25.7%) | 179 (49.4%) | 661 (8.2%) | 24 (6.6%) | 2.94 | 0.84 | Agree |
| 3 | Global network of subsidiaries is factored into audit fee quotation in an AAS environment | 58 (16.0%) | 274 (75.7%) | 27 (7.5%) | 2 (0.8%) | 3.07 | 0.51 | Agree |
| 4 | Number of branches is a factor for consideration in the determination of audit fee in an AAS environment | 60 (16.6%) | 222 (61.3%) | 71 (19.6%) | 9 (2.5%) | 2.97 | 0.68 | Agree |

| | | | | | | | | |
|-------------------|---|---------------|----------------|----------------|----------------|------|------|--------------|
| 5 | Sub-national spread of branches is not a factor for audit fee determination in an AAS environment | 37 (10.2%) | 114 (31.5%) | 57 (15.7%) | 154 (42.5%) | 2.09 | 1.07 | Disagree |
| 6 | Global network of branches is not factored into audit fee quotation in an AAS environment | 20 (5.5%) | 164 (45.3%) | 100 (27.6%) | 78 (21.5%) | 2.35 | 0.88 | Disagree |
| Grand Mean | | | | | | | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.5.2 shows the influence of client's size on the determination of audit fee and from the table the respondents agree that number of subsidiaries is a factor for audit fee quotation in an AAS environment. They also agree sub-national spread of subsidiaries is a factor for audit fee quotation in an AAS environment. Also, the respondents agree that global network of subsidiaries is factored into audit fee quotation in an AAS environment. In addition, the respondents agree that number of branches is a factor for consideration in the determination of audit fee in an AAS environment and whereas the respondents disagree that sub-national spread of branches is not a factor for audit fee determination in an AAS environment while they disagree that global network of branches is not factored into audit fee quotation in an AAS environment.

Generally, the respondents marginally (grand mean of 2.77) agree that client's complexity could affect the appropriate fees for the external auditor in an automated accounting system environment.

Table 4.5.3: The effect of Profitability on audit fee

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|---|----------------|----------------|---------------|---------------|------|-------|----------|
| 1 | Level of profitability is a factor in audit fee determination in an AAS environment | 153 (42.3%) | 166 (45.9%) | 37 (10.2%) | 6 (1.7%) | 3.29 | 0.71 | Agree |
| 2 | Profitability is a measure of risk exposure of audit firm hence a determinant of audit fee in an AAS environment | 74 (20.4%) | 251 (69.3%) | 31 (8.6%) | 6 (1.7%) | 3.09 | 0.59 | Agree |
| 3 | Level of profitability is a measure of level of operational demand of audit efforts hence should be factored in the determination of audit fees | 69 (19.1%) | 251 (69.3%) | 35 (9.7%) | 7 (1.9%) | 3.06 | 0.6 | Agree |

| | | | | | | | | |
|-------------------|---|---------------|----------------|---------------|--------------|------|------|--------------|
| 4 | Level of profitability require commensuration compliance and substantive test hence should be given consideration in quotation of audit fee | 79 (21.8%) | 229 (63.3%) | 38 (10.5%) | 16 (4.4%) | 3.02 | 0.71 | Agree |
| Grand Mean | | | | | | | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.5.3 reveals the perceptions of external auditors as relates to the determination of audit fee and the respondents agree that level of profitability is a factor in the determination of audit fee in an AAS environment, profitability is a measure of risk exposure of audit firm hence a determinant of audit fee in an AAS environment and level of profitability is a measure of level of operational demand of audit efforts hence should be factored into the determination of audit fees. In the same vein, the respondents agree that level of profitability require commensuration compliance and substantive tests hence should be given consideration in quotation of audit fee.

In summary, external auditors ascribed greater weight to profitability of clients during audit fees negotiation even in the dispensation of automated accounting system.

4.2.1.4 Automated Accounting System and Audit Evidence

Expression of opinion of external auditor on a firm's financial statement lies much more on evidence obtained during audit engagement and this study consider the process of obtaining this evidence through the conduct of two major tests, namely compliance (control) and substantive tests. The following questions were posed to external auditors to probe the

application and effect of automation on audit evidence. The responses were subjected to analysis and the results of the analysis are as shown below

Research Question Four: What is the significant effect of automated accounting system on audit evidence?

Table 4.6.1: The effect of control testing on audit evidence in an automated accounting system environment

| Items | SA | A | D | SD | Mean | Std.D | Decision |
|--|---------------|----------------|---------------|--------------|------|-------|----------|
| | Freq(%) | Freq(%) | Freq(%) | Freq(%) | | | |
| 1. Operational control can be tested holistically under automated accounting system | 83 (24.6%) | 182 (54.0%) | 45 (13.4%) | 27 (8.0%) | 2.95 | 0.84 | Agree |
| 2. Client's operational control had been tested electronically under automated accounting system | 94 (27.9%) | 227 (67.4%) | 7 (2.1%) | 9 (2.7%) | 3.20 | 0.60 | Agree |

| | | | | | | | |
|--|----------------|----------------|---------------|---------------|------|------|----------|
| 3. Financial control had been subjected to complete electronic test under automated accounting system | 130 (38.6%) | 193 (57.3%) | 13 (3.9%) | 1 (0.3%) | 3.34 | 0.57 | Agree |
| 4. Client's financial control in the last five years had been completely tested under automated accounting system | 105 (31.2%) | 185 (54.9%) | 35 (10.4%) | 12 (3.6%) | 3.14 | 0.73 | Agree |
| 5. Clients' evidence of segregation of duty is difficult to establish electronically under automated accounting system | 80 (23.7%) | 163 (48.4%) | 60 (17.8%) | 34 (10.1%) | 2.86 | 0.90 | Disagree |
| 6. Evidence of authorisation of clients/ financial commitment are done electronically with utmost reliance of results obtained | 88 (26.1%) | 233 (69.1%) | 8 (2.4%) | 8 (2.4%) | 3.19 | 0.59 | Agree |
| 7. Electronic tests of control are found unreliable in assertion of the management of clients under automated accounting system. | 121 (35.9%) | 171 (52.5%) | 25 (7.4%) | 14 (4.2%) | 3.21 | 0.75 | Agree |

| | | | | | | | |
|--|----------------|------------------|---------------|--------------|-------------|------|--------------|
| 8. Reliance can be placed on electronic conduct of tests to minimise incidence of risk of material misstatement. | 110 (32.6%) | 171 (52.5.0%) | 38 (11.3%) | 12 (3.6%) | 3.17 | 0.74 | Agree |
| Grand Mean | | | | | 3.13 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.6.1 shows control testing as a measure of audit evidence. The respondents agree that operational control can be 100% tested under automated accounting and client's operational control had been tested electronically under automated accounting system. They also agree financial control had been subjected to complete electronic test under automated accounting system and client's financial control in the last five years had been completely tested under an automated accounting system. Also, they agree that clients' evidence of segregation of duty is difficult to establish electronically under automated accounting system and evidence of authorization of clients/financial commitment is done electronically with utmost reliance on results obtained duty. They also agree that electronic tests of control are found more unreal than the then assertion of the management of clients under an automated accounting system in addition and reliance can be placed on electronic conduct of tests to the minimise incidence of risk of material misstatement. The grand mean of 3.13 shows that the majority of external auditors agrees that control testing aided by automated accounting system will influence audit evidence.

Table: 4.6.2: Assertion of financial statements in automated accounting system as a measure of audit evidence

| Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|---|----------------|----------------|---------------|---------------|------|-------|----------|
| 1. Existence of noncurrent asset could be reliably established electronically | 85 (25.2%) | 172 (51.0%) | 51 (15.1%) | 29 (0.8%) | 2.93 | 0.86 | Agree |
| 2. Existence of liabilities are difficult to establish electronically | 83 (24.6%) | 209 (62.0%) | 23 (6.8%) | 22 (6.5%) | 3.05 | 0.76 | Agree |
| 3. It is no longer necessary for auditors to be present physically during inventory taking as activities can continuously monitored remotely. | 121 (35.9%) | 187 (55.5%) | 22 (6.5%) | 7 (2.1%) | 3.25 | 0.67 | Agree |
| 4. Confirmation of receivable is easier to establish directly without any letter of authority from the clients through auditor's server. | 114 (33.8%) | 166 (49.3%) | 43 (12.8%) | 14 (4.2%) | 3.15 | 0.78 | Agree |
| 5. Trade payables can only be ascertained through direct contact with clients' suppliers. | 75 (9.5%) | 169 (50.1%) | 61 (18.1%) | 32 (9.5%) | 2.85 | 0.87 | Agree |
| 6. Shareholding interests are easily established | 92 (27.3%) | 223 (66.2%) | 12 (3.6%) | 10 (3.0%) | 3.19 | 0.63 | Agree |

electronically

| | | | | | | | |
|--|----------------|----------------|---------------|--------------|-------------|------|--------------|
| 7. Clients' revenue can holistically be subjected to electronic audit | 131 (38.9%) | 195 (57.9%) | 10 (3.0%) | 1 (0.3%) | 3.35 | 0.55 | Agree |
| 8. Clients' commitment on expenses are fully opened to electronic audit | 108 (32.0%) | 186 (55.2%) | 31 (9.2%) | 12 (3.6%) | 3.16 | 0.73 | Agree |
| 9. Sole dependent on electronic test of financial statements could expose auditor to risk of misstatement. | 75 (22.3%) | 175 (51.9%) | 56 (16.6%) | 31 (9.2%) | 2.88 | 0.86 | Agree |
| Grand Mean | | | | | 3.09 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.6.2 is on the assertion that financial statement in automated accounting system is a measure of audit evidence. Based on the results of descriptive analysis, the respondents agree that the existence of noncurrent assets could be reliably established electronically it also agree that existence of liabilities is difficult to establish electronically. The respondents agree that it is no longer necessary for auditors to be present physically during inventory taking as activities can be continuously monitored remotely. Also, they agree that confirmation receivables is easier to establish directly without any letter of authority from the clients the through auditor's server and trade payables can only be ascertained through direct contact with clients' suppliers. Also, they agree shareholding interests are easily established electronically and clients' revenue can holistically be subjected to electronic audit likewise they agree clients' commitment on expenses are fully opened to

electronic audit while sole dependent on the electronic test of financial statements could expose auditor to risk of misstatement. The 3.09 grand mean is supportive to the general expression of external auditors that assertion of financial statement in an automated accounting system will enhance audit evidence. It is an affirmation that automated accounting system can enhance the conduct of substantive test electronically.

Table 4.6.3: Sufficiency of audit evidence in automated accounting system

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|---|----------------|----------------|---------------|---------------|------|-------|----------|
| 1 | All items can now be subjected to test under automated accounting system if so desire against sample test | 93 (27.6%) | 227 (67.4%) | 8 (2.4%) | 9 (2.7%) | 3.20 | 0.6 | Agree |
| 2 | Specific selection of items are still relevant in automated accounting system | 132 (39.2%) | 196 (58.2%) | 8 (2.4%) | 1 (0.3%) | 3.36 | 0.55 | Agree |
| 3 | Audit sampling is widely practice under automated system | 110 (42.0%) | 179 (53.1%) | 35 (10.4%) | 13 (3.9%) | 3.15 | 0.75 | Agree |

| | | | | | | | | |
|-------------------|---|----------------|----------------|---------------|---------------|-------------|------|--------------|
| 4 | Complete testing of items reduces inconsistency of audit finding that could have called for further evaluation(s) | 85 (32.6%) | 178 (61.0%) | 47 (3.0%) | 27 (0.8%) | 2.95 | 0.84 | Agree |
| 5 | Electronic test of risk has substantially reduced risk of material misstatement. | 89 (26.4%) | 230 (68.2%) | 8 (2.4%) | 10 (3.0%) | 3.18 | 0.61 | Agree |
| 6 | Risk of material misstatement under AAS is substantial than under manual accounting system. | 128 (38.0%) | 179 (53.1%) | 22 (6.5%) | 8 (2.4%) | 3.27 | 0.69 | Agree |
| 7 | Audit trail is no longer a threat to sufficiency of evidence | 107 (31.8%) | 184 (54.6%) | 32 (9.5%) | 14 (4.2%) | 3.14 | 0.75 | Agree |
| 8 | Audit working papers are secured in AAS environment as much as in manual accounting system environment | 70 (20.8%) | 172 (51.0%) | 59 (17.5%) | 36 (10.7%) | 2.83 | 0.88 | Agree |
| Grand Mean | | | | | | 3.14 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Sufficiency of audit evidence as a measure of audit evidence is depicted in Table 4.6.3. In the general view, the respondents agree that all items can now be subjected to test under automated accounting system if so desire against sample test, specific selection of items is still relevant in automated accounting system, audit sampling is widely practice under automated system, complete testing of items reduces inconsistency of audit finding that could have called for further evaluation(s), electronic test of risk has substantially reduced risk of material misstatement, risk of material misstatement under AAS is substantial than under manual accounting system, audit trail is no longer a threat to sufficiency of evidence

and audit working papers are secured in AAS environment as much as in manual accounting system environment. Their respective means are 3.20, 3.36, 3.15, 2.95, 3.18, 3.27, 3.14 and 2.83 and all pointing to the fact that respondents (auditors) agreed that automated accounting system provide platform for effective collections of sufficient evidence and this is fully supported by the overall mean of 3.18.

4.6.4: Relevancy and reliability in automated accounting system

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|---------------|----------------|--------------|---------------|------|-------|----------|
| 1 | Evidence from knowledgeable source can easily be obtained electronically | 98 (29.1%) | 224 (66.5%) | 7 (2.1%) | 8 (2.4%) | 3.23 | 0.6 | Agree |

| | | | | | | | | |
|-------------------|--|----------------|----------------|---------------|--------------|-------------|------|--------------|
| 2 | Information provided from company accounting system when directly linked with auditors' server is commonly reliable | 131 (38.9%) | 196 (58.2%) | 8 (2.4%) | 2 (0.6%) | 3.35 | 0.56 | Agree |
| 3 | Firms are better placed to source and obtain information to corroborate management assertion and free of restriction and limitation in automated accounting environment. | 113 (33.5%) | 184 (54.6%) | 28 (8.3) | 12 (3.6%) | 3.18 | 0.73 | Agree |
| 4 | Continuous testing are found in practicable automated environment. | 82 (24.3%) | 184 (54.6%) | 45 (13.4%) | 26 (7.7%) | 2.96 | 0.83 | Agree |
| Grand Mean | | | | | | 3.18 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.6.4 shows that automated accounting system promotes relevant and reliable audit evidence. The responses show that respondents agree with the four questions to probe relevancy and reliability of audit evidence. According to their responses, they agree that evidence from knowledgeable source can easily be obtained electronically with a mean of 3.23 and information provided from company accounting system when directly linked with auditors' server is commonly reliable which has a mean of 3.35 while firms are better placed to source and obtain information to corroborate management assertion and free of restriction and limitation in automated accounting environment with a mean score of 3.18

as well as continuous testing is found practicable in automated environment with mean of 2.96.

The overall mean of 3.18 is an indication that there is strong consensus of respondents as to relevance and reliability of evidence obtained in an automated accounting system environment.

4.2.1.5 Big Data Analytics and Audit Quality

There are two elements which can exert influence on audit quality in big data environment and these are frequency of data collection and value of data collected. Each section has a series of questions under it that are used to achieve the set target

Table 4.7.1: Application of Big Data in External Auditing

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|----------------|----------------|--------------|---------------|------|-------|----------|
| 1 | Big data is only amenable to big and medium sized clients. | 96 (28.5%) | 220 (65.3%) | 13 (3.9%) | 8 (2.4%) | 3.21 | 0.61 | Agree |
| 2 | Most of clients regarded as big | 139 (41.2%) | 185 (54.9%) | 12 (3.6%) | 1 (0.3%) | 3.38 | 0.56 | Agree |

sized in South West, Nigeria had adopted Big data tools

| | | | | | | | | |
|-------------------|--|----------------|----------------|---------------|--------------|-------------|------|--------------|
| 3 | Automated accounting system is a prerequisite for application of big data analytics. | 123 (36.5%) | 172 (51.0%) | 31 (9.2%) | 11 (3.3%) | 3.22 | 0.73 | Agree |
| 4 | Technicality of big data analytics has made it imperative for audit firms to engage specialist in this field | 75 (22.3%) | 182 (54.0%) | 54 (16.0%) | 26 (7.7%) | 2.91 | 0.83 | Agree |
| Grand Mean | | | | | | 3.18 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

These sections serve as a preamble to the examination of big data analytics on audit quality and audit evident. The analysis becomes necessary to ascertain the level of adoption of big data analytics. There must first and foremost evidence of big data in entity operating in South West before the employment of big data analytics tools become relevant

The result of the preamble test revealed that 316 respondents (93.77%) with mean of 3.21 were of opinion that big data is relevant to the operations of both medium and big size businesses. It also reveals that 324 with mean of 3.38 (98.1%) respondents submitted that most big size business has adopted big data tools, while enquiry on automated accounting system as a prerequisite for application of big data analytics attracted 295 'agreed' response out of 337 respondents. 257 respondents agreed that the technicality of big data analytics require the engagement of specialist by audit firms. With overall mean of 3.18 there is prevalence of big data in large and medium sized firms with operational base in

South-West, Nigeria and that make the employment of big data analytics relevant in the execution of audit engagements by external auditors of such firms.

Research Question Five: What is the significant effect of big data analytics on audit quality?

Table 4.7.2: Audit quality in big data analytics datasets: Frequency of data collection

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-------------------|--|----------------|----------------|---------------|---------------|-------------|-------|--------------|
| 1 | Frequency of data collected helps in the analysis of bottlenecks in the system | 94 (27.9%) | 227 (67.4%) | 9 (2.7%) | 7 (2.1%) | 3.22 | 0.58 | Agree |
| 2 | Frequency of data gathering helps in building large/small scale processing system | 132 (39.2%) | 193 (57.3%) | 11 (3.3%) | 1 (0.3%) | 3.37 | 0.55 | Agree |
| 3 | Frequency of data collected helps in real time analysis to monitor market trends | 110 (32.6%) | 185 (54.9%) | 30 (8.9%) | 12 (3.6%) | 3.18 | 0.72 | Agree |
| 4 | Frequency of data collected helps in real time analysis to monitor situations as it develops | 83 (24.6%) | 183 (54.3%) | 45 (13.4%) | 26 (7.7%) | 2.96 | 0.83 | Agree |
| 5 | Frequency of data collected helps in finding unexpected/unknown relationship between variables | 99 (29.4%) | 222 (65.9%) | 7 (2.1%) | 9 (2.7%) | 3.23 | 0.61 | Agree |
| Grand Mean | | | | | | 3.19 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Frequency of data collection is depicted in table 4.7.2 above. In the general view, the respondents agree that the frequency of data collected helps in the analysis of bottlenecks in the system. Also, they agree that the frequency of data gathering helps in building large/small scale processing systems. Furthermore, they agree that frequency of data collected helps in real time analysis to monitor market trends, frequency of data collected helps in real-time analysis to monitor situations as it develops and frequency of data collected helps in finding unexpected/unknown relationships between variables. Their respective mean is 3.22, 3.37, 3.18, 2.96 and 3.23 which is used to confirm the assertion.

These results are in support that big data analytics with frequency of data processed enhances audit quality and it secures grand mean of 3.19 to support the general agreement to the findings.

Table 4.7.3: Audit quality in big data analytics datasets: Value of data collected

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|----------------|----------------|--------------|---------------|------|-------|----------|
| 1 | Value of data collected helps to determine the consistence of transaction processing | 134 (39.8%) | 190 (56.4%) | 11 (3.3%) | 2 (0.6%) | 3.37 | 0.54 | Agree |
| 2 | Value of data collected helps to maintain and safeguard assets of entities | 111 (32.9%) | 182 (54.0%) | 31 (9.2%) | 13 (3.9%) | 3.17 | 0.6 | Agree |

| | | | | | | | | |
|-------------------|--|----------------|----------------|---------------|--------------|-------------|------|--------------|
| 3 | Value of data collected affect the quality of interpretation and analysis of data transaction in entities | 82 (24.3%) | 181 (53.7%) | 47 (13.9%) | 27 (8.0%) | 2.95 | 0.58 | Agree |
| 4 | Value of data collected helps to ensure that entities comply with internal policies and other rules guiding their operations | 95 (28.2%) | 226 (67.1%) | 7 (2.1%) | 9 (2.7%) | 3.21 | 0.76 | Agree |
| 5 | Value of data collected determines the operators' programming language and statistical tools employed | 130 (38.6%) | 194 (57.6%) | 11 (3.3%) | 2 (0.6%) | 3.35 | 0.75 | Agree |
| Grand Mean | | | | | | 3.21 | | Agree |

Source: Researcher's Compilation from Field Survey (2022)

Table 4.7.3 shows the value of data collected. Respondents show that they agree with the

five questions under value of data collected. According the responses, they agree that value of data collected helps to determine the consistence of transaction processing with a mean of 3.37 and value of data collected helps to maintain and safeguard assets of entities which has a mean of 3.17 while value of data collected affect the quality of interpretation and analysis of data transaction in entities with a mean score of 2.95. Also, they agree that value of data collected helps to ensure that entities comply with internal policies and other rules guiding their operations and value of data collected determines the operators'

programming language and statistical tools employed with mean of 3.21 and 3.35 respectively.

Overall mean of 3.21 is supportive to the fact that value of data collected and processed with big data analytics tool enhances audit quality.

4.2.1.6 Big Data Analytics and Audit Evidence

Audit evidence in big data and big data analytics is divided into four sections with different questions under each of the sections. The sections include control testing, sufficiency of audit evidence, relevancy and reliability of audit evidence in big data environment and assertions on financial statements in big data environment

Research Question Six: What is the effect of big data analytics on audit evidence?

Table 4.8.1: Control Testing in Big Data Analytics

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|---|----------------|----------------|--------------|---------------|------|-------|----------|
| 1 | Big data analytics promote complete test of operational control | 141 (33.8%) | 181 (53.7%) | 30 (8.9%) | 12 (3.6%) | 3.19 | 0.73 | Agree |

| | | | | | | | | |
|-------------------|---|----------------|----------------|---------------|---------------|-------------|------|--------------|
| 2 | Financial control test had been subjected to big data analytics in the last five or more years | 75 (22.3%) | 184 (54.6%) | 50 (14.8%) | 28 (8.3%) | 2.92 | 0.83 | Agree |
| 3 | Big data analytics enhances the effectiveness of financial control | 91 (27.0%) | 227 (67.4%) | 8 (2.4%) | 11 (3.3%) | 3.19 | 0.62 | Agree |
| 4 | Segregation of duty is difficult to maintain in Big data environment | 124 (36.8%) | 174 (51.6%) | 21 (6.2%) | 18 (5.3%) | 3.21 | 0.78 | Disagree |
| 5 | Authorisation is seamlessly established in Big data establishment | 111 (32.9%) | 183 (54.3%) | 31 (9.2%) | 12 (3.6%) | 3.18 | 0.73 | Agree |
| 6 | Management assertions are difficult to be corroborated in Big data environment | 77 (22.8%) | 163 (48.4%) | 62 (18.4%) | 35 (10.4%) | 2.84 | 0.90 | Disagree |
| 7 | Big data analytics enhances the effectiveness of identification of risks that may promote material misstatement | 99 (29.4%) | 222 (65.9%) | 8 (2.4%) | 0 (0.0%) | 3.23 | 0.60 | Agree |
| Grand Mean | | | | | | 3.11 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.8.1 shows the control testing of the audit evidence subjected to big data analytics.

From the control testing, the respondents agree that big data analytics promote complete test of operational control; financial control test had been subjected to big data analytics in the last five or more years, big data analytics enhances the effectiveness of financial control,

authorisation is seamlessly established in big data establishment and that big data analytics enhances the effectiveness of identification of risks that may promote material misstatement with the following mean of 3.19, 2.92, 3.19, 3.18, and 3.23 respectively. However, the respondents' disagreement to question 4 only translate to the respondents in directly agreeing that 'segregation of duty is not difficult to maintain in big data environment and the same interpretation is applicable to question 6 where the respondents also agree indirectly that 'management assertions are not difficult to be corroborated in big data environment. The grand mean is 3.11 which indicate that there is a moderate effect of big data analytics on audit evidence (control test)

Table 4.8.2: Sufficiency of Audit Evidence in Big Data Analytics

| S/N | Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|-----|--|----------------|----------------|--------------|---------------|------|-------|----------|
| 1 | Big data tools promotes test of transactions arisen from structured or | 137 (40.7%) | 189 (56.1%) | 10 (3.0%) | 1 (0.3%) | 3.38 | 0.55 | Agree |

| | unstructured sources | | | | | | | |
|---|--|----------------|----------------|---------------|--------------|-------------|------|--------------|
| 2 | Unstructured data can be 100% tested using data analytics | 114 (33.8%) | 177 (52.5%) | 34 (10.1%) | 12 (3.6%) | 3.18 | 0.74 | Agree |
| 3 | Complete test of all datasets reduces inconsistencies of audit findings that could warrant further tests | 80 (23.7%) | 183 (54.3%) | 47 (13.9%) | 27 (8.0%) | 2.94 | 0.83 | Agree |
| 4 | Cloud accounting associates with big data and promotes sufficiency of evidence | 94 (27.9%) | 227 (67.4%) | 8 (2.4%) | 8 (2.4%) | 3.21 | 0.61 | Agree |
| 5 | Big data analytics assist external auditors to access appropriate evidence in high volume datasets | 135 (40.1%) | 192 (57.0%) | 9 (2.7%) | 1 (0.3%) | 3.38 | 0.54 | Agree |
| | Grand Mean | | | | | 3.23 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.8.2 shows the sufficiency of audit evidence with the application of big data analytics in audit engagement. The responses shows that the respondents agreed with the five questions under the sufficiency of audit evidence. According to their responses, they agree that big data tools promote tests of transactions arising from structured or unstructured sources with a mean of 3.38 and unstructured data can be 100% tested using data analytics which has a mean of 3.18 while its complete test of all datasets reduces inconsistencies of audit findings that could warrant further tests with a mean score of 2.94.

Furthermore, the respondents agree that cloud accounting is associated with big data and promotes sufficiency of the evidence with a mean of 3.21 and big data analytics assist external auditors to access appropriate evidence in high volume datasets with a mean score of 3.38. Overall mean of 3.23 also support that sufficient audit evidence can be obtained in big data environment through the application of big data analytics.

Table 4.8.3: Relevancy and reliability of audit evidence: Big data analytics

| Items | SA Freq(%) | A Freq(%) | D Freq(%) | SD Freq(%) | Mean | Std.D | Decision |
|--|----------------|----------------|---------------|---------------|-------------|-------|--------------|
| 1. Promotion of reliability of external evidence remains a source of concern in big data environment | 89 (24.6%) | 167 (46.1%) | 74 (20.4%) | 32 (8.8%) | 3.12 | 0.80 | Agree |
| 2. Employment of big data analytics on variety of datasets improves quality of audit evidence | 120 (33.1%) | 221 (61.0%) | 14 (3.9%) | 7 (1.9%) | 2.97 | 0.83 | Agree |
| 3. Big data analytics promote efficiency of continuous audit | 99 (27.3%) | 262 (72.4%) | 0 (0.0%) | 1 (0.3%) | 3.23 | 0.59 | Agree |
| 4. Big data analytics enhances auditor's ability to gather audit from very large population | 164 (45.3%) | 188 (51.9%) | 9 (2.5%) | 1 (0.3%) | 3.38 | 0.54 | Agree |
| Grand Mean | | | | | 3.18 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

Table 4.8.3 shows the relevancy and reliability of audit evidence in big data environment. The respondents agree to all the questions under this section. The respondents agree that promotion of reliability of external evidence remains a source of concern in big data environment and employment of big data analytics on variety of datasets improves

quality of audit evidence with a mean of 3.12 and 2.97 respectively. Also, the agree that big data analytics promote efficiency of continuous audit and big data analytics enhances auditor's ability to gather audit from very large population with a mean of 3.23 and 3.38 respectively. The grand mean of 3.18 is a reflection of respondents' perception that evidence obtained through the application could be relevant and reliable or that relevant and reliable evidence could be obtained with deployment of big data analytics in big data environment.

Table 4.8.4: Assertions on financial statements: Big data analytics

| Items | SA | A | D | SD | Mean | Std.D | Decision |
|--|----------------|----------------|----------------|---------------|------|-------|----------|
| | Freq(%) | Freq(%) | Freq(%) | Freq(%) | | | |
| 1. Existence of non-current assets could be reliably established with application of big data analytics | 108 (32.0%) | 177 (52.5%) | 39 (11.6%) | 13 (3.9%) | 3.14 | 0.75 | Agree |
| 2. Existence of liabilities are difficult to establish with data analytics | 71 (21.1%) | 167 (49.6%) | 64 (19.0%) | 35 (10.4%) | 2.82 | 0.89 | Agree |
| 3. It is not necessary to conduct physical count of inventory as procurement and issuance from store can be monitored electronically | 15 (4.5%) | 30 (8.9%) | 210 (62.3%) | 82 (24.3%) | 3.07 | 0.71 | Agree |
| 4. Client revenue can be established with aid of big data analytics | 136 (40.4%) | 190 (56.4%) | 9 (2.7%) | 2 (0.6%) | 3.37 | 0.56 | Agree |

| | | | | | | | |
|--|----------------|----------------|---------------|--------------|-------------|------|--------------|
| 5. Clients expenses are fully opened to big data analytics | 114 (33.8%) | 175 (51.9%) | 35 (10.4%) | 13 (3.9%) | 3.17 | 0.75 | Agree |
| 6. Shareholders equity interest can be subjected to big data analytics | 95 (28.2%) | 222 (65.9%) | 12 (3.6%) | 8 (2.4%) | 3.21 | 0.60 | Agree |
| Grand Mean | | | | | 3-13 | | Agree |

Source: Researcher's Computation from Field Survey (2022)

The above table reflects the opinion of external auditors to various questions raised in relation to influence of big data analytics and conduct of substantive test of financial statements. The table reveals that respondents agree (with a mean of 3.14) that application of big data analytics could assist to establish the existence of non-current assets in a big data setting and that the existence of liabilities could be difficult to establish with sole reliance on big data analytics this is with a mean value of 2.82. Also, they agreed that it is not necessary to conduct physical count of inventory as inventory management could be exercised with the application of big data analytics. Furthermore, it was generally agreed by the external auditors that clients' expenses are fully opened to big data analytics and that shareholders' equity interest can be subjected to big data analytics as these were supported with means of 3.17 and 3.21. Generally, the grand mean of 3.13 suggests that various assertions of financial statements could be established with the application of big data analytics.

4.3 Test of Hypotheses

H₀1: Automated accounting system has no significant effect on audit independence in South-West Nigeria.

To test the null hypothesis one, PLS-Structural Equation Modeling (PLS-SEM) was adopted using the SmartPLS statistical platform version 3.3.9. The study used the PLS-algorithm's command which is appropriate for predicting effect-relationship, ran the bootstrapping to ascertain the level of significant of the prediction, and ran blindfolding to determine the predictive relevance of the structural model specified. The choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using SPSS^{23,24,26}. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS^{23,26}.

The independent variable automated accounting system includes sub-measures such as receivable automation, payable automation, payroll automation, and inventory automation while audit independence constitutes the dependent variable. Data from three hundred and thirty-seven respondents who were auditors in private practice in South-West Nigeria were collated for the analysis. The result of the PLS-SEM is presented in three model (see figure 4.1, 4.2 & 4.3) and a table (see table 4.3.1). Figure four shows the path analysis, figure five shows the t-values which confirm the significance of the path analysis and figure six shows Q² which confirms the predictive relevance of the structural model (t-value above 1.96 and Q² above zero confirm a statistically significant effect and that the structural model specified is relevance). Each model comprised of outer model which shows the factor loadings (correlation) of each item in relation to the latent variable and the inner model

termed the structural model (predictive model) which explains the interactions between the independent (automated accounting system) variable(s) and the dependent (audit independence) variable in a study. The table 4.3.1 provides a tabular representation of the information in figure 4.1, 4.2 and 4.3

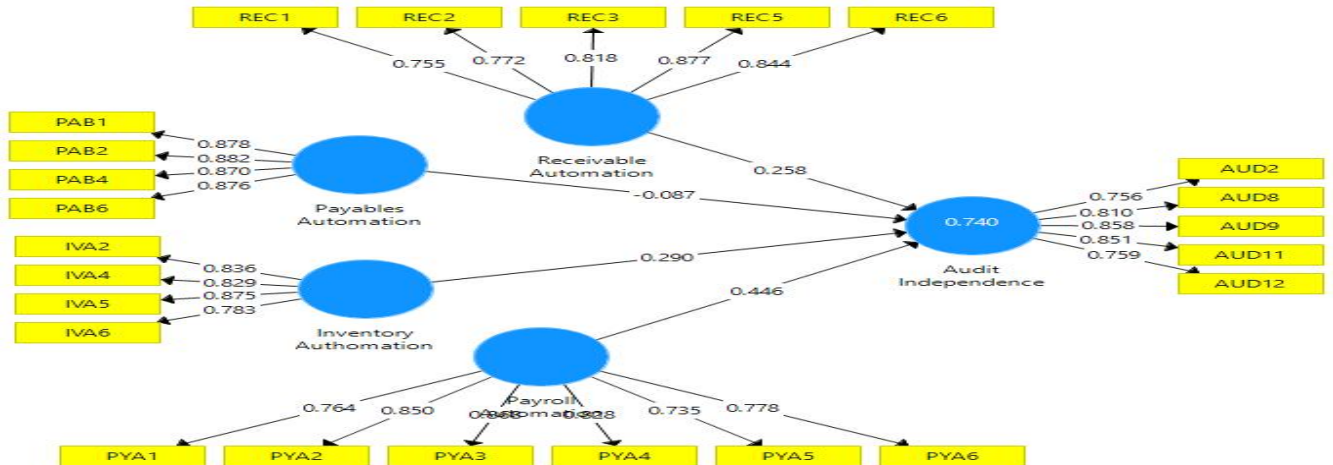


Figure 4.1: Path Analysis for Hypothesis One
Source: Researcher's Computation via SmartPLS V3.3.9

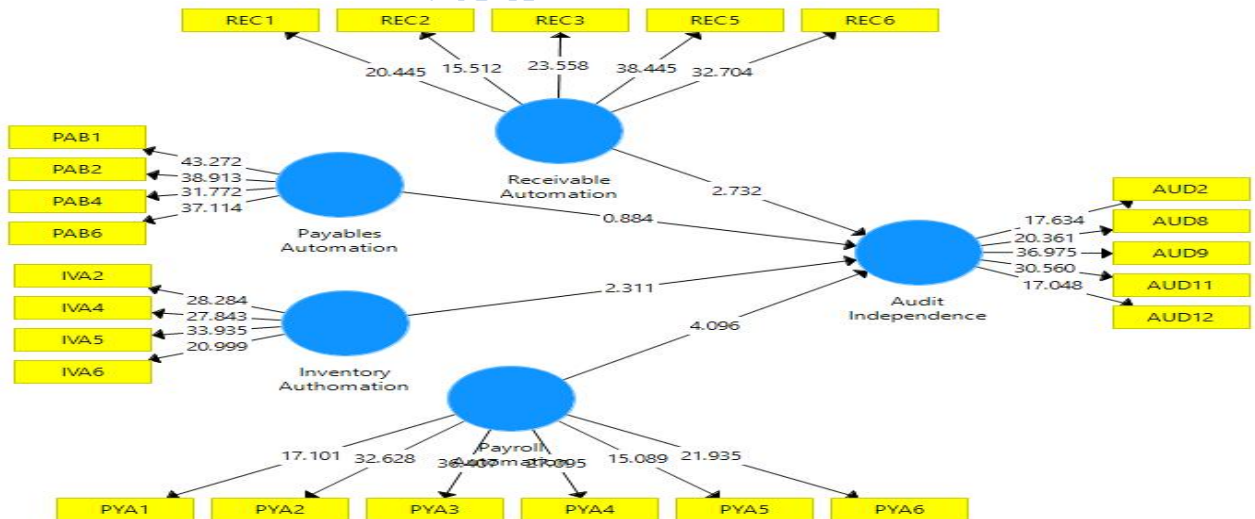


Figure 4.2: T-Statistics for Hypothesis One
Source: Researcher's Computation via SmartPLS V3.3.9

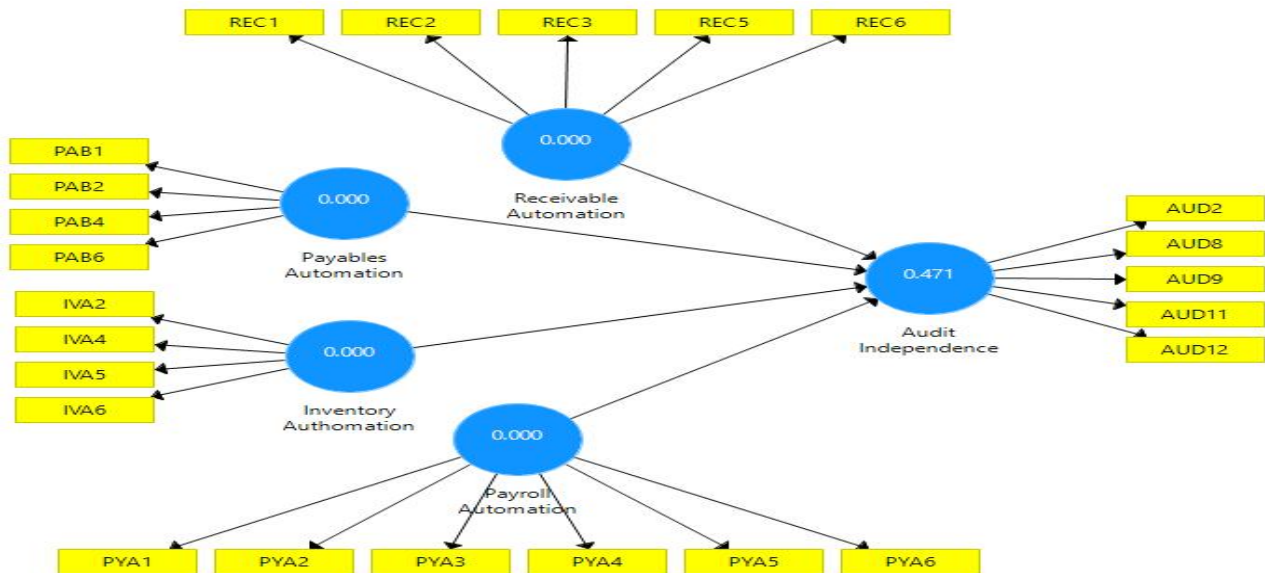


Figure 4.3: . Q² Statistics for Hypothesis One
Source: Researcher's Computation via SmartPLS V3.3.9

Table 4.9.1: Summary of the PLS-SEM for the effect of Automated Accounting System on Audit Independence in South-West, Nigeria

| Path Description | Original sample (o) Unstandardized Beta | T | Sig. | R ² | Adj. R ² | Sig. | Q ² |
|--|--|-------|-------|----------------|------------------------|-------|----------------|
| | | | | 0.740 | 0.728 | 0.000 | 0.471 |
| Inventory automation → Audit independence | 0.290 | 2.311 | 0.021 | | | | |
| Payables automation → Audit independence | -0.087 | 0.884 | 0.377 | | | | |
| Payroll automation → Audit independence | 0.446 | 4.096 | 0.000 | | | | |
| Receivables automation → Audit independence | 0.258 | 2.732 | 0.007 | | | | |

Source: Researcher's Result via SmartPLS Version 3.3.9 (2022)

Figure 4.1 presents the results of PLS-SEM analysis for the effect of automated accounting system dimensions on audit independence South-West, Nigeria. The Adjusted R^2 was used to establish the predictive power of the study's model. From the results, the adjusted coefficient of determination ($Adj R^2$) of 0.728 showed that automated accounting system dimensions explained 72.8% of the variation in audit independence in South-West Nigeria while the remaining 27.2% variation in audit independence is explained by external factors different from automated accounting system dimensions considered in this study and the effect is statistically significant at 95% confidence interval and p value less than 0.05. This result suggests that automated accounting system influenced 72.8% of the audit independence in South-West, Nigeria. R^2 or $AdjR^2$ values for endogenous latent variable in the threshold of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak respectively²⁵. Based on this threshold it is safe to posit that the effect of automated accounting system on audit independence in South-West, Nigeria is substantial.

The path coefficient of each automated accounting system dimensions (inventory automation, payables automation, payroll automation, & receivables automation) represents the coefficient of determination (β) which shows the relative effect of each automated accounting system dimensions on audit independence in South-West, Nigeria. PLS-SEM results in fig. 4 and 5 revealed that all automated accounting system dimensions have positive and significant effect on audit independence except for payables automation with insignificant relative effect. Specifically, the results revealed that at 95% confidence level, inventory automation ($\beta = 0.290$, $t = 2.311$), payroll automation ($\beta = 0.446$, $t = 4.096$), and receivables automations ($\beta = 0.258$, $t = 2.732$), were statistically significant as their p-values were less than 0.05 and their t-values greater than 1.96. However, the relative effect

of payables automation ($\beta = -0.087$, $t = 0.884$) has a t-value below the acceptable threshold of 1.96 to suggest that the relative effect is statistically insignificant.

Further analysis indicates that taking all other independent variables at zero, a unit change in inventory automation holds plausible increase of 0.290 in audit independence in South-West, Nigeria given that all other factors are held constant. Similarly, the result shows that a unit change in payroll automation will lead to a 0.446 increase in audit independence in South-West, Nigeria given that all other factors are held constant. Lastly, the result shows that a unit change in receivables automation will lead to a 0.258 increase in audit independence in South-West Nigeria, given that all other factors are held constant. Overall, from the results, payroll automation had the highest relative effect on audit independence in South-West, Nigeria with a coefficient of 0.446 and t value of 4.096. In second place is inventory automation with a coefficient of 0.290 and t value of 2.311. Lastly, receivables automation with a coefficient of 0.258, and t value of 2.732.

Further analysis was conducted to establish the predictive relevance of the model using Stone-Gleisser Q^2 value. Scholars posit that Q^2 values of 0.02, 0.15 and 0.35 represents small, medium, and large predictive relevance^{23,25,26}. Q^2 value zero and above confirm that the structural model specified is relevance. According to Table 4.9.1, the Q^2 value of audit independence in South-West, Nigeria is 0.471. Hence, automated accounting system has a large degree of predictive relevance with regards to its effects on audit independence in South-West, Nigeria; and for this reason, the structural model specified is relevant and has sufficient predictive quality. On the strength of the PLS-SEM summarised results in table 4.17 ($Adj R^2 = 0.728$, $p = 0.000$, $Q^2 = 0.464$), this study can conclude that automated

accounting system have significant and substantial effect on audit independence in South-West, Nigeria hence, the study rejects the null hypothesis one (H_01) which states that automated accounting system has no significant effect on audit independence in South-West, Nigeria.

H_02 : Automated accounting system has no significant effect on audit quality in South-West, Nigeria.

To test the null hypothesis three, PLS-Structural Equation Modeling (PLS-SEM) was adopted using the SmartPLS statistical platform version 3.3.9. The study used the PLS-algorithm's command which is appropriate for predicting effect-relationship, ran the bootstrapping to ascertain the level of significant of the prediction, and ran blindfolding to determine the predictive relevance of the structural model specified. The choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using SPSS^{23,24}. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS.

The independent variable automated accounting system includes sub-measures such as receivable automation, payable automation, payroll automation, and inventory automation while audit quality constitutes the dependent variable. Data from three hundred and thirty-seven respondents who were auditors in private practice in South-West Nigeria were collated for the analysis. The result of the PLS-SEM is presented in three models (See figure 4.4, 4.5 and 4.6) and a table (See table 4.9.2). Figure seven shows the path analysis, figure eight shows the t values which confirm the significance of the path analysis and figure nine shows Q^2 which confirms the predictive relevance of the structural model t-

value above 1.96 and Q^2 above zero confirm a statistically significant effect and that the structural model specified is relevance). Each model comprised of outer model which shows the factor loadings (correlation) of each item in relation to the latent variable and the inner model termed the structural model (predictive model) which explains the interactions between the independent (automated accounting system) variable(s) and the dependent (audit quality) variable in a study. The table 4.9.2 provides a tabular representation of the information in figure 4.4, 4.5 and 4.6.

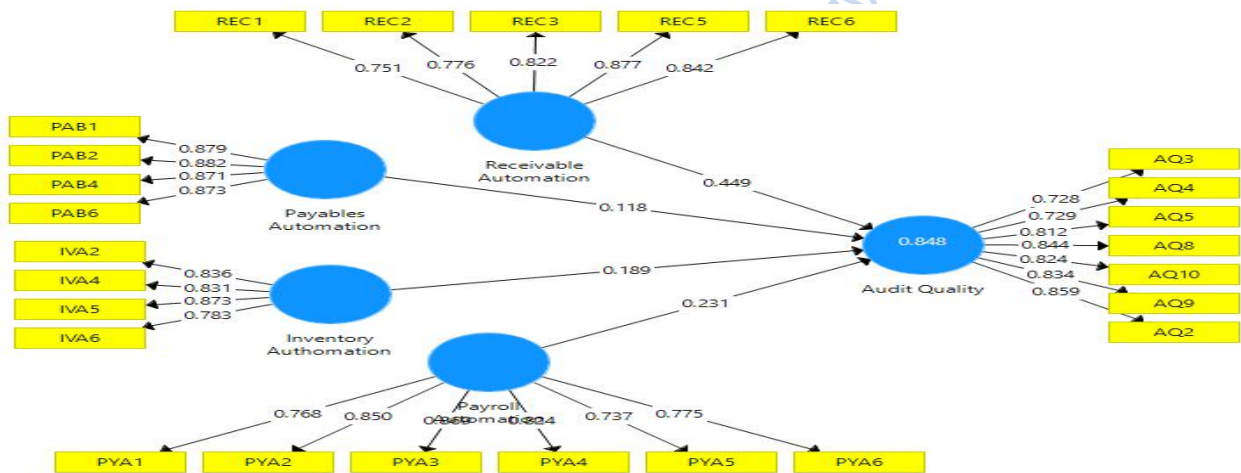


Figure 4.4: Path Analysis for Hypothesis Two
Source: Researcher's Computation via SmartPLS V3.3.9

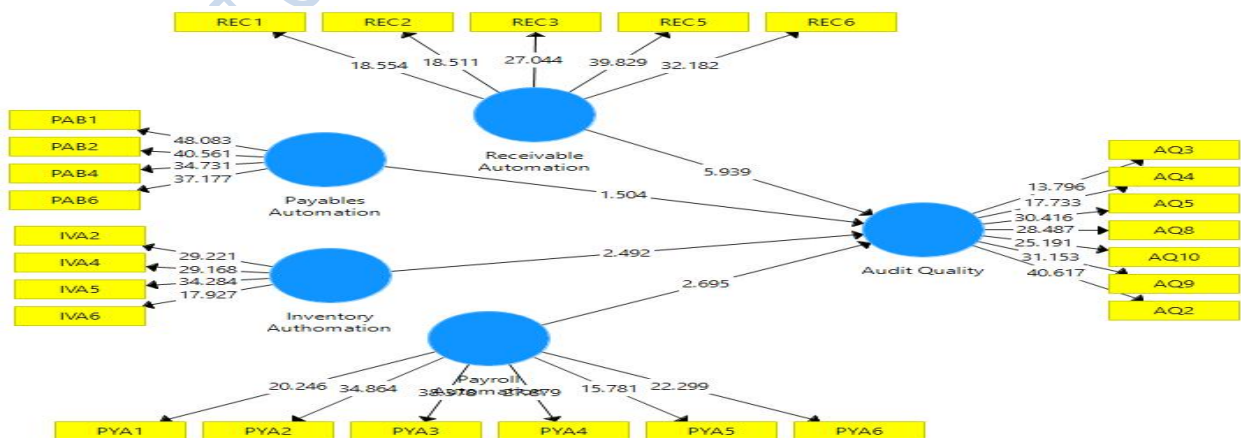


Figure 4.5: T-Statistics for Hypothesis Two
Source: Researcher's Computation via SmartPLS V3.3.9

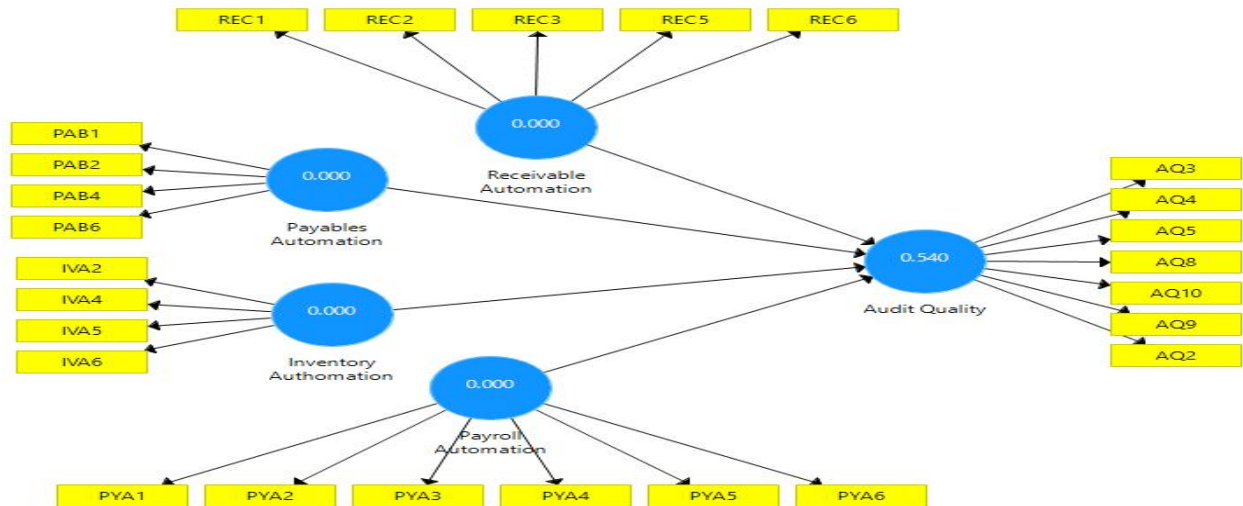


Figure 4.6: Q² Statistics for Hypothesis Two
 Source: Researcher's Computation via SmartPLS V3.3.9

Table 4.9.2: Summary of the PLS-SEM for the effect of Automated Accounting System on Audit Quality in South-West, Nigeria

| Path Description | Original sample (o) | t | Sig. | R ² | Adj. R ² | Sig. | Q ² |
|--|---------------------|-------|-------|----------------|---------------------|-------|----------------|
| | | | | 0.848 | 0.841 | 0.000 | 0.540 |
| Inventory automation → Audit quality | 0.189 | 2.492 | 0.013 | | | | |
| Payables automation → Audit quality | 0.118 | 1.504 | 0.133 | | | | |
| Payroll automation → Audit quality | 0.231 | 2.695 | 0.007 | | | | |
| Receivables automation → Audit quality | 0.449 | 5.939 | 0.000 | | | | |

Source: Researcher's Result via SmartPLS Version 3.3.9 (2022)

Figure 10 presents the results of PLS-SEM analysis for the effect of automated accounting system dimensions on Audit quality in South-West, Nigeria. The Adjusted R² was used to

establish the predictive power of the study's model. From the results, the adjusted coefficient of determination (*Adj R*²) of 0.841 showed that automated accounting system dimensions explained 84.1% of the changes in audit quality in South-West Nigeria while the remaining 15.9% changes in audit quality is explained by external factors different from automated accounting system dimensions considered in this study and the effect is statistically significant at 95% confidence interval and p value less than 0.05. This result suggests that automated accounting system influenced 84.1% of the audit quality in South-West, Nigeria. *R*² or *AdjR*² values for endogenous latent variable of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak respectively²⁵. Based on this threshold it is safe to posit that the effect of automated accounting system on audit quality in South-West, Nigeria is substantial.

The path coefficient of each automated accounting system dimensions (inventory automation, payables automation, payroll automation, & receivables automation) represents the coefficient of determination (β) which shows the relative effect of each automated accounting system dimensions on audit quality in South-West, Nigeria. PLS-SEM results in fig. 4.5 and 4.6 revealed that all automated accounting system dimensions have positive and significant effect on audit quality except for payables automation with insignificant relative effect. Specifically, the results revealed that at 95% confidence level, inventory automation ($\beta = 0.189$, $t = 2.492$), payroll automation ($\beta = 0.231$, $t = 2.695$), and receivables automations ($\beta = 0.449$, $t = 5.939$), were statistically significant as their p-values were less than 0.05 and their t-values greater than 1.96. However, the relative effect of payables automation ($\beta = 0.118$, $t = 1.504$) has a t-value below the acceptable threshold of 1.96 to suggest that the relative effect is statistically insignificant.

Further analysis indicates that taking all other independent variables at zero, a unit change in inventory automation holds plausible increase of 0.189 in audit quality in South-West, Nigeria given that all other factors are held constant. Similarly, the result shows that a unit change in payroll automation will lead to a 0.231 increase in audit quality in South-West, Nigeria given that all other factors are held constant. Lastly, the result shows that a unit change in receivables automation will lead to a 0.449 increase in audit quality in South-West Nigeria, given that all other factors are held constant. Overall, from the results, receivables automation had the highest relative effect on audit quality in South-West, Nigeria with a coefficient of 0.449 and t value of 5.939. In second place is payroll automation with a coefficient of 0.231 and t value of 2.695. Lastly, inventories automation with a coefficient of 0.189, and t value of 2.492.

Further analysis was conducted to establish the predictive relevance of the model using Stone-Gleisser Q^2 value. Scholars posit that Q^2 values of 0.02, 0.15 and 0.35 represents small, medium, and large predictive relevance^{23,25,26}. Q^2 above zero confirm that the structural model specified is relevance. According to Table 4.9.2, the Q^2 value of audit quality in South-West, Nigeria is 0.540. Hence, automated accounting system has a large degree of predictive relevance with regards to its effects on audit quality in South-West, Nigeria; and for this reason, the structural model specified is relevant and has sufficient predictive quality. On the strength of the PLS-SEM summarised results in table 4.3.4 ($Adj R^2 = 0.841$, $p = 0.000$, $Q^2 = 0.540$), this study can conclude that automated accounting system have significant and substantial effect on audit quality in South-West, Nigeria hence, the study rejects the null hypothesis three (H_02) which states that automated accounting system has no significant effect on audit quality in South-West, Nigeria.

H₀₃: Automated accounting system has no significant effect on audit fee in South West Nigeria.

To test the null hypothesis two, PLS-Structural Equation Modeling (PLS-SEM) was adopted using the SmartPLS statistical platform version 3.3.9. The study used the PLS-algorithm's command which is appropriate for predicting effect-relationship, ran the bootstrapping to ascertain the level of significant of the prediction, and ran blindfolding to determine the predictive relevance of the structural model specified. The choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using^{23,24}. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS^{23,25,26}.

The independent variable automated accounting system includes sub-measures such as receivable automation, payable automation, payroll automation, and inventory automation while Audit fee constitutes the dependent variable. Data from three hundred and thirty-seven respondents who were auditors in private practice in South-West Nigeria were collated for the analysis. The result of the PLS-SEM is presented in three model (see figure 4.7, 4.8 and 4.9) and a table (see table 4.9.3). Figure ten shows the path analysis, figure eleven shows the t values which confirm the significance of the path analysis and figure twelve shows Q^2 which confirms the predictive relevance of the structural model (t value above 1.96 and Q^2 above zero confirm a statistically significant effect and that the structural model specified is relevance). Each model comprised of outer model which shows the factor loadings (correlation) of each item in relation to the latent variable and the

inner model termed the structural model (predictive model) which explains the interactions between the independent (automated accounting system) variable(s) and the dependent (Audit fee) variable in a study. The table 4.9.3 provides a tabular representation of the information in figure 4.7, 4.8, and 4.9.

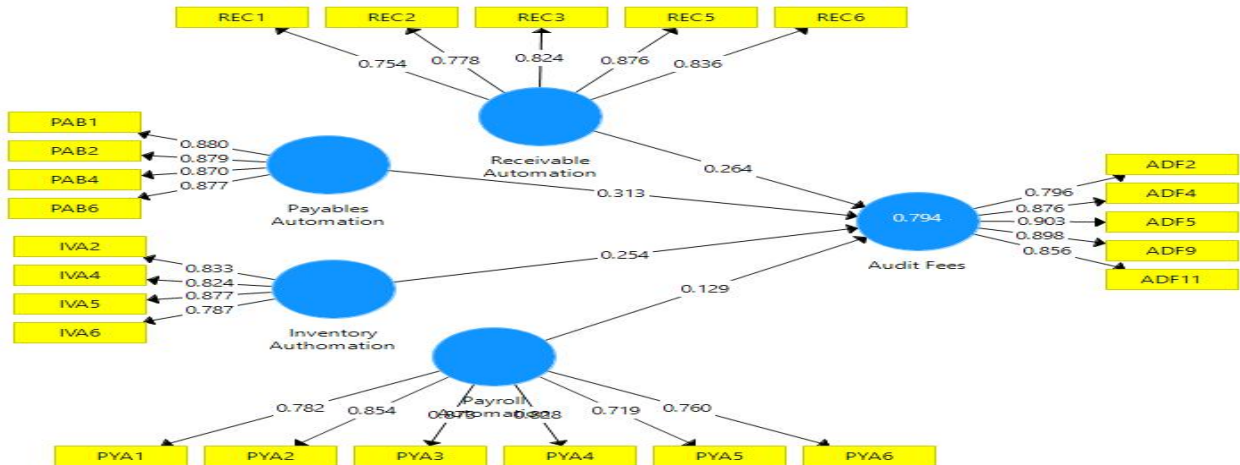


Figure 4.7: Path Analysis for Hypothesis Three
Source: Researcher's Computation via SmartPLS V3.3.9

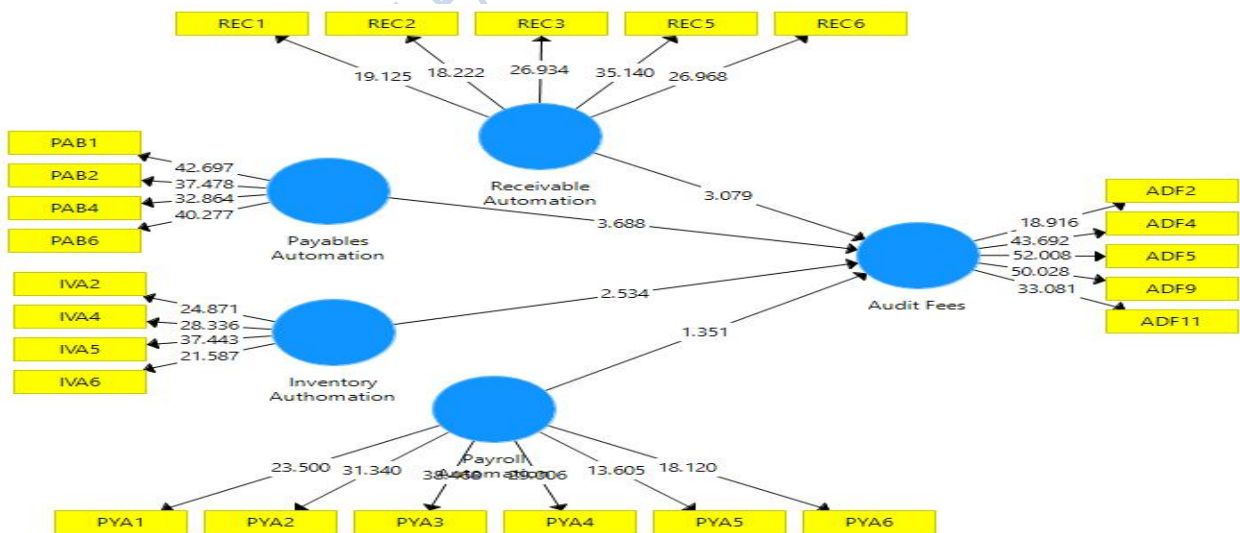


Figure 4.8: T-Statistics for Hypothesis Three
Source: Researcher's Computation via SmartPLS V3.3.9

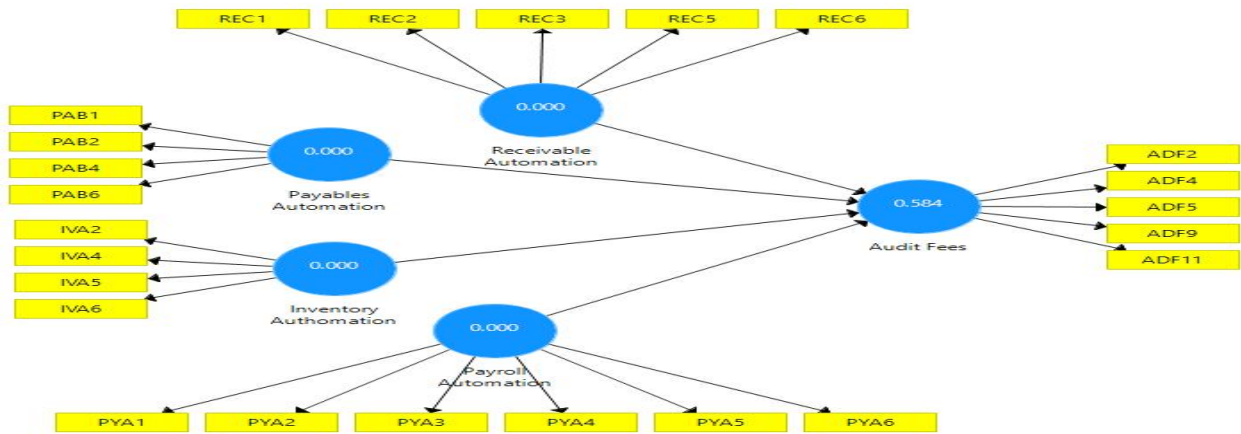


Figure 4.9: Q² Statistics for Hypothesis Three
Source: Researcher's Computation via SmartPLS V3.3.9

Table 4.9.3: Summary of the PLS-SEM for the effect of Automated Accounting System on Audit Fee in South-West, Nigeria

| Path Description | Original sample (o) Unstandardized Beta | t | Sig. | R ² | Adj. R ² | Sig. | Q ² |
|---------------------------------------|--|-------|-------|----------------|---------------------|-------|----------------|
| | | | | 0.794 | 0.785 | 0.000 | 0.584 |
| Inventory automation → Audit fee | 0.254 | 2.537 | 0.011 | | | | |
| Payables automation → Audit fee | 0.313 | 3.572 | 0.000 | | | | |
| Payroll automation → Audit fee | 0.129 | 1.370 | 0.171 | | | | |
| Receivables automation → Audit fee | 0.264 | 3.263 | 0.001 | | | | |

Source: Researcher's Result via SmartPLS Version 3.3.9 (2022)

Figure 4.7 presents the results of PLS-SEM analysis for the effect of automated accounting system dimensions on Audit fee South-West, Nigeria. The Adjusted R² was used to

establish the predictive power of the study's model. From the results, the adjusted coefficient of determination ($Adj R^2$) of 0.785 showed that automated accounting system dimensions explained 78.5% of the changes in audit fee in South-West Nigeria while the remaining 21.5% variation in audit fee is explained by external factors different from automated accounting system dimensions considered in this study and the effect is statistically significant at 95% confidence interval and p value less than 0.05. This result suggests that automated accounting system influenced 78.5% of the Audit fee in South-West, Nigeria. R^2 or $AdjR^2$ values for endogenous latent variable of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak respectively²⁵. Based on this threshold it is safe to posit that the effect of automated accounting system on audit fee in South-West, Nigeria is substantial.

The path coefficient of each automated accounting system dimensions (inventory automation, payables automation, payroll automation and receivables automation) represents the coefficient of determination (β) which shows the relative effect of each automated accounting system dimensions on audit fee in South-West, Nigeria. PLS-SEM results in fig. 4.7 and 4.8 revealed that all automated accounting system dimensions have positive and significant effect on audit fee except for payroll automation with insignificant relative effect. Specifically, the results revealed that at 95% confidence level, inventory automation ($\beta = 0.254$, $t = 2.537$), payables automation ($\beta = 0.313$, $t = 3.572$), and receivables automations ($\beta = 0.264$, $t = 3.263$), were statistically significant as their p-values were less than 0.05 and their t-values greater than 1.96. However, the relative effect of payroll automation ($\beta = 0.129$, $t = 1.370$) has a t-value below the acceptable threshold of 1.96 to suggest that the relative effect is statistically insignificant.

Further analysis indicates that taking all other independent variables at zero, a unit change in inventory automation holds plausible increase of 0.254 in audit fee in South-West, Nigeria given that all other factors are held constant. Similarly, the result shows that a unit change in payables automation will lead to a 0.313 increase in Audit fee in South-West, Nigeria given that all other factors are held constant. Lastly, the result shows that a unit change in receivables automation will lead to a 0.264 increase in audit fee in South-West Nigeria, given that all other factors are held constant. Overall, from the results, payables automation had the highest relative effect on Audit fee in South-West, Nigeria with a coefficient of 0.313 and t value of 3.572. In second place is receivables automation with a coefficient of 0.264 and t value of 3.263. Lastly, inventory automation with a coefficient of 0.254, and t value of 2.537.

Further analysis was conducted to establish the predictive relevance of the model using Stone-Gleisser Q^2 value. Q^2 values of 0.02, 0.15 and 0.35 represents small, medium, and large predictive relevance^{23, 25, 26}. Q^2 above zero confirm that the structural model specified is relevance. According to Table 4.9.3, the Q^2 value of Audit fee in South-West, Nigeria is 0.584. Hence, automated accounting system has a large degree of predictive relevance with regards to its effects on audit fee in South-West, Nigeria; And for this reason, the structural model specified is relevant and has sufficient predictive quality. On the strength of the PLS-SEM summarised results in table 4.9.3 ($Adj R^2 = 0.785$, $p = 0.000$, $Q^2 = 0.584$), this study can conclude that automated accounting system have significant and substantial effect on Audit fee in South-West, Nigeria hence, the study rejects the null hypothesis three (H_03) which states that automated accounting system has no significant effect on audit fee in South-West, Nigeria.

H₀4: Automated accounting system has no significant effect on audit evidence in South-West Nigeria

To test the null hypothesis four, PLS-Structural Equation Modelling (PLS-SEM) was adopted using the SmartPLS statistical platform version 3.3.9. The study used the PLS-algorithm's command which is appropriate for predicting effect-relationship, ran the bootstrapping to ascertain the level of significant of the prediction, and ran blindfolding to determine the predictive relevance of the structural model specified. The choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using SPSS^{23,24}. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS^{23,26}.

The independent variable automated accounting system includes sub-measures such as receivable automation, payable automation, payroll automation, and inventory automation while audit evidence constitutes the dependent variable. Data from three hundred and thirty-seven respondents who were auditors in private practice in South-West Nigeria were collated for the analysis. The result of the PLS-SEM is presented in three models (See figure 4.10, 4.11 and 4.12) and a table (See table 4.9.4). First figure shows the path analysis, second figure shows the t values which confirm the significance of the path analysis and third figure shows Q^2 which confirms the predictive relevance of the structural model (t value above 1.96 and Q^2 above zero confirm a statistically significant effect and that the structural model specified is relevance). Each model comprised of outer model which shows the factor loadings (correlation) of each item in relation to the latent variable and the

inner model termed the structural model (predictive model) which explains the interactions between the independent (automated accounting system) variable(s) and the dependent (audit evidence) variable in a study. The table 4.9.4 provides a tabular representation of the information in figure 4.10, 4.11, and 4.12

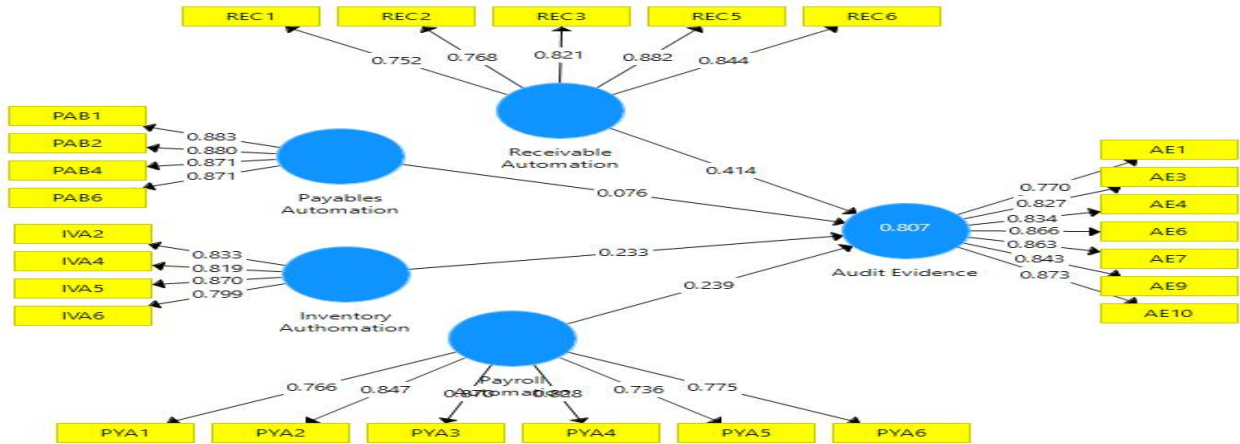


Figure 4.10: Path Analysis for Hypothesis Four
Source: Researcher's Computation via SmartPLS V3.3.9

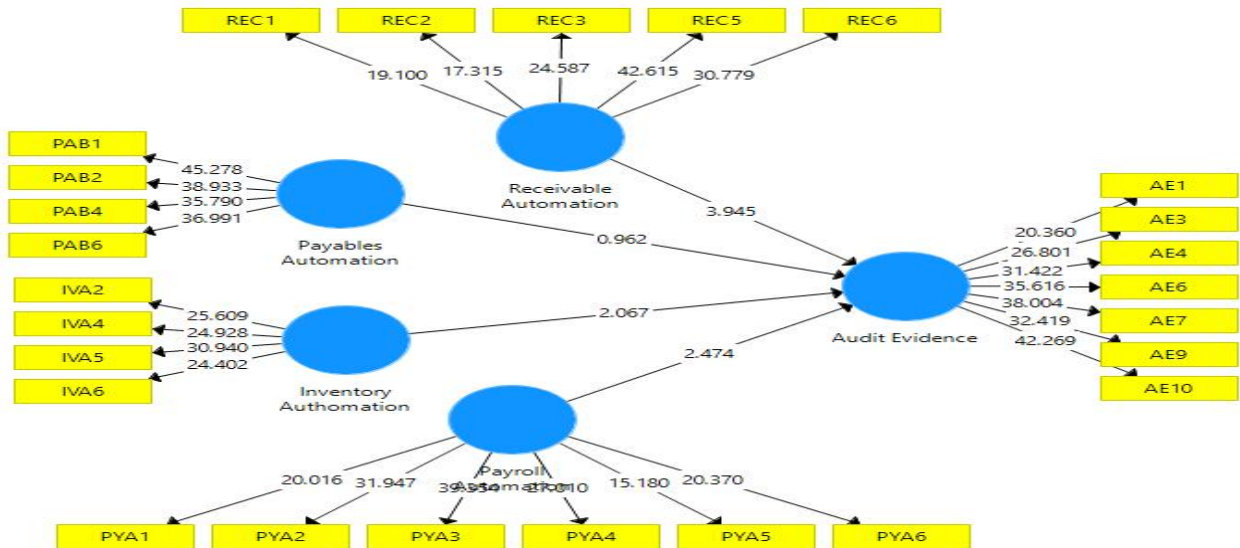


Figure 4.11: T-Statistics for Hypothesis Four
Source: Researcher's Computation via SmartPLS V3.3.9

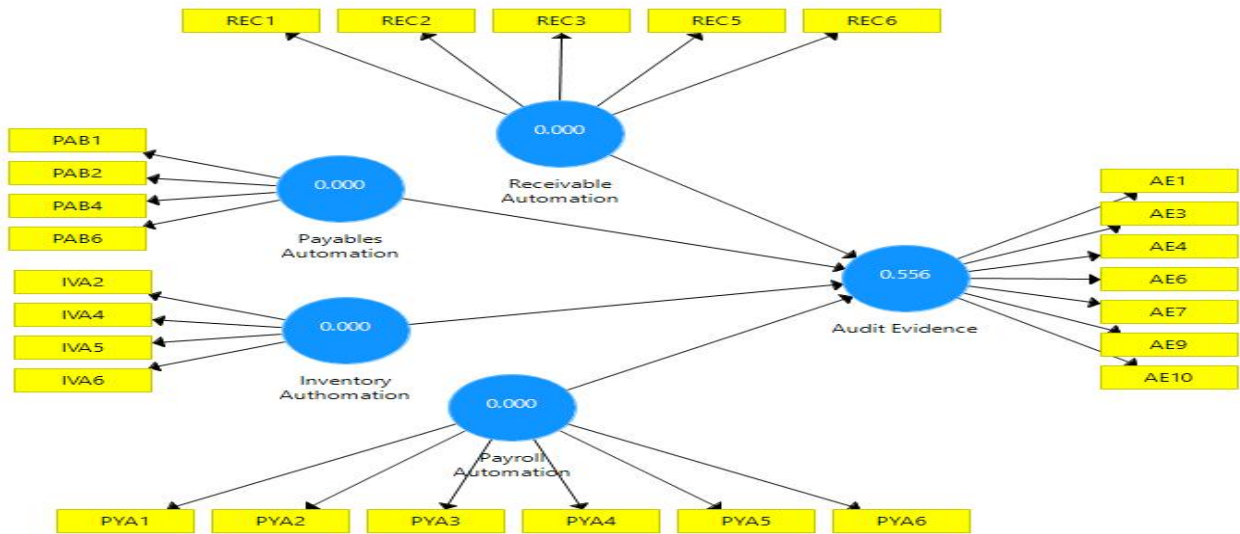


Figure 4.12: Q² Statistics for Hypothesis Four
 Source: Researcher's Computation via SmartPLS V3.3.9

Table 4.9.4: Summary of the PLS-SEM for the effect of Automated Accounting System on Audit Evidence in South-West, Nigeria

| Path Description | Original sample (o) Unstandardized Beta | t | Sig. | R ² | Adj. R ² | Sig. | Q ² |
|--|--|-------|-------|----------------|---------------------|-------|----------------|
| | | | | 0.807 | 0.798 | 0.000 | 0.556 |
| Inventory automation → Audit evidence | 0.233 | 2.067 | 0.039 | | | | |
| Payables automation → Audit evidence | 0.076 | 0.962 | 0.336 | | | | |
| Payroll automation → Audit evidence | 0.239 | 2.474 | 0.014 | | | | |
| Receivables automation → Audit evidence | 0.414 | 3.945 | 0.000 | | | | |

Source: Researcher's Result via SmartPLS Version 3.3.9 (2022)

Figure 4.10 presents the results of PLS-SEM analysis for the effect of automated accounting system dimensions on Audit evidence in South-West, Nigeria. The Adjusted R²

was used to establish the predictive power of the study's model. From the results, the adjusted coefficient of determination (*Adj R*²) of 0.798 showed that automated accounting system dimensions explained 79.8% of the changes in audit evidence in South-West Nigeria while the remaining 20.2% changes in audit evidence is explained by external factors different from automated accounting system dimensions considered in this study and the effect is statistically significant at 95% confidence interval and p value less than 0.05. This result suggests that automated accounting system influenced 79.8 % of the audit evidence in South-West, Nigeria. *R*² or *AdjR*² values for endogenous latent variable of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak respectively²⁵. Based on this threshold it is safe to posit that the effect of automated accounting system on audit evidence in South-West, Nigeria is substantial.

The path coefficient of each automated accounting system dimensions (inventory automation, payables automation, payroll automation, and receivables automation) represents the coefficient of determination (β) which shows the relative effect of each automated accounting system dimensions on audit evidence in South-West, Nigeria. PLS-SEM results in fig. 4.11 and 4.12 revealed that all automated accounting system dimensions have positive and significant effect on audit evidence except for payables automation with insignificant relative effect. Specifically, the results revealed that at 95% confidence level, inventory automation ($\beta = 0.233$, $t = 2.067$), payroll automation ($\beta = 0.239$, $t = 2.474$), and receivables automations ($\beta = 0.414$, $t = 3.945$), were statistically significant as their p-values were less than 0.05 and their t-values greater than 1.96. However, the relative effect of payables automation ($\beta = 0.076$, $t = 0.962$) has a t-value below the acceptable threshold of 1.96 to suggest that the relative effect is statistically insignificant.

Further analysis indicates that taking all other independent variables at zero, a unit change in inventory automation holds plausible increase of 0.233 in audit evidence in South-West, Nigeria given that all other factors are held constant. Similarly, the result shows that a unit change in payroll automation will lead to a 0.239 increase in audit evidence in South-west, Nigeria given that all other factors are held constant. Lastly, the result shows that a unit change in receivables automation will lead to a 0.414 increase in audit evidence in South-West Nigeria, given that all other factors are held constant. Overall, from the results, receivables automation had the highest relative effect on audit evidence in South-West, Nigeria with a coefficient of 0.414 and t value of 3.945. In second place is payroll automation with a coefficient of 0.239 and t value of 2.474. Lastly, inventories automation with a coefficient of 0.233, and t value of 2.067.

Further analysis was conducted to establish the predictive relevance of the model using Stone-Gleisser Q^2 value. Scholars posit that Q^2 values of 0.02, 0.15 and 0.35 represents small, medium, and large predictive relevance^{23,25,26}. Q^2 above zero confirm that the structural model specified is relevance. According to Table 4.9.5, the Q^2 value of audit evidence in South-west, Nigeria is 0.556. Hence, automated accounting system has a large degree of predictive relevance with regards to its effects on audit evidence in Southwest, Nigeria; And for this reason, the structural model specified is relevant and has sufficient predictive quality. On the strength of the PLS-SEM summarised results in table 4.3.4 ($Adj R^2 = 0.798$, $p = 0.000$, $Q^2 = 0.556$), this study can conclude that automated accounting system have significant and substantial effect on audit evidence in South-West, Nigeria hence, the study rejects the null hypothesis four (H_04) which states that automated accounting system has no significant effect on audit evidence in South-West, Nigeria.

H₀₅: Big data analytics has no significant effect on audit quality in South-West Nigeria.

To test the null hypothesis five, PLS-Structural Equation Modeling (PLS-SEM) was adopted using the SmartPLS statistical platform version 3.3.9. The study used the PLS-algorithm's command which is appropriate for predicting effect-relationship, ran the bootstrapping to ascertain the level of significant of the prediction, and ran blindfolding to determine the predictive relevance of the structural model specified. The choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using SPSS^{23,24}. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS^{23,25,26}.

The independent variable big data analytics includes sub-measures such as data frequencies and data value while audit quality constitutes the dependent variable. Data from three hundred and thirty-seven respondents who were auditors in private practice in South-West Nigeria were collated for the analysis. The result of the PLS-SEM is presented in three models (See figure 16, 17 & 18) and a table (See table 4.9.5). Figure 16 shows the path analysis, figure 17 shows the t values which confirm the significance of the path analysis and figure 18 shows Q² which confirms the predictive relevance of the structural model (t value above 1.96 and Q² above zero confirm a statistically significant effect and that the structural model specified is relevance. Each model comprised of outer model which shows the factor loadings (correlation) of each item in relation to the latent variable and the inner model termed the structural model (predictive model) which explains the interactions

between the independent (big data analytics) variable(s) and the dependent (audit quality) variable in a study. The table 4.9.5 provides a tabular representation of the information in figure 4.13, 4.14, and 4.15.

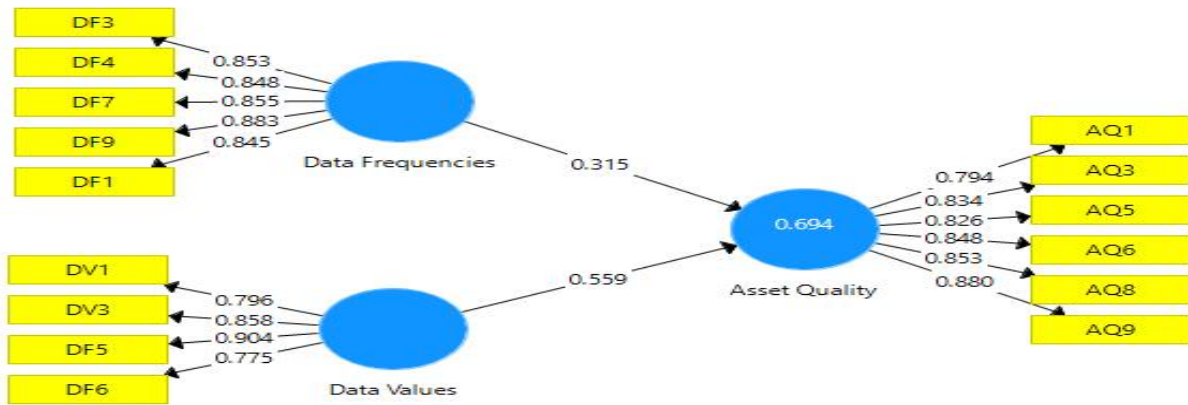


Figure 4.13: Path Analysis for Hypothesis Five
Source: Researcher's Computation via SmartPLS V3.3.9

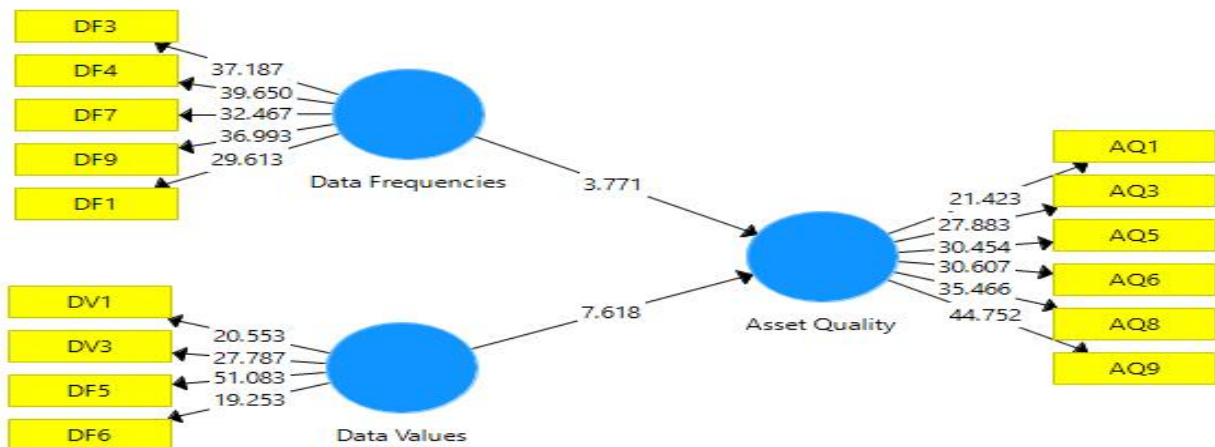


Figure 4.14: T-Statistics for Hypothesis Five
Source: Researcher's Computation via SmartPLS V3.3.9

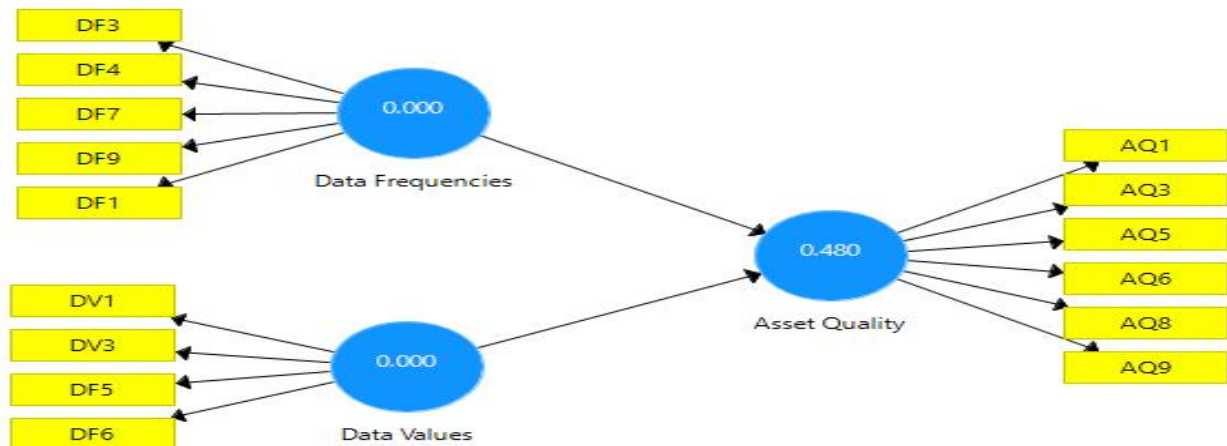


Figure 4.15: Q² Statistics for Hypothesis Five
Source: Researcher's Computation via SmartPLS V3.3.9

Table 4.9.5: Summary of the PLS-SEM for the effect of Big data analytics on Audit quality in South-west Nigeria

| Path Description | Original sample (o) Unstandardized Beta | t | Sig. | R ² | Adj. R ² | Sig. | Q ² |
|----------------------------------|--|-------|-------|----------------|---------------------|-------|----------------|
| | | | | 0.694 | 0.687 | 0.000 | 0.480 |
| Data frequencies → Audit quality | 0.315 | 3.771 | 0.000 | | | | |
| Data value → Audit quality | 0.559 | 7.618 | 0.000 | | | | |

Source: Researcher's Result via SmartPLS Version 3.3.9 (2022)

Figure 16 presents the results of PLS-SEM analysis for the effect of big data analytics dimensions on audit quality South-West, Nigeria. The Adjusted R² was used to establish the predictive power of the study's model. From the results, the adjusted coefficient of determination (*Adj R²*) of 0.687 showed that big data analytics dimensions explained 68.7% of the variation in audit quality in South-West Nigeria while the remaining 31.3% changes in audit quality is explained by external factors different from big data analytics

dimensions considered in this study and the effect is statistically significant at 95% confidence interval and p value less than 0.05. This result suggests that big data analytics influenced 68.7% of the audit quality in South-West, Nigeria. R^2 or $AdjR^2$ values for endogenous latent variable of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak respectively²⁵. Based on this threshold it is safe to posit that the effect of big data analytics on audit quality in South-West, Nigeria is moderate.

The path coefficient of each big data analytics dimensions (data frequencies and data value) represents the coefficient of determination (β) which shows the relative effect of each big data analytics dimensions on audit quality in South-West, Nigeria. PLS-SEM results in fig. 4.13 and 4.14 revealed that all big data analytics dimensions have positive and significant effect on audit quality in South-West, Nigeria. Specifically, the results revealed that at 95% confidence level, data frequencies ($\beta = 0.315$, $t = 3.771$) and data value ($\beta = 0.559$, $t = 7.618$) were statistically significant as their p-values were less than 0.05 and their t-values greater than 1.96.

Further analysis indicates that taking all other independent variables at zero, a unit change in data frequencies holds plausible increase of 0.315 in audit quality in South-West, Nigeria given that all other factors are held constant. Similarly, the result shows that a unit change in data value will lead to a 0.559 increase in audit quality in South-West, Nigeria given that all other factors are held constant. Overall, from the results, data value had the highest relative effect on audit quality in South-West, Nigeria with a coefficient of 0.559 and t value of 7.618; followed by data frequencies with a coefficient of 0.315 and t value of 3.771.

Further analysis was conducted to establish the predictive relevance of the model using Stone-Gleisser Q^2 value. Scholars posit that Q^2 values of 0.02, 0.15 and 0.35 represents small, medium, and large predictive relevance^{23,25,26}. Q^2 above zero confirm that the structural model specified is relevance. According to Table 4.9.5, the Q^2 value of audit quality in South-west, Nigeria is 0.480. Hence, big data analytics has a large degree of predictive relevance with regards to its effects on audit quality in South-West, Nigeria; And for this reason, the structural model specified is relevant and has sufficient predictive quality. On the strength of the PLS-SEM summarised results in table 4.3.5 ($Adj R^2 = 0.687$, $p = 0.000$, $Q^2 = 0.480$), this study can conclude that big data analytics have significant and moderate effect on audit quality in South- West, Nigeria hence, the study rejects the null hypothesis five (H_05) which states that big data analytics has no significant effect on audit quality in South-West, Nigeria.

H_06 : Big data analytics has no significant effect on audit evidence in South-west Nigeria

To test the null hypothesis six, PLS-Structural Equation Modeling (PLS-SEM) was adopted using the SmartPLS statistical platform version 3.3.9. The study used the PLS-algorithm's command which is appropriate for predicting effect-relationship, ran the bootstrapping to ascertain the level of significant of the prediction, and ran blindfolding to determine the predictive relevance of the structural model specified. The choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated

analysis using SPSS^{23,24}. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS^{23,25,26}.

The independent variable big data analytics includes sub-measures such as data frequencies and data value while audit evidence constitutes the dependent variable. Data from three hundred and thirty-seven respondents who were auditors in private practice in South-West Nigeria were collated for the analysis. The result of the PLS-SEM is presented in three model (See figure 4.16, 4.17 & 4.18) and a table (See Table 4.9.6). Figure nineteen shows the path analysis, figure twenty shows the t values which confirm the significance of the path analysis and figure twenty one shows Q^2 which confirms the predictive relevance of the structural model (t value above 1.96 and Q^2 above zero confirm a statistically significant effect and that the structural model specified is relevance). Each model comprised of outer model which shows the factor loadings (correlation) of each item in relation to the latent variable and the inner model termed the structural model (predictive model) which explains the interactions between the independent (big data analytics) variable(s) and the dependent (audit evidence) variable in a study. The table 4.9.6 provides a tabular representation of the information in figure 19, 20, and 21.

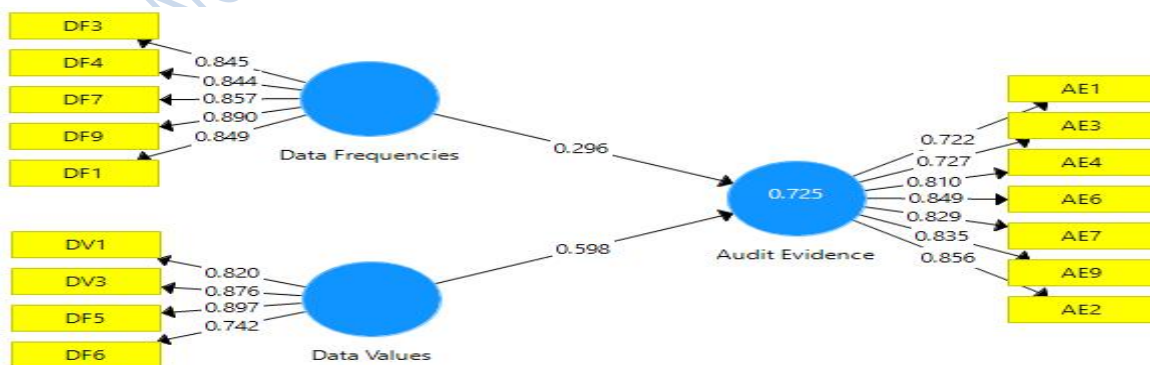


Figure 4.16: Path Analysis for Hypothesis Six
Source: Researcher's Computation via SmartPLS V3.3.9

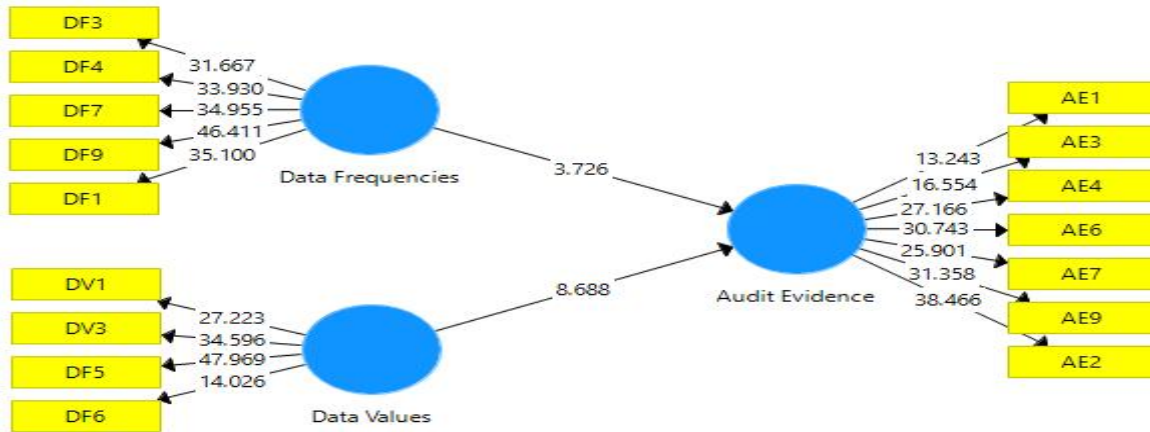


Figure 4.17: T-Statistics for Hypothesis Six
Source: Researcher's Computation via SmartPLS V3.3.9

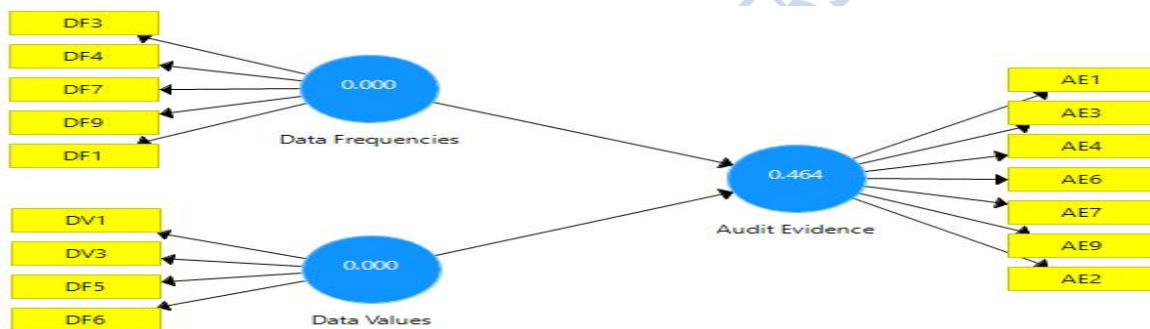


Figure 4.18: Q² Statistics for Hypothesis Six
Source: Researcher's Computation via SmartPLS V3.3.9

Table 4.9.6: Summary of the PLS-SEM for the effect of big data analytics on Audit evidence in South-west Nigeria

| Path Description | Original sample (o) Unstandardized Beta | T | Sig. | R ² | Adj. R ² | Sig. | Q ² |
|-----------------------------------|--|-------|-------|----------------|---------------------|-------|----------------|
| | | | | 0.725 | 0.719 | 0.000 | 0.464 |
| Data frequencies → Audit evidence | 0.296 | 3.726 | 0.000 | | | | |
| Data value → Audit evidence | 0.598 | 8.688 | 0.000 | | | | |

Source: Researcher's Result via SmartPLS Version 3.3.9 (2022)

Figure 16 presents the results of PLS-SEM analysis for the effect of big data analytics dimensions on audit evidence South-West, Nigeria. The Adjusted R^2 was used to establish the predictive power of the study's model. From the results, the adjusted coefficient of determination ($Adj R^2$) of 0.719 showed that big data analytics dimensions explained 71.9% of the variation in audit evidence in South-West Nigeria while the remaining 28.1% variations in audit evidence is explained by external factors different from big data analytics dimensions considered in this study and the effect is statistically significant at 95% confidence interval and p value less than 0.05. This result suggests that big data analytics influenced 71.9% of the audit evidence in South-west, Nigeria. R^2 or $AdjR^2$ values for endogenous latent variable of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak respectively²⁵. Based on this threshold it is safe to posit that the effect of big data analytics on audit evidence in South-West, Nigeria is substantial.

The path coefficient of each big data analytics dimensions (data frequencies and data value) represents the coefficient of determination (β) which shows the relative effect of each big data analytics dimensions on audit evidence in South-West, Nigeria. PLS-SEM results in fig. 19 and 20 revealed that all big data analytics dimensions have positive and significant effect on audit evidence in South-West, Nigeria. Specifically, the results revealed that at 95% confidence level, data frequencies ($\beta = 0.296$, $t = 3.726$) and data value ($\beta = 0.598$, $t = 8.688$) were statistically significant as their p-values were less than 0.05 and their t-values greater than 1.96.

Further analysis indicates that taking all other independent variables at zero, a unit change in data frequencies holds plausible increase of 0.296 in audit evidence in South-West,

Nigeria given that all other factors are held constant. Similarly, the result shows that a unit change in data value will lead to a 0.598 increase in audit evidence in South-West, Nigeria given that all other factors are held constant. Overall, from the results, data value had the highest relative effect on audit evidence in South-West, Nigeria with a coefficient of 0.598 and t value of 8.688; followed by data frequencies with a coefficient of 0.296 and t value of 3.726.

Further analysis was conducted to establish the predictive relevance of the model using Stone-Gleisser Q^2 value^{23,24}. Scholars posit that Q^2 values of 0.02, 0.15 and 0.35 represents small, medium, and large predictive relevance^{23,25,26}. Q^2 above zero confirm that the structural model specified is relevance. According to Table 4.9.6, the Q^2 value of audit evidence in South-West, Nigeria is 0.464. Hence, big data analytics has a large degree of predictive relevance with regards to its effects on audit evidence in South-West, Nigeria; and for this reason, the structural model specified is relevant and has sufficient predictive quality. On the strength of the PLS-SEM summarised results in table 4.9.6 ($Adj R^2 = 0.719$, $p = 0.000$, $Q^2 = 0.464$), this study can conclude that big data analytics have significant and substantial effect on audit evidence in South-West, Nigeria hence, the study rejects the null hypothesis six (H_06) which states that big data analytics has no significant effect on audit evidence in South-West, Nigeria.

H_07 : Automated accounting system and big data analytics have no significant effect on external audit process in South-West Nigeria

To test the null hypothesis seven, PLS-Structural Equation Modelling (PLS-SEM) was adopted using the SmartPLS statistical platform version 3.3.9. The study used the PLS-

algorithm's command which is appropriate for predicting effect-relationship, ran the bootstrapping to ascertain the level of significant of the prediction, and ran blindfolding to determine the predictive relevance of the structural model specified. The choice of PLS-SEM (via SmartPLS) is because it is a more advanced multivariate analytical technique which performs multiple regression, factor analysis, and provides a pictorial model of the interactions in a study with the push of one command as against running an isolated analysis using SPSS^{23,24}. In addition, the SmartPLS statistical platform offers stricter and robust analysis compared with the outcomes of SPSS^{25,26}.

The independent variables include automated accounting system and big data analytics while external audit process constitutes the dependent variable. Data from three hundred and thirty-seven respondents who were auditors in private practice in South-West Nigeria were collated for the analysis. The result of the PLS-SEM is presented in three models (See figure 22, 23 and 24) and a table (See table 4.9.7). Figure 22 shows the path analysis, figure 23 shows the t values which confirm the significance of the path analysis and figure 24 shows Q^2 which confirms the predictive relevance of the structural model (t value above 1.96 and Q^2 above zero confirm a statistically significant effect and that the structural model specified is relevance). Each model comprised of outer model which shows the factor loadings (correlation) of each item in relation to the latent variable and the inner model termed the structural model (predictive model) which explains the interactions between the independent (Automated accounting system and big data analytics variable(s) and the dependent (external audit process) variable in a study. The table 4.9.7 provides a tabular representation of the information in figure 19, 20, and 21.

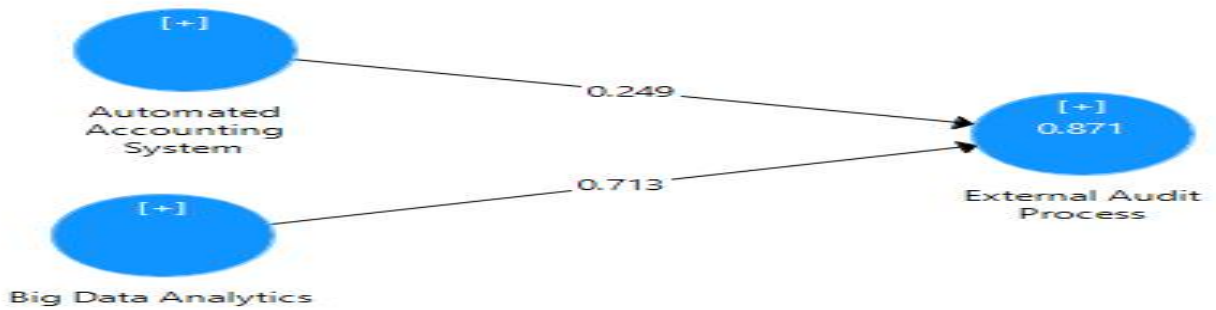


Figure 4.19. Path Analysis for Hypothesis Seven
Source: Researcher's Computation via SmartPLS V3.3.9



Figure 4.20: T-Statistics for Hypothesis Seven
Source: Researcher's Computation via SmartPLS V3.3.9

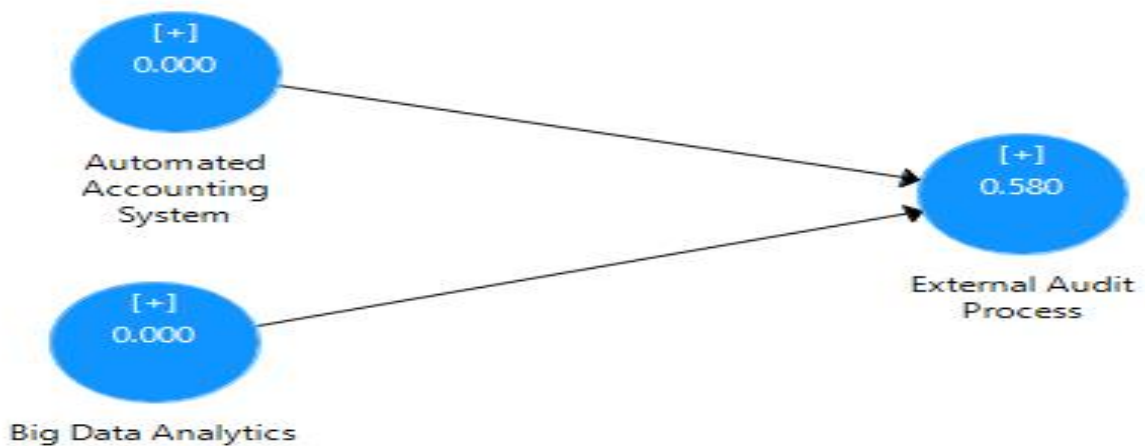


Figure 4.21: Q² Statistics for Hypothesis Seven
Source: Researcher's Computation via SmartPLS V3.3.9

Table 4.9.7: Summary of the PLS-SEM for the effect of Automated accounting system and big data analytics on External audit process in South-west Nigeria

| Path Description | Original sample (o) Unstandardized Beta | T | Sig. | R ² | Adj. R ² | Sig. | Q ² |
|--|--|-------|-------|----------------|---------------------|-------|----------------|
| | | | | 0.871 | 0.868 | 0.000 | 0.580 |
| Automated Accounting System → External audit process | 0.247 | 3.096 | 0.002 | | | | |
| Big Data Analytics → External audit process | 0.713 | 9.324 | 0.000 | | | | |

Source: Researcher's Result via SmartPLS Version 3.3.9 (2022)

Figure 23 presents the results of PLS-SEM analysis for the effect of automated accounting system and big data analytics on external audit process South-West, Nigeria. The Adjusted R² was used to establish the predictive power of the study's model. From the results, the adjusted coefficient of determination (*Adj R²*) of 0.868 showed that Automated accounting system and big data analytics explained 86.8% of the variation in external audit process in South-West Nigeria while the remaining 13.2% changes in external audit process is explained by external factors different from Automated accounting system and big data analytics considered in this study and the effect is statistically significant at 95% confidence interval and p value less than 0.05. This result suggests that Automated accounting system and big data analytics influenced 86.8% of the external audit process in South-West, Nigeria. R² or AdjR² values for endogenous latent variable of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak respectively²⁵. Based on this threshold it is safe to posit that the effect of automated accounting system and big data analytics on external audit process in South-West, Nigeria is substantial.

The path coefficient of each automated accounting system and big data analytics represents the coefficient of determination (β) which shows the relative effect of each automated accounting system and big data analytics on external audit process in South-West, Nigeria. PLS-SEM results in fig. 4.20 and 4.21 revealed that both independent variables have positive and significant effect on external audit process in South-West, Nigeria. Specifically, the results revealed that at 95% confidence level, automated accounting system ($\beta = 0.247$, $t = 3.096$) and big data analytics ($\beta = 0.713$, $t = 9.324$) were statistically significant as their p-values were less than 0.05 and their t-values greater than 1.96.

Further analysis indicates that taking all other independent variables at zero, a unit change in automated accounting system holds plausible increase of 0.247 in external audit process in South-West, Nigeria given that all other factors are held constant. Similarly, the result shows that a unit change in big data analytics will lead to a 0.713 increase in external audit process in South-West, Nigeria given that all other factors are held constant. Overall, from the results, big data analytics had the highest relative effect on external audit process in South-West, Nigeria with a coefficient of 0.713 and t value of 9.324; followed by automated accounting system with a coefficient of 0.247 and t value of 3.096.

Further analysis was conducted to establish the predictive relevance of the model using Stone-Gleisser Q^2 value. Scholars posit that Q^2 values of 0.02, 0.15 and 0.35 represents small, medium, and large predictive relevance^{25,26}. Q^2 above zero confirm that the structural model specified is relevance²⁵. According to Table 4.9.7, the Q^2 value of external audit process in South-West, Nigeria is 0.580. Hence, automated accounting system and big data analytics have a large degree of predictive relevance with regards to its effects on

external audit process in South-West, Nigeria; And for this reason, the structural model specified is relevant and has sufficient predictive quality. On the strength of the PLS-SEM summarized results in table 4.9.7 ($Adj R^2 = 0.868$, $p = 0.000$, $Q^2 = 0.580$), this study can conclude that automated accounting system and big data analytics have significant and substantial effect on external audit process in South-West, Nigeria hence, the study rejects the null hypothesis seven (H_{07}) which states that automated accounting system and big data analytics has no significant effect on external audit process in South-West, Nigeria.

Table 4.10: Results of Hypothesis Testing

| Null Hypothesis | | Decision Criteria | Decision |
|-----------------|--|----------------------|------------------------|
| H ₀₁ | Automated accounting system Has no significant effect on audit independence | p-value 0.000 < 0.05 | Reject null hypothesis |
| H ₀₂ | Automated accounting system has no significant influence on determination of audit quality | p-value=0.000<0.05 | Reject null hypothesis |
| H ₀₃ | Automated accounting system has no significant effect on the determination of audit fees | p-value =0.000<0.05 | Reject null hypothesis |
| H ₀₄ | Automated accounting system has no significant effect on audit evidence | p-value=0.000<0.05 | Reject null hypothesis |
| Ho5 | Big data analytics has no significant effect on audit quality | p-value =0.000<0.05 | Reject null hypothesis |
| Ho6 | Big data analytics has no significant effect on audit evidence | p-value= 0.000<0.05 | Reject null hypothesis |
| Ho7 | Automated accounting system and big data analytics has no significant effect on external audit process | p-value=0.000<0.05 | Reject null hypothesis |

Source: Researcher's Computation (2022)

4.4 Discussion of Findings

It is established that automated accounting system has substantial positive and significant influence on attainment and maintenance of external auditors' independence and this aligned with the finding in study presented in an academic conference². It has been earlier recommended that issues that will safeguards the auditors' independence is worthy of further consideration³. It is further established that all the proxies of automated accounting system namely Automation of Receivables, Payroll, Inventory have positive and significant influences on auditors' independence whereas automation of payables have insignificant influence on auditors' independence. These findings show that audit independence is substantially guaranteed in an automated accounting systems environment.

Theoretically, Lending of credence theory of audit demand that for financial statements prepared by the management to be credible an independent auditor must have expressed unqualified opinion on such financial statements hence application of automation into accounting activities from the finding will truly make an external auditor to be independent and be in position to lend credence to the financial statements as prepared by the management for the benefits of the owners and other stakeholders.

Previous studies on audit independent were more of archival or qualitative in conduct with concentration on manual accounting system and too numerous to mention^{5,3,7}. The finding of this study therefore provide a basis of achievement of the first specific objective that state that to examine the effect of automated accounting system on audit independence

The finding of this thesis with coefficient of determination of between AAS and audit quality shows that automated accounting system influences audit quality substantially and positively.

Automation of Inventory, payroll and receivables has weak but positive influence on audit quality whereas automation of payables has insignificant effect on audit quality. This result provided basis for the claim of the achievement of the second objective of this study.

The finding of study is in line with a study conducted in Ghana with descriptive analysis that found that quality of computer accounting system affects quality of financial report of banks to a great extent⁸. This finding was further corroborated with findings from series of other studies^{9,10,11}. With the finding the second objective of this study is now realised in that the outcome of the study has now provided empirical evidence that supports the fact that audit quality in an automated accounting system stands of been enhanced positively.

The result of the analysis reveals that there is substantial, positive and significant influence of automated accounting system on determination of audit fees in South West Nigeria. The effect of automated accounting system were buttressed by the contributions of application of technology to the maintenance of inventory, payables and receivables all with significant but weakly positive influence on the fees chargeable by external auditors. This finding is in line with the finding of a study with empirical evidence from the United State and Finland where it was found that digitilisation influences audit fees and that the digitilisation causes fees premium (higher fees) in United State and Finland¹². Whereas there is a contradictory finding in another study conducted in Jordan that reported that the effect of technology causes reduction of audit fees¹³. The third objective of this study was to establish the effect of automated accounting system on the determination of audit fees and

the outcome of this study has provided the proof that automated accounting system has substantial effect on the determination of audit fees.

The result of this study has established that there is substantial, positive and significant effect application of automation into accounting system on audit evidence. All the constituent elements of automation accounting system except automation of payables have weak but positive significant effects on audit evidence. This is in line with the results of two other studies that found in one hand that there is statistically significant impact of the availability of appropriate AIS in improving some aspects of the external audit evidence and in another hand a study in Nigeria found that there is a weak positive relationship between data capturing system and audit evidence^{14,15}. This study's fourth objective has therefore been achieved.

The analysis of data of this study reveals that there is moderate but significant and positive influence of big data analytics on auditing quality in South West. Furthermore, the results provide that both frequencies and value of data subjected to big data analytics have weak and moderate positive effect on audit quality in the South West, Nigeria. This finding is in line with another study that found that there is positive and significant effect of big data on quality of audit report at a 5% level of significant¹⁶. There is another result that further corroborated the finding of the thesis as that study found that big data analytics has a moderate relationship with audit quality, while another equally finds that there is a statistically significant effect of big data on improving the quality of accounting information^{17,18}.

The finding of this thesis shows that big data analytics has substantial, significant and positive influence on audit evidence. Data frequencies in big data analytics has a weak, significant but positive effect on audit environment while value of data subjected to big data analytics has a significantly and positively effect on audit evidence. This result is line with a study conducted and that found that big data technology enhances quality of audit evidence¹⁹. Also, finding of the thesis aligned with a study conducted in South Africa which found that application of analytical procedures enhance audit evidence²⁰.

4.5 Interpretation of Results

The outcome of analysis reveals the fact that to achieve real independence of auditors, it is very necessary that all stakeholders to deliberately promote activities that will not pose a threat to the auditors to enjoy freedom to use best approach in any engagement. Any attempt to undermine this will be a direct attempt to hamper auditor's independence. The achievement of the right of audit to decide best approach for an engagement is a direct achievement of what is termed "programme independence".

Auditors' free access to company's information both accounting and non accounting in nature is very paramount to 'perceived audit independence'. The platform for this access should be developed and promoted and this is easy to achieve in an automated accounting system (AAS). The finding of this study has lent credence to the promotion of this as it confirms a positive effect of technology on audit independence. This freedom of access to information will enable the audit firm achieve what is termed 'Investigate independence'. These three categories of measurement of audit independence stand to be enhanced in an

automated accounting system environment. Auditors' independence will substantially benefit from automation of accounting system.

The outcome of analysis shows that application of automation of accounting system stands to promote the independence of auditors be it programme, investigative or/and reporting in nature.

There were series of studies that have demanded for generational shift from all forms of artificial measurement of audit quality^{21,22,23}. These suggestions call for a behavioural approach to the study of audit quality hence issues such as auditors' reputation, capacity, expertise, experience (regarded as Technical quality) and responsiveness, empathy (among others) for service quality were considered as the central theme for the measurement of audit quality in an automated accounting system. The outcome of this study's analysis of data collected on these measures of audit quality reveals that accounting automation will promote these sub-variables to the overall benefits of audit quality

The introduction of technology both to accounting and auditing will reduce the incidence of misstatement and restatement to bearest minimum which will eliminate litigations against auditors and will bring positive influence on the acceptance of financial statements by the market.

The findings of the study provides empirical evidence to support the assertion on the effects of application of technology into accounting system of any organisation that it will influence how audit firms will quote for a fee for audit service. It confirms a positive and significant influence hence it is expected that audit firms will likely charge more for auditing an organisation with comprehensive information technology for their accounting activities. The coefficient of determination of R^2 that for every unit increase in the

application of automation to accounting system that this will cause an increase of 0.794 to audit fees. There was an assertion that auditing technological driven accounting system should translate to reduction of audit fee²² However, the positive significant influence established by the study suggest otherwise and in support of this finding can be ascribed to the fact that audit firms will have to continuously train their staff to be able to appreciate computer environment of audit, more so, firms may have to engage third party with the requisite technical skill in area of high-tech, acquire both computer hard and soft ware, all these require high-cost investment which cumulative effect will lead to increase in audit fees.

It could be reasoned that reverse ought to be the case as application of technology should reduce the time required to perform the audit and also reduce stress on auditing staff, these are true expectations but audit firms will need to expose engagement team to capacity building training, acquire and maintain or lease appropriate software along with the necessity to build risk factors of operations in technological driven environment. How these determine overall cost and benefit of technology call for another study but the fact remains that this thesis finding provides that the more auditing of advanced information driven entity, the higher will be the audit fees that audit firms will prefer to quote.

The constructs for the measurement of audit evidence were all behavioral to the activities of audit to obtain sufficient, reliable and relevant (appropriate) evidence. This is to achieve a primary data driven study and bring a new approach to study of evidence.

Empirically, the finding of the study establishes that conduct of both compliance (control) and substantive tests in an automated accounting system support the achievement of both compliance and substantive tests.

This study finds that automation of accounting system will promote obtaining evidence as much and better than under manual (traditional) accounting system.

This study finds the influence of big data analytics on audit quality to be positively related. The frequency and value of data collected and subjected to the application of big data analytical tools will improve the quality of audit report. The essence of big data analytics is to assist audit in examining both structure and unstructured data in such a way that will enable the audit to form an opinion. More so, with the arrival of big data analytics, audit can be done through 365 days of accounting periods and audit could be conducted on full test (100%) basis and all these will enable the audit to generate impeachable report directly with minimal involvement of third party whether within the clients or with clients trading partners which will cumulate to enhanced audit quality. Application of big data analytics will therefore provide the process of auditing that will make disclosure easy to the benefits of all stakeholders.

The results of this study provides support to the fact that application of big data analytics into audit activities will positively contribute to support obtaining evidence to support expression of opinion. It is envisage that in true sense whatever that promote continuous auditing, full examination, source for evidence from structured and unstructured information, analyses non financial information will benefit auditors during engagement

activities. Big data analytics from the result of this study's analysis reveals the fact that its application will substantially enhance audit evidence

The results of various sub-variables of this study provides that automated accounting system and big data analytics will positively and substantially provide significant effects of external audit process especially in South-West, Nigeria.

There is no doubt about this findings as these empirical evidences suggest positive influence that application of automation to accounting system and the application of big data analytics to the management of structure and non-structure information will promote external audit process.

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Chapter Five

Conclusion

The motivation for this study of automated accounting system, Big data/Big Data Analytics and External Audit Process in South West, Nigeria is the paucity of empirical study on the concept which is crucial to the world of audit and by extension to all organizations whether private or public owned.. There are over two hundred and fifty literatures, numerous chartered accountants both in private practice and in academics both within and outside the country. Publishers were also consulted and some authors whose works are not under open licence, all in the course of the study. The results of those efforts and consultations are the product of chapter one to this very end point. The chapter will serve as a temporary conclusion of the study but not a signal to the end as there still lots to contribute on the theme of this thesis.

From the results of descriptive and inferential analysis, it is established that application of automation in accounting system stands to affect audit independent, audit quality, audit fees and audit evidence positively. Similarly, big data analytics stands to enhance audit quality and audit evidence when deployed to interrogate data whether structure or unstructured, financial or non-financial in organisations that operate with big data phenominom

5.1 Summary of Findings

The result of various analyses is that application of automated accounting system has positive and significant association with audit independence. Application of automation in

accounting will enhance auditor's independence as it will boost the system and opens an access to the auditors, access that is hard to come by under manual accounting system. This is done through a process that provide auditor to have freedom to choose particular approach for any engagement without interference from any quarter.

Also, automated accounting system is found to have significant and positive influence on audit quality. Information technology with its entire feature is bound to enhance audit quality as it brings efficiency and effectiveness into audit process.

It is equally found that AAS possess modest but positive and significant effect on the determination of audit fees. The implication of this is that audit firm pose to charge higher fees for an engagement that involve advance application of technology.

Similarly, it poses a significant and positive influence on audit evidence. Reason for this may not be too farfetched as introduction of information technology will make auditing of whole operation possible against by sampling and it make a continuous auditing a possibility.

BDA is confirmed to have significant and positive effect on both audit quality and audit evidence. The reason is obvious as the BDAs tool provide a platform for auditors to interrogate available data on continous basis and the software of BDAs is capable to hihghlight anomalies as it occurs for the attention of the auditors and managements.

5.2 Conclusion

From the various findings, it is concluded that the series of examination conducted both from research questions and tests of hypotheses on the effect of automated accounting system on audit evidence, it is safe to assert that automated accounting system positively affect audit independence.

The results of analysis also provide a foundation upon which to lay claim that there is significant influence of AAS on audit quality. More so, application of information technology promotes quality audit reports.

From the finding, the fact of association between AAS and audit fees is established to be positively influential and this may be as a result that despite the fact that advent of technology will reduce time and stress of annual audit yet the audit firm have to train their staff and will need to acquire modern hardware and software to keep fit for the demand of the present dispensation.

Big data analytics also prove to have significant effect on both audit quality and audit evidence. This indicates that in big data environment the quality of audit will be greatly enhance if external auditors could make use of big data analytics in the execution of audit service. Also, sufficient, reliable and appropriate evidence could be easily obtained in a big data environment when external auditors apply big data analytics in sourcing for evidence, more so that the tools make 100% examination possible and open the space of real time auditing.

5.3 Recommendation

- i. Corporate institutions should embrace full automation of their accounting functions as this will enable them derive full benefits of its effect on their stewardship function.
- ii. Audit firms especially those in mid-tier should embrace capacity building in form of training of every staff members in engagement team. This is to sharpen their technical skills for better performance on engagement field and to be able to interact with the clients' systems. Staff needs to appreciate the operation system of CAATs software as expertise cannot be divulged from quality training. It then both client and audit firm will be able to

achieve a quality financial reports which translate to audit qualityii.NUC and NBTE will have to promote the need to urgently redesign curriculum for accounting/auditing education in Nigeria. This is necessary to incorporate comprehensive study of electronic accounting and auditing beyond what is presently the system. In real sense, undergraduate students should be exposed to Machine Learning, Artificial Intelligent and Data analysis in the early part of training and this also should be maintained at the postgraduate level at least to master degree level. The two board should also collaborate to organize in training programme for existing accounting lecturers to be abreast of the development.

iii. Professional accounting bodies such as ICAN, ANAN, CIBN, CITN, and FRCN should jointly develop local standard pending when IAASB will develop appropriate standards to take care of the modern necessity, this is necessary as ISA 500 and IA 1105 is inadequate to provide the necessary guide for operations in automated and big data environments.

iv. Profit and not-for-profit making organisations. The result of this study will be of help in negotiating with audit firm, more so, they can leverage on the elements of independence and ensure to create that environment that will breed audit independence.

5.4 Contribution to Knowledge

(a) Conceptual

This study looks at audit independence from perception of programme, investigative and reporting. It was from these that various question that address the specific objective was

drawn. It is a departure from existing approach that usually depends on pseudo concepts to determine independence of audit and the implication of technology on that. This study concentrated on practical issue that relate to field work of external auditors.

In addition, generality of studies either look at audit independence qualitatively or when it is empirical, studies either considered independence as independent or dependent factor, it has ever been to consider how audit fees affects independence, or how audit quality affect independence and often it is in reverse order.

This study finding signals a new direction especially in this era of technology. It is now established that technology has all it takes to promote audit independence. Similar to this is on audit quality. Existing approaches dwelt much more on items from financial statements in addition to market reaction for the measurement, however, these appear most inadequate as the end results were been employed for the measurement as against examining the process which should be the cornerstone of enhancing quality in real sense of it.

There were calls for departure from the above approaches but most unfortunately up to the present, there appear no attempt to consider all these calls and this thesis leverage on those calls and to the best of researcher's knowledge there had noticeable attempted to do that and with this thesis, it is now established that technical and service qualities of external auditors will translate to a quality report even in an automated environment.

Conceptually, it appears there is lack of evidence that any study had earlier look at process of sourcing for evidence specifically, in relation to various tests required to generate evidence. Auditors (through this study) can now have the insight of how important is this as it relates to automated and big data environment and research efforts can now be

redefined along this line to have holistically review of external audit process for accounting and auditing today and tomorrow .

(b) Theoretical Contribution

Studies of audit process had largely been anchored on stakeholders' theory or agency theory. This study bring to limelight that there exist other theories of audit, theory of inspired confidence, policeman theory and lending credence theory. This study explains the linkage and background of these other theories to agency theory. All other theories find their root in agency theory. This thesis dwelt on existing literatures to establish that the only theory of auditing is Agency theory while other theories revolve around the agency theory.

(c) Empirical Contribution

This study at least is among the pioneer if not the pioneer when it comes to comprehensive examination of external audit process in an automated accounting system and by extension under big datasets.

There are few empirical studies in the United State of America, United Kingdom and part of Asia but little or no effort on empirically driven study is found in developing/emerging economy such as Nigeria. Even those that exist focused not on the variables of this study.

This thesis has come to lay foundation for empirical studies on the effect of automation and big data analytics on the selected aspects of external audit.

(d) Analytical Tool

Most studies found convenience on commonly leverage on known analytical tools such as regression, spearman correlation, factor analysis, chi-square and others. However, this study made use of Partial Least Square – Structural Equation Model which usage in Management Sciences is relatively involving.

(e) Contribution to the Profession

Accounting/auditing profession has much to gain since this thesis centered on external auditor process. The study therefore provides a perception to audit in areas of audit independence, determination of audit fee and quality/evidence when it is to be considered under automated accounting system and big data analytics.

5.5 Area for Further Research

There is need to examine determination of audit fees from the perception of audit client's (buyer's perception)

Also, efforts should be geared towards the determination of audit quality in reference to the implication of automated accounting system taken into consideration audit client's characteristics. Most importantly, is the exclusion of audit risk and audit opinion/audit report from this study. In addition, is the importance of internal control system in both automated accounting system and big data analytics.

Finally, there is need to conduct further study that will bring in the other stakeholders in audit process, e.g, internal audit and to extend it beyond South West Zone of Nigeria.

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APPENDIX A

QUESTIONNAIRE DESIGNED ON AUTOMATED ACCOUNTING SYSTEM, BIG DATA ANALYTICS AND EXTERNAL AUDIT PROCESS.

SECTION A

Please tick or answer as appropriate.

1. Category of Staff: Audit Staff Others
2. If Audit Staff, please state status (e.g. Trainee, Junior, Associate, Semi-Senior Associate, Experienced/Senior, Partner, Manager, Assistant Manager, Consultant ,Assistant Director, Director, Managing/Engagement Partner). Others; Please State _____
3. Highest Educational Qualification: A. HND/B.Sc B. M.Sc/MBA C. Ph. D
4. Professional Qualification: ICAN ANAN Others (Please, State) _____
5. Working experience in years: A. Less than 3 B. 3-10 C. 10-20
D. Above 20

SECTION B

This section is designed to establish the fact that client's accounting system is electronically maintained and to establish the type of accounting software/package in the company specifically and in South West, Nigeria, generally and to establish type of accounting package in use.

Instruction: kindly tick (√) in the appropriate spaces that represent your opinion or response in the following response rating scale.

APPLICATION OF AUTOMATED ACCOUNTING SYSTEM IN CLIENTS' OPERATIONS

Instruction: kindly tick (√) in the appropriate spaces that represent your opinion or response in the following response rating scale.

SA= Strongly Agree; A= Agree; D= Disagree; SD= Strongly Disagree

| S/N | APPLICATION OF AUTOMATED ACCOUNTING SYSTEM ON RECEIVABLE | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1. | Clients' initialisations of credit sales are conducted electronically | | | | |
| 2. | Settlement of debts by clients' customers are monitored electronically | | | | |
| 3. | Management of client's credit policies are conducted electronically | | | | |
| 4. | Adherences to client's credit policies by their customers are electronically monitored. | | | | |
| 5. | Debt due for write off are initiated by the system | | | | |
| 6. | Client's investment into the acquisition of receivable management software is apparent | | | | |
| 7. | Client's staffs are expose to continuous training in the usage of receivable management software. | | | | |

| S/N | APPLICATION OF AUTOMATED ACCOUNTING SYSTEM ON PAYABLES | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Clients deploy software to the management of Payable | | | | |
| 2. | Strict adherence to credit term granted by suppliers are electronically | | | | |
| 3. | Discount Receivable are directly processed electronically | | | | |
| 4. | Categorisation of creditors as to prompt settlement of supplies in accordance with terms of Local Purchasing Orders are electronically managed | | | | |
| 5. | Client's staff in payable management possess technical capability to the usage of payable accounting software | | | | |
| 6. | Client invest in up to date payable automated accounting system | | | | |

| S/N | APPLICATION OF AUTOMATED ACCOUNTING SYSTEM ON INVENTORY | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Purchase orders are processed to suppliers electronically | | | | |

| | | | | | |
|----|---|--|--|--|--|
| 2. | Store management are conducted electronically | | | | |
| 3. | Minimum, Maximum, Safety and Reorder levels are electronically managed | | | | |
| 4. | Economic Reorder Quantity are electronically prompted | | | | |
| 5. | Clients are committed to investing in up to date accounting software for inventory accounting functions | | | | |
| 6. | Client's staff receive continuous training on inventory automated accounting system | | | | |

| S/N | APPLICATION OF AUTOMATED ACCOUNTING SYSTEM ON PAYROLL | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1. | Clients staff's salary and emoluments are processed electronically | | | | |
| 2. | Clients are committed to investing in up to date accounting software for payroll accounting functions | | | | |
| 3. | Employees' tax liability are subject to electronic process | | | | |
| 4. | Both clients' and employees' contributions to pension scheme are done electronically | | | | |
| 5. | Client invests into the acquisition of payroll accounting software | | | | |
| 6. | Client's staff receive continuous training on the usage of payroll automated accounting system | | | | |

(I) APPLICATION OF SOFTWARES

Among the following accounting packages/software which one is in use by this client?

Please, tick the mostly in use.

- i. QuickBooks
- ii. Sage 50 Cloud
- iii. Wave Financial
- iv. Xero Accounting
- v. FreshBooks Cloud Accounting
- vi. Zoho Books
- vii. Metropos
- viii. Others (Please specify) _____

SECTION C: QUESTIONNAIRE ON AUDIT INDEPENDENCE IN AUTOMATED ACCOUNTING ENVIRONMENT (AAS)

Instruction: kindly tick (√) in the appropriate spaces that represent your opinion or response in the following response rating scale. **SA= Strongly Agree; A= Agree; D= Disagree; SD= Strongly Disagree**

| S/N | FREEDOM TO BEST OF APPROACH | SA | A | D | SD |
|-----|--|-----------|----------|----------|-----------|
| 1. | Automated accounting system has narrowed the extent of physical intimacy between audit personnel and client staff and management | | | | |
| 2. | Possibility of continuous audit in an AAS environment has contributed to promotion of audit independence | | | | |
| 3. | AAS has created effective platform for auditor to obtain information freely and directly from third parties | | | | |
| 4. | Advent of AAS has created the platform for the prevention of any form of interference from client on the choice of audit approach. | | | | |
| 5. | External auditor now have direct access to staff and management member of client without physical contact under AAS | | | | |
| 6. | AAS and electronic audit provides antidote against advocacy threat to independence | | | | |

| | FREE ACCESS TO COMPANY'S INFORMATION: ACCOUNTING AND NON ACCOUNTING INFORMATION | SA | A | D | SD |
|----|---|-----------|----------|----------|-----------|
| 1. | AAS coupled with electronic audit eliminates any form of interference from client during audit assignments as to how to obtain information on client's activities | | | | |
| 2. | AAS has effectively limited the encroachment of clients on the use of audit approach. | | | | |
| 3. | AAS promote timely availability of information to the external auditor compare with under manual accounting system | | | | |
| 4. | AAS opens door for application of cloud auditing which in turn promote unrestricted access to information on client activities | | | | |
| 5. | Accounting and non-accounting functions are now easier to access in | | | | |

| | | | | | |
|----|--|--|--|--|--|
| | automated accounting system environment | | | | |
| 6. | Opportunity for information suppression under AAS is highly impossible as information are sourced and obtained through client server. | | | | |
| 7. | Suppression of financial and non financial information by client's staff is no longer possible under ASS as issues arisen out of laid down regulations are flagged off on both the controlling Authority and responsible audit team member | | | | |
| 8. | Identity of audit personnel on a specific assignment is no longer in realm of client's staff general knowledge | | | | |

| S/N | UNRESTRICTED RIGHT OF DECISION | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1 | AAS and electronic audit grant external auditor absolute freedom toward expression of audit decision | | | | |
| 2 | AAS has minimize the incident of attempt whether diplomatic or otherwise of client's management to influence audit decision as most are compiled and written on real time. | | | | |
| 3 | Necessary information that provides basis of decision is freely available in AAS environment without need to resort client staff or management | | | | |
| 4 | AAS makes the application of CAAT possible and with enhanced facilities available in the various software, auditor decision is free from client contribution whether directly or not. | | | | |
| 5 | AAS provides the platform for audit team to own data that promote quality decision without relying on client management or/and staff. | | | | |

SECTION D: AUDIT QUALITY IN AUTOMATED ACCOUNTING SYSTEM

Instruction: kindly tick (✓) in the appropriate spaces that represent your opinion or response in the following response rating scale. **SA= Strongly Agree; A= Agree; D= Disagree; SD= Strongly Disagree**

I: TECHNICAL QUALITY:

| S/N | REPUTATIONAL | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1. | Adaptation of audit process to electronic audit flows from automated accounting system (AAS) enhances quality of audit report | | | | |
| 2. | System designed for compliance and substantive tests are such that protect external auditor's reputation in AAS environment | | | | |
| 3. | Electronic audit approach is design in automated accounting system of client to protect auditor against audit risk | | | | |
| 4. | Reputation of audit firm is most projected AAS. | | | | |

| S/N | CAPACITY | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Selection of audit team for an engagement in automated accounting system environment is driven with individual fit for specific assignment | | | | |
| 2. | Competence in Information Technology (IT) is key to selection of team member for an engagement. | | | | |
| 3. | Ability to interact with client electronic system seamlessly is criteria for audit team selection | | | | |
| 4. | Technical knowhow of a specific customer's electronic accounting software is given utmost consideration in selection of audit team | | | | |

| S/N | EXPERTISE | SA | A | D | SD |
|-----|-----------|----|---|---|----|
|-----|-----------|----|---|---|----|

| | | | | | |
|----|---|--|--|--|--|
| 1. | Team lead is the key man for an audit assignment in automated accounting system environment and do possess both IT and Accounting/Auditing know how expected of a leader. | | | | |
| 2. | IT expert are engaged to provide backup on line service to the team on the field. | | | | |
| 3. | Arisen issue(s) on substantive test is subject to the joint responsibility of all team member | | | | |
| 4. | Compliance and substantive tests are conducted electronically | | | | |
| 5. | Team lead has been exposed to AAS and electronic auditing for three years and above | | | | |

| | EXPERIENCE | SA | A | D | SD |
|----|--|-----------|----------|----------|-----------|
| 1. | Team members are both experienced in AAS and electronic audit | | | | |
| 2. | Not less than 75% of audit team members has been on the field work for not less than three years in an AAS audit environment | | | | |
| 3. | Junior audit are seconded to understudy the assignment and client's activities in an AAS environment | | | | |
| 4. | Members are adequately knowledgeable of client Automated Accounting System (AAS) | | | | |

II. SERVICE QUALITY

| S/N | RESPONSIVENESS | SA | A | D | SD |
|------------|--|-----------|----------|----------|-----------|
| 1 | There is frequent on-line communication between audit team and management | | | | |
| 2 | AAS has enhanced continuous communication between the firm and client over flagged matters | | | | |
| 3 | AAS provides platform for audit team to continually monitoring ongoing activities of the client. | | | | |
| 4 | Advent of AAS coupled with electronic audit have brought both team | | | | |

| | | | | | |
|---|---|--|--|--|--|
| | and client closer than under manual accounting system | | | | |
| 5 | Inventory taking disruption is eliminated as continuous audit of inventory is facilitated through application of AAS. | | | | |

| S/N | EMPATHY | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1 | Engagement is better placed in AAS environment to be proactive and contributory to team and client performance | | | | |
| 2 | Client server connects Team Lead and Finance Director of client to facilitate direct and individual contact and this enhance healthy and harmonious relationship | | | | |
| 3 | Audit team members are all interconnected to provide seamless personal and joint attention to audit issues. | | | | |
| 4 | Suspicion between audit team members and client's staff is now reduced to barest minimum and this promotes cross peaceful and healthy understanding between the two in an AAS environment. | | | | |

SECTION E: AUDIT FEE IN AUTOMATED ACCOUNTING SYSTEM ENVIRONMENT

Instruction: kindly tick (✓) in the appropriate spaces that represent your opinion or response in the following response rating scale. **SA= Strongly Agree; A= Agree; D= Disagree; SD= Strongly Disagree**

| S/N | CLIENT'S COMPLEXITY | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Number of receivable should influence fee quotation under AAS regime | | | | |
| 2. | The spread of receivables have no bearing on fee quotation under AAS regime | | | | |
| 3. | Number of payables is not a necessary factor for audit fee determination | | | | |
| 4. | Number of branches is a factor for consideration in the determination of audit fee in an AAS environment | | | | |
| 5. | Sub-national spread of branches is not a factor for audit fee determination in an AAS environment | | | | |

| | | | | | |
|----|---|--|--|--|--|
| 6. | Items mixed for stock taking should be considered for audit fee determination | | | | |
| 7. | Number of personnel manning store location is a factor for audit fee quotation | | | | |
| 8. | Number of personnel engaged on receivable management influences audit fee quotation in AAS environment | | | | |
| 9. | Number of personnel on payable management does not influences audit fee quotation in an AAS environment | | | | |

| | CLIENT'S SIZE | SA | A | D | SD |
|----|--|----|---|---|----|
| 1. | Number of subsidiaries is a factor for audit fee quotation in an AAS environment | | | | |
| 2. | Sub-national spread of subsidiaries is a factor for audit fee quotation in an AAS environment | | | | |
| 3. | Global network of subsidiaries is factored into audit fee quotation in an AAS environment | | | | |
| 4. | Number of branches is a factor for consideration in the determination of audit fee in an AAS environment | | | | |
| 5. | Sub-national spread of branches is not a factor for audit fee determination in an AAS environment | | | | |
| 6. | Global network of branches is not factored into audit fee quotation in an AAS environment | | | | |

| S/N | PROFITABILITY | SA | A | D | SD |
|-----|----------------------|----|---|---|----|
|-----|----------------------|----|---|---|----|

| | | | | | |
|---|--|--|--|--|--|
| 1 | Level of profitability is a factor in audit fee determination in an AAS environment | | | | |
| 2 | Profitability is a measure of risk exposure of audit firm hence a determinant of audit fee in an AAS environment | | | | |
| 3 | Level of profitability is a measure of level of operational demand of audit efforts hence should be factored in the determination of audit fees | | | | |
| 4 | Level of profitability require commensurate efforts for compliance and substantive tests hence should be given consideration in quotation of audit fee | | | | |

SECTION F: AUDIT EVIDENCE IN AUTOMATED ACCOUNTING SYSTEM

Instruction: kindly tick (✓) in the appropriate spaces that represent your opinion or response in the following response rating scale. **SA= Strongly Agree; A= Agree; D= Disagree; SD= Strongly Disagree**

| S/N | CONTROL TESTING | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1. | Operational control can holistically be tested under automated accounting | | | | |
| 2. | Client's operational control had been tested electronically under automated accounting system | | | | |
| 3. | Financial control had been subjected to complete electronic test under automated accounting system | | | | |
| 4. | Client's financial control in the last five years had been completely tested under automated accounting system | | | | |
| 5. | Clients' evidence of segregation of duty is difficult to establish electronically under automated accounting system | | | | |
| 6. | Evidence of authorisation of clients/ financial commitment are done electronically with utmost reliance of results obtained | | | | |
| 7. | Electronic tests of control are found unreliable in assertion of the management of clients under automated accounting system. | | | | |

| | | | | | |
|----|---|--|--|--|--|
| 8. | Reliance can be placed on electronic conduct of tests to minimise incidence of risk of material misstatement. | | | | |
|----|---|--|--|--|--|

| S/N | ASSERTION OF FINANCIAL STATEMENT IN AUTOMATED ACCOUNTING SYSTEM | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1. | Existence of noncurrent asset could be reliably established electronically | | | | |
| 2. | Existence of liabilities are difficult to establish electronically | | | | |
| 3. | Physical participation of audit team member is no longer a necessity during inventory taking as activities can continuously monitored remotely. | | | | |
| 4. | Confirmation of receivable is easier to establish directly without any letter of authority from the clients through auditor's server. | | | | |
| 5. | Trade payables can be ascertained through direct contact with clients' suppliers. | | | | |
| 6. | Shareholding interests are easily established electronically | | | | |
| 7. | Clients' revenue can holistically be subjected to electronic audit | | | | |
| 8. | Clients' commitments on expenses are fully opened to electronic audit | | | | |
| 9. | Sole dependent on electronic test of financial statements could expose auditor to risk of misstatement. | | | | |

| S/N | SUFFICIENCY OF AUDIT EVIDENCE IN AUTOMATED ACCOUNTING SYSTEM ENVIRONMENT | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1 | All financial transactions can now be subjected to electronic test under automated accounting system if so desire against sample test | | | | |
| 2 | Specific selection of items for testing are still relevant in automated accounting system | | | | |
| 3 | Audit sampling is widely practice under automated system | | | | |
| 4 | Complete testing of items reduces inconsistency of audit finding that | | | | |

| | | | | | |
|----|--|--|--|--|--|
| | could have called for further evaluation(s) | | | | |
| 5 | Electronic test of risk has substantially reduced risk of material misstatement. | | | | |
| 6 | Risk of material misstatement under AAS is substantial than under manual accounting system. | | | | |
| 7. | Audit trail is no longer a threat to sufficiency of evidence | | | | |
| 8. | Audit working papers are secured in AAS environment as much as in manual accounting system environment | | | | |

| S/N | RELEVANCY AND RELIABILITY OF AUDIT EVIDENCE IN AUTOMATED ACCOUNTING ENVIRONMENT | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1 | Evidence from knowledgeable source can easily be obtained electronically | | | | |
| 2 | Information provided from company accounting system when directly linked with auditors' server is commonly reliable | | | | |
| 3 | Firms are better placed to source and obtain information to corroborate management assertion and free of restriction and limitation in automated accounting environment. | | | | |
| 4 | Continuous testing is found practicable in automated environment. | | | | |

SECTION G (I): BIG DATA ANALYTICS

| S/N | APPLICATION IN EXTERNAL AUDITING | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Big data is only amenable to big and medium sized clients. | | | | |
| 2. | Most of clients regarded as big sized in South West, Nigeria had adopted Big data tools | | | | |
| 3. | Automated accounting system is a prerequisite for application of big data analytics. | | | | |
| 4. | Technicality of big data analytics has made it imperative for audit firms to engage specialist in this field | | | | |

SECTION G(II): AUDIT QUALITY IN BIG DATA ANALYTICS

DATASETS

| S/N | FREQUENCY OF DATA COLLECTION | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Frequency of data collected helps in the analysis of bottlenecks in the system | | | | |
| 2. | Frequency of data gathering helps in building large/small scale processing system | | | | |
| 3. | Frequency of data collected helps in real time analysis to monitor market trends | | | | |
| 4. | Frequency of data collected helps in real time analysis to monitor situations as it develops | | | | |
| 5. | Frequency of data collected helps in finding unexpected/unknown relationship between variables | | | | |

Source: Question 1-3 and 5 were adopted while Question 4 was adapted from Nwadiolor and Obi (2020, 58)

| S/N | VALUE OF DATA COLLECTED | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Value of data collected helps to determine the consistence of transaction processing | | | | |
| 2. | Value of data collected helps to maintain and safeguard assets of entities | | | | |
| 3. | Value of data collected affect the quality of interpretation and analysis of data transaction in entities | | | | |
| 4. | Value of data collected helps to ensure that entities comply with internal policies and other rules guiding their operations | | | | |
| 5. | Value of data collected determines the operations' programming language and statistical tools employed | | | | |

Source: Adopted from Nwadiolor & Obi (2020. 58)

SECTION H: AUDIT EVIDENCE IN BIG DATA ANALYTICS

| S/N | CONTROL TESTING | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1 | Big data analytics promote complete test of operational control | | | | |
| 2 | Clients financial control had been subjected to big data analytics in the last five or more years | | | | |
| 3 | Big data analytics enhances the effectiveness of financial control | | | | |
| 4 | Segregation of duty is difficulty to maintain in Big data environment | | | | |
| 5. | Authorisation is seamlessly established in Big data establishment | | | | |
| 6. | Management assertions are difficult to be corroborated in Big data environment | | | | |
| 7. | Big data analytics enhances the effectiveness of identification of risks that may promote material misstatement | | | | |

| S/N | SUFFICIENCY OF AUDIT EVIDENCE | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Big data tools promotes test of transactions arisen from structured or unstructured sources | | | | |
| 2. | Unstructured data can be 100% tested using data analytics | | | | |
| 3. | Complete test of all datasets reduces inconsistencies of audit findings that could warrant further tests | | | | |
| 4. | Cloud accounting associates with big data and promotes sufficiency of evidence | | | | |
| 5. | Big data analytics assist external auditors to access appropriate evidence in high volume datasets | | | | |

| S/N | RELEVANCY AND RELIABILITY OF AUDIT EVIDENCE IN BIG DATA ENVIRONMENT | SA | A | D | SD |
|-----|--|----|---|---|----|
| 1. | Promotion of reliability of externally sourced evidence remains a source of concern in big data environment. | | | | |
| 2. | Employment of big data analytics on variety of datasets improves quality of audit evidence | | | | |
| 3. | Big data analytics promote efficiency of continuous audit | | | | |
| 4. | Big data analytics enhances auditor's ability to gather audit evidence from very large population | | | | |

| S/N | ASSERTIONS ON FINANCIAL STATEMENTS IN BIG DATA ENVIRONMENT | SA | A | D | SD |
|-----|---|----|---|---|----|
| 1. | Existence of non-current assets could be reliably established with application of big data analytics | | | | |
| 2. | Existence of liabilities are difficult to establish with data analytics | | | | |
| 3. | It is not necessary to conduct physical count of inventory as procurement and issuance from store can be monitored electronically | | | | |
| 4. | Client revenue can be established with aid of big data analytics | | | | |
| 5. | Clients expenses are fully opened to big data analytics | | | | |
| 6. | Shareholders equity interest can be subjected to big data analytics | | | | |

**APPENDIX B : LIST OF INDENTIED ACCOUNTING FIRMS IN SOUTH-WEST
NIGERIA**

EKITI STATE

1. IDOCAUDIT
55, Rasaki Oseni Street Ikerere Road, Off Olujoda St, Ado Ekiti,
+234 802 319 0795

2. Victor Owonifari & Co
4, St Francis Plaza, Iworoko road, beside AB Plaza, Ado Ekiti, Nigeria
+234 803 259 5887 & · +234 803 259 588

3. SIAO Partners
2nd Floor Resort House Secretariat Road Fajuyi Park, Niger
+234 802 313 4841

4. EKSG JAAC
Office of The Accountant General, 360101, Ado Ekiti, Nigeria
+234 803 832 3414

5. Crownsea And Associate
65, Okesha Street, Ado Ekiti, Nigeria
+234 708 719 5331

6. BEOC Partners Limited
12 CAC Shopping Complex, Ajilosun Street, opposite Fayose Market, Ado Ekiti,
Nigeria. +234 803 399 1100

7. Babatunde Ajala And Company
156, Ise Road, Nigeria
+234 803 409 3675

8. Stelab Associate
2 Christ's Avenue Ekiti, Ado Ekiti, Nigeria
· +234 816 043 4785

9. Kayluko Limited
14 Ayedun St, Ekiti 360102, Ikere, Nigeria
+234 806 907 790

10. Ibof Limited
Suite 13 Omotola Plaza Ekiti, Ado Ekiti, Nigeria

11. Geofez Consults
Off Ado Polytechnic Street Ekiti, Ado Ekiti, Nigeria
Ado Ekiti, Nigeria · +234 816 773 6390
12. Okunoye Adeniyi And Company
158B Oyemekun Rd, 340110, Akure, Nigeria
· +234 803 405 0133
13. Dne & Associates, Inc
65, Oyemekun Road, Akure, Nigeria
14. Sterling Partners And Company
104,New Hospital Road, Nigeria
15. A.O. Akinduko & Co Chartered Accountant
Akure, Nigeria

LAGOS

1. Bola Oyebowale & Co
08095476127 princebola2000@yahoo.com
2. Johnson Aguh & Co
08033070725, johnsonaguh@yahoo.com
3. Diamond Uju & Co Diamond Uju
08182847588, diamonduju@yahoo.com
4. TAC Professional Services (Chartered Accountants)
08096257007, info@tacgroupng.com
atcprofessionalng.com
5. Henry Ibhadde & Co.
08033087060,
henryibhaddeandco@gmail.com
6. J. K. Randle & Co
Bashorun J.K. Randle 08032294504, jkrandleintuk@gmail.com
7. Rotimi Odukoya & Associates
08055222423, 08138101041 rodassociates@yahoo.com
8. ATC Professional Services
08059777755
08023280398
tadebayo@atcprofessionalng.com 21/12/2021
9. Oyerinde Oke & Co.

- 08023093065, oyeoke2002@yahoo.com
10. Kenway Andrews
Professional Services Kenway Davidson 08023050245,
kenwayandrewsps@gmail.com
 11. Mayode Ojo & Co.
Ojo Henry O. M. 07032550556,
ojohenrycare4u@yahoo.com
 12. Samuel Adebayo Omojola & Co.
larabayo@yahoo.com
 13. Ojedele Makinde & Co.
07037860153,
dele_makinde@yahoo.com
 14. Ben Ife Adekagun & Co
08023185914, benifeade@yahoo.co.uk
 15. Babington Ashaye & Co.
8022232987 info@babingtonashaye.com
 16. PKF Professional Services
08037871512,
08023039317
tajudeen.akande@pkfng.com
 17. Babatunde Adeyemo1 & Co
08183405718, segel_29@yahoo.co.uk
 18. Adelani Osoba & Company
08033255214, delaniosoba@gmail.com
 19. John-David Ogbeka & Associates
08039095178,
08051319718,
07029104851 johnogbeka@yahoo.com
 20. Ajao Ogunsola & Co.
08033922383,
08022313130 ogunsolaajao@yahoo.com
 21. Ilesanmi Ajimokunola & Co.
08034543885 ajim@optimalvalueconsulting.net

22. Axion Professionals Adedeji 3.
0 8035273754
wande.okeya@axionprofessionals.com
23. Gbenga Olaofe & Co
08034717207,
gbengaolaofefca@yahoo.com
24. Oyelayo Oyinlola & Co
08023159766,
oyelayooyinlola@yahoo.com
25. B.B Phoenix Consulting Services
08023105687,
togunmola@bbphoenixconsulting.com
26. D.C.S Alaribe & Co
08033067131,
08052361124
dcsalaribe0405@gmail.com
27. Abiona Araoye & Co
08098542185,
08033147349 araoyekunle@yahoo.co.uk
28. Pro Edge Partners
(Chartered Accountants)
08099682532,
08052090445
folakanye@proedgepartners.net
29. Abisola Oyinloye & Co
08093642766,
08033917215 oyinabisola@yahoo.com
30. Abiodun Adekanye & Co
08023219248,
08023464817
adekanye_emmanuel@yahoo.com
31. Omoniyi Komolafe & Co
08033318004,
08099622460

omoniyikomolafe.ok@gmail.com

32. Ayodele Akande & Co.
08033921363,
ayoakande2005@yahoo.com
33. Biodun Ajayi & Co Biodun Ajayi 08029159025,
biodunajayico@yahoo.com
34. Olawuyi Gabriel & Co1. Adeyemi David
08052090336
dave2adeyemi@yahoo.com
35. Charles Kesinro & Co
3rd Avenue, Gowon Estate, Egbeda, Lagos 09093829292
36. **Adesanya & Partners (Chartered Accountants)**
Ground Floor, Back Flat, 10 Ayanboye Street, Off Ajike Faramobi Street, Anthony,
Lagos. 01 454 0496
37. **Adegbite Adeyemo & Co (Chartered Accountants)**
23 Obalodu St, Ilupeju 102215, Lagos
38. **BBC Professionals**
Charter House, 7 Mcneil Rd, Sabo Yaba 101245, Lagos 0811 273 1722
39. **Grant Thornton**
Address: 294 Herbert Macaulay Way, Yaba, Lagos
40. **PML Advisory**
Address: Montgomery Road, Sabo, Yaba, Lagos.
41. **Baker Tilly Nigeria, (Chartered Accountants),**
Kresta Laurel Complex (4th Floor),
376, Ikorodu Road, Maryland, Lagos. Tel. 234-1-7744873E-
42. Olugbenga Folarin & Co
3b Olaide Benson Street, Behind Seventh Day Adventist Church, Onigbongbo
Maryland, Ikeja, Lagos +234 8034521158

IKEJA AND ENVIRON

43. **NGK Associates** | Leading Audit & Tax Consulting, Advisory Accounting
8 Billings Way, Love World Convocation Arena., Oregon Industrial Layout, Alausa,
Ikeja,, 100212, Lagos, Nigeria 08033005002
44. **OACO Professional Services.** Chartered Accounting firm
Salvation Road, 14 Samuel Awoniyi St, Opebi, Ikeja
45. **Lawal K K & Co** (Chartered Accountants)
2 Esomo Close, Off Toyin St, Ikeja 0806 314 2529
info@lawalkk.com
46. **Olusola Adekanola And Company**
Aderoju Adewuyi Street, Awuse Estate, Opebi, Ikeja, Lagos, Nigeria
47. **Ejeh Sheidu Tokula & Co** (CHARTERED ACCOUNTANTS)
1 Joseph Street, off Osho Street, Opebi, Ikeja, Lagos
0802 758 0438
48. **Kehinde Kassim & Co**
Oluwatobi House
73 Allen Avenue, Ikeja, Lagos.
49. **Bamisile and Co** Chartered Accountants
16 Aladelola Street, Ketu. Lagos
50. **BAO Consutancy Services**
1. Ajiboye Street, off Olu-Akerele Street,
Behind Lagoon Hospital, off Awolowo Way,
Ikeja 08033162559
51. **BDO Professional Services**
15 CIPM Avenue, Central Business District, Alausa, Ikeja
52. **Meckinsey and Company**
27A Babatunde Ajose Street, Victoria Island, Lagos.
Victoria Island, Lagos.

53. Olayinka Oyetola & Co.
Chartered Accountants
PC 43 Churchgate Street,
Churchgate Towers,
Victoria Island,
Lagos.
54. Ijewere & Co
126 Lewis Street,
Lafiaji, Lagos Island 08129929426 & 08129929443
55. Pedabo
Norman Williams Street, South West, Ikoyi, Lagos, Nigeria.
Close to Lagos Jet Ski Riders- The Club, off Awoowo Road. Is also close to Lagos Polo Club, Ikoyi

Lekki

56. Goldwyns Chartered Accountants
Plot 9 Professor Gabriel Olusanya St, Lekki Phase I, Lagos, Nigeria.

Apapa

57. Horwath Dafinone
Ceddi Towers
16 Wharf Road, Apapa. 08039786138

THE BIG FOUR and in Lagos Island

58. **PricewaterhouseCoopers**
Chartered Accountants
Landmark Towers
Plot 5B Water Corporation Road
Victoria Island.
59. **KPMG Professional Services**
KPMG Tower Bishop
Aboyade Cole Street
Victoria Island, Lagos
60. **Ernst & Young**
UBA House, 10th & 13th Floors Marina, Lagos

61. **Deilotte, Nigeria.**
Civic Towers, Plot 1 GA Ozumba Mbadiwe Avenue,
Victoria Island, Lagos

ONDO

1. Idowu Oluyomi & Co
08023190795,
07085766970
oluyomidowu05@yahoo.com

2. Akintelure Okelola &
Co. (Chartered
Accountants)
Mr. Okelola Akintelure 8037277155 lolaakintelure@yhoo.com

3. Idowu Otetubi & Associates
Babatunde Olatunji 8033537458
id.otesaccounts@yahoo.com

4. Benjamin Akanji
Omonayajo & Co. 8034042882
benjaminakanji@yahoo.com

5. Jubril Olawale Lawal & Co
08033376825
jubrilolawalelawal@yahoo.co.uk

6. Toyin Ojo & Co
Chief R.S.O.Ojo 08023295859,
omoobaadekanmbi@yahoo.com

7. Pat Akinwunmi & Associates
08038215778 realpats@yahoo.co.uk

8. Lekan Owolabi & Assoc
08170686035,
08023805161
lekanowolabi08@yahoo.com

9. Olatunji Omoyeni & Co
08033078965,
08170047616
olatunji_omoyeni@yahoo.com

OGUN

1. Tunji Labode & Co.
19, Salawu Olabode Avenue, Tekobo Bus-Stop, Idi- Aba Abeokuta
2. Akinwunmi Ayinla & Co.
9, Muraina Street, Ayetoro Road, Abeokuta,
+234 908 491 6482
3. Gbemi Shorunke & Co., Chartered Accountants
88, NUD RD ISABO, Oke Yeke, opp. MEDMALL Pharmacy, 110241, Abeokuta,
Nigeria. +234 803 710 9678
4. Smart Allegiance Professionals Limited
2 Lagos - Ibadan Expy, Ojodu 102109, Abeokuta, Nigeria
+234 803 442 0998
5. Upswing Associates Limited
Egba Comprehensive High School, Asero, 111101, Abeokuta, Nigeria
+234 803 626 1859
6. Adebayo Adeyemi And Company
Car Wash, 6 Matiku, Olusegun Obasanjo Way, Nigeria
+234 803 318 6738
7. Femi OGUNSANYA & CO. (Chartered Accountants)
54 Abeokuta-Ibadan Rd, beside CDA Filling Station, 110121, Abeokuta, Nigeria
+234 803 585 9200
8. M.A. AKINLADE & CO
B2/45, F.H.E, Totoro Road, Abeokuta, Nigeria
[+234 805 241 8065](tel:+2348052418065)
9. Gabriel Orokunle & Co
Sam Ewang Housing Estate, E8/008, Abeokuta, Nigeria
+234 803 344 7401
10. JameSundayAremu & Co.
88, NUD Road, Isabo Okeyeke, 2nd Floor Sapon, opposite Medmall Pharmacy,
Abeokuta, Nigeria. +234 806 277 7065

11. Abiodun Erinfolami & Co.
4 Lalubu Street Oke-Ilewo, Ibara ,111102, Abeokuta, Nigeria
+234 803 190 1611
12. Olumuyiwa Bello & Co
Housing Estate, 19 Jimoh Odutola St, Ibara 111102, Abeokuta, Nigeria
+234 803 328 8474
13. Taofik Lawal & Co
Block 1, Suite 4/7 Mission to Rebuild Shopping Complex, MKO, Sapon,
Trade Fair Complex, Abeokuta, Nigeria. +234 803 581 9044
14. Gbemi Shorunke & Co, Chartered Accountants
88, NUD RD ISABO, Oke Yeke, opp. MEDMALL Pharmacy, 110241, Abeokuta,
Nigeria. +234 803 710 9678
15. Aremu akindele & co
12,lalubu street, Oke - Ilewo Road, opp. st bernedette nur & primary school,
Abeokuta, Nigeria
16. Moshood Obasanjo Sadiq & Co.
1 Onikoko Rd, Panseke 111102, Abeokuta, Nigeria. +234 703 396 6106
17. Olu Junaid And Company
Km 3 Fajol, Obantoko, Abeokuta- Ibadan Road, Ibadan Expressway,
Abeokuta, Nigeria **+234 803 322 4273**
18. Tunji Anwojue And Company
B2, 98 Federal Housing Estate Rd, 110101, Abeokuta, Nigeria
+234 803 719 6807
19. Gbenga Adeoye & Co.(Chartered Accountants)
GAC House, 16 D, LALUBU STREET OKE-ILEWO, Ibara , Abeokuta, Nigeria
+234 803 405 0773
20. Timothy Atinuke Ayoola & co
2, Matiko Street, Obasanjo Lane, Ita Eko, Abeokuta, Nigeria +234 813 623 3467

21. Akiode Semiu & Co
187 Iganmode Road, opposite A.U.D Comprehensive SSS, Ota, Nigeria
+234 2347034034877
22. Shitel Professional Group
66 Ibadan Rd, Ijebu Ode, Nigeria +234 37 432 766
23. Opals Group Technology
22 Isoku Street, Ijebu Ode, Nigeria +234 805 414 7418
24. Kethodex Enterprise
Shop 4 Obanta Shopping Complex Ogun, Ijebu Ode, Nigeria
25. Ibrabs Konsult
Idotun Ogun, Adebisan Area, Nigeria
+234 705 736 5349
26. Marphen Global Resources
12 Adeola Odutola Rd, Ijebu Ode, Nigeria [+234 806 408 3227](tel:+2348064083227)
27. *ONIKOYI SHAMSIDEEN & CO.*
ONIKOYI HOUSE, Plot 21, Aribido Oshola Street, Off Journalist Road, Lagos -
Ibadan Expy, Arepo, Nigeria +234 809 251 0371

OSUN

1. Olushile Fowora & Co
08082685445
olushilefowora_co@yahoo.com
2. Adetoye Ilori & Co
08033236968 toye_ilor@yahoo.com
3. I.R. Akintoye & Co.
08072090181,08035569293,
08082130269 ir.akintoye@gmail.com
4. Adeyemi Atolagbe & Co. .
08065709149, atolagbeac@yahoo.com

5. Olanrewaju Akinloye & Co.
08067634437,
08034716642
lanreakinloye2002@yahoo.com
6. Segun Adeife & Co
08033222769,
08034497454
segunadeife94@yahoo.com
6. Adedayo Arowolo & Co
08033048989,
adedayoarowolo2003@yahoo.com
7. Gani Alashe & Co
08033272426, majiroba@yahoo.com
8. Ademola Oke & Co.
08033020383,
08026735311 ademolaoke@gmail.com
9. Leke Olalere & Co
08022233865, segleke@yahoo.com
10. Banjo Duduyemi & Co.
07031583465,
08064239744 bjduduyemi@yahoo.com
11. Razak Jaiyeola & Co
8034020754,
08055272046
razakjaiyeola@yahoo.co.uk
12. Gbenga Olaleye And Co
20, Anuoluwapo Street'
Ogo-Oluwa Bus Stop
Ogo Oluwa Area, Osogbo
0803 681 0460
08033951330
13. FFT ASSOCIATE
14 Gbongan Rd, opp. Diamond Bank
Osogbo · 234 805 681 2190

15. UPI Consult
Ilobu-Okinni Rd ·
+234 805 732 3697
16. Gbadamosi Mudasiru and Co. (Chartered Accountants)
Okinni, Osogbo
·
+234 810 059 3848
+234 706 931 5012
17. Management Consultancy and Advisory Services
74 Oshogbo - Ilesha Rd ·
+234 805 302 0605
18. UPI Consult
RG59+XQJ, Oroyinyin Street, Okinni, Osogbo - Ogbomoso Rd, Ilobu, Nigeria
+234 805 732 3697
19. Afolabi Igbariola And Co Charttered Accountant
155 Ireto Rd, 220101, Ife, Nigeria
+234 803 440 7773

OYO

1. Coronet Notch Consultancy Services · Accounting firm
Elewura 3 Adebayo Street Challenge Expressway · 0810 109 1919 Ibadan
2. Joseph Ajulo & Co · Accounting firm 3 Lawal street Opp. Capital Building MKO
Abiola Way – Ring Road 0811 199 8282, Ibadan
3. S. Kayode Ekundayo Bolade & Co · Accounting firm Bosere Chambers 5
Imalefalafia Street 1459 Dugbe Oke-Ado 0802 342 2554, Ibadan
4. Dele Adeyemi & Co · Accounting firm Coca-cola Area No 18 Ajibade Street
Mokola Rd 0803 326 2072, Ibadan
5. Kunle Egbeleke & Co. · Accounting firm 97 Idi – Ito Bus Stop Sango Eleyele Road
Sango opp. The Polytechnic 0803 289 9323 Ibadan
6. 2G Business & Accounting Consult · Tax consultant Mania filling Station Opposite
Eruwa Eleyele- Ologuneru Rd · 0703 710 9320, Ibadan

7. Victor Owonifari & Co
Beside A.P. Filling Station Opposite Saki Garage, Oyo Rd, Sango, Ibadan
0803 259 5887
8. Adroit Advisors · Accounting firm 1Shodipo Street Agodi GRA. 0705 498 7750
Ibadan
9. Adeniran Adesanya & Co. Accounting firm 3rd Floor Premium House
Magazine Road GRA 0805 302 2241 Ibadan
10. Egunjobi Adegbite & Co ·
1b Road B NITEL Exchange Road Oluyole Estate Road 0704 235 4465
11. Kayode Ojo & Co · 15 Oluyole St 2348053026434, Ibadan
12. HLB Z. O. Ososanya & Co
Alaafin Avenue, Oluyole, Ibadan.
Gloria House, Off Alaafin Avenue, Oluyole Estate
G.P.O. Box 2261, Dugbe, Ibadan. Nigeria
13. Oluseyi Adeniran & Co.
11A Olajire Ultra Modern Office Complex, Trumed Bus Stop State Hospital Road,
Off MKO Abiola Way, Oluyole, Ibadan 0703 470 4713
14. Olufemi Adeniji and Co
Oke Agala Estate, Vine Branch Church Area, 9 Summit Avenue, Off Queen
Elizabeth Rd., Oluyole Ibadan 0803 328 3589
15. Prima Associates
Basorun Rd, Opposite Oluwatoyosi Nursery and Primary School, Ibadan
0808 031 4900
16. Frantivic & Associates
Wuraola Building, 1, New Adeoyo Junction, Third Floor, Ibadan 02 231 8061
17. Ope Abayomi & Co. Chartered Accountants Ibadan 0813 233 4240
18. Lafenwa Osiberu & Co.
Lamidi Ajadi House, Iwo Road, Ibadan 0802 305 5293
19. B.A Adebimpe Accounting Solutions
1st Floor Olowo Complex, behind Zenith Bank, Iwo Road, Ibadan 0808 634 6264

20. BDO Professional Services
Wuraola House, Ring Road By Adeoyo Hospital Road, South West 0709 425 1182
21. FOBCA Consulting
1st Floor, Bank of Agriculture, Total Garden Road, Agodi, Ibadan 0903 388 9539
22. Dele Adeyemi & Co
Coca-cola Area, No 18, Ajibade Street, Mokola Rd
23. Adeleke Oluwakemi E And Co
31 Osuntokun Avenue, BODIJA, Ibadan
0806 551 4888
24. Kayode Ojo & Co
5 Oluyole St, Oke Ado, Ibadan 2348053026434
25. Royal House Consulting
15 Saint Annes Crescent, Molete, Ibadan 0809 974 8526
26. Oni Mobolaji Johnson & Co.
Suite 3, Babalola Shopping Complex Estate, Ibadan 0703 857 3573

Oni Mobolaji Johnson & Co
3, Kupo Adegbayi Ibadan, Off, 2 Iyana Agbala Rd
0703 857 3573
27. Oladele And Company
40 Iwo Rd, Iwo Road, Ibadan 0803 082 9546
28. Messrs D. O. Babalola and Co
5, Idowu Close, Off Oba Abimbola road, Opposite Splash FM, Near White House,
P. O. Box1317, Dugbe, Felele 0704 550 4452
29. **OGE Professional Services:** <https://oyedokungodwin.com/contact/>
Chartered Accountants, Tax Practitioners & Forensic Auditors

Ibadan Office
93, UI-Ojoo Road,
Opposite U.I International Conference Centre.
University of Ibadan Second Gate, Ibadan, Nigeria.
Tel: +2348033737184, +2348132445878, +2348055863944
info@oyedokungodwin.com
30. Baker Tilly Nigeria
46 Alaafin Ave, Oluyole , Ibadan. 0802 354 3301

31. BAO & CO LIMITED.
UI Post Office, Poly Road, Ibadan 01 774 904
32. S. Kayode Ekundayo, Bolade & Co
Bosere Chambers 5, Imalefalafia Street, Dugbe Oke-Ado, Ibadan 0802 342 2554
33. Index Managers
 - (a) 25 Ekiti St, old Bodija 200285, Ibadan 0817 265 4320
 - (b) No5 University Crescent, Oba Olagbegi, Osuntokun, Bodija 0817 388 6931
34. Omonigba Sofir and Co
UMC Compound, Obafemi Awolowo Way, Molete, South West
0805 696 7480
35. Balogun Badejo & Co
Olusewa House {1st Floor} S7/470 Old Lagos Road Orita - Challenge,, Ibadan
01 98 1859
36. BIC Professionals (Busayo Ibukunolu & Co.)
Ring road 2nd Floor, Esan Plaza, Oni & Sons Way
37. Jodoc Professional Associates
33, Road 1, Zone A Olorunredo Street, Iyana Agbala, Ibadan
38. Tai Omidiora & Co (Chartered Accountants) 0703 385 4047
39. Olagunju Adebayo
Road 5, zone 2. No. 14 Koko Peace Estate
Off Dada Estate, Ibadan. 08037076626 & 08056268655
40. BBC Professionals
S7/470, Old Lagos Road, Ibadan, Nigeria. +234 22310048
41. Abayomi Ogunjimi & Co.
08033064177,
08090700006 ogunjimi2000@yahoo.com
42. Ejeh Sheidu Tokula & Co.
08027580438 oxonejeh@yahoo.com
43. Akinlolu Akinkuade & Co.
08089100459,
08036862696

loluakinkuade@yahoo.com

44. Wale Olagunju & Co. Mr Timothy
Akinbowale Olagunju 8023297480
akinbowaleolagunju@yahoo.com
45. Olugbenga Folarin & Co
Folarin Olugbenga Emmanuel 8034521158 folarineo@yahoo.co.uk
46. Ayodele Olatunji & Co
08033003003,
08035366665
olatunjiayodele55@yahoo.com
47. Oyewole Adebero & Co.
08033280826 wolebero@gmail.com
48. Ayo Shonubi & Co.
08025933476 ayoshonubi@gmail.com
49. S.A. Bammeke & Co. 1. Ebenezer
Olugbenga Aribilola 8033304599 sabamaudit@yahoo.com
50. Egba Osakumi & Co
8033967759,
08033121334 normsakuni@yahoo.com
51. Ajiboye Adeoye & Co
08033205356
ajiboyeadeoye@yahoo.com
52. Oluseyi Johnson & Co
08079589038
oluseyijohnson007@yahoo.com
53. S. Bolaji Koya & Co
S.B. Koya 8023002661 pstsbkoya@yahoo.com
54. Adeleye, Adeleye & Co
08033433877,
08033015170 aaaudit_ng@yahoo.com
55. Umughele Kagher & Co.
Umughele Lawrence
0805660456,

- 08122200366 siakmhg@yahoo.com
56. Olawale Rokosu & Co
Olawale Rokosu 8033435424
olawalerokosuandcompany@yahoo.com
57. Segun Thomas & Co.
08023181125
thomasfolorunshoo@yahoo.co.uk
58. Olatunde Kehinde & Co.
Olatunde Kehinde 8034905869 olakenny25@yahoo.com
59. Olutayo Solanke & Co.
Oladapo I. O. 8054018415 jacsolanke@gmail.com
60. WFO Professional Services
W.F. Oluyemi 09091751299, wfoluyemi@wforoedl.com

APPENDIX C: List of ICAN Districts in South West, Nigeria as at
30 June, 2022

Lagos

1. Amuwo & District
2. Alimosho & District
3. Epe & District
4. Ikeja & District
5. Ikorodu & District
6. Ilupeju & District
7. Lagos & District
8. Lagos Mainland & District
9. Mowe & District
10. Ojo, Badagry, Agbara & District

Ogun

1. Abeokuta & District
2. Ijebu Ode & District
3. Ilaro & District
4. Ota & District

Osun

1. Osogbo & District
2. Osun & District

Oyo

1. Ibadan & District
2. Oyo & District
3. Ogbomosho & District

Ondo

1. Akoko & District
2. Akure & District

Ekiti

1. Ado-Ekiti & District

Source:

<https://www.icanig.org/members/documents/DIRECTORY%20OF%20DISTRICT%20SOCIETIES%20&%20CHAPTERS-MAY%2031,%202021.pdf>

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APPENDIX D: Permission for Reproduction from: Principles of Auditing 2nd Edition.
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With best wishes, Inge van der Bijl

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Sent: Friday, July 23, 2021
To: Hayes, Rick
Subject: Permission for Reproduction from: Principles of Auditing 2nd Edition. 2005.

Dear Sir,

I am a faculty member of Osun State University, Accounting Department but presently an Accounting doctoral candidate at Lead City University, Oyo State, Nigeria.

My thesis is on the Automated Accounting System and External Audit Process. In the build up of the theoretical framework to support the study, I found that previous researchers had severally cited the textbook you co-authored and as I intend to extensively borrow from your submission on both demand and supply theories of audit, I therefore write to seek your permission to extensively copy from page 44 to page 47 of the textbook.

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I await your response.

Thank you.

Amos Olusola Akinola
+234 8038230550

Amos AKINOLA <amos.akinola@uniosun.edu.ng>
to rhayes, AUP

Thanks for your prompt response.

The thesis will be published on open access journals and it will be on four different articles from the thesis proxies for external audit process. The theories as submitted in the text book authored by Prof.

Hayes will among others will be deployed to anchor the submissions in each of the articles which will be after the viva. However, for the thesis for the award of Doctor of Philosophy degree in Accounting, the whole of four theories with explanations are been considered for inclusion hence my application for permission to reproduce.
Once again, I appreciate your attention.

Amos Olusola Akinola

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to me, rhayes@calstatela.edu

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Thank you for your response. You refer to the 2nd edition of Principles of Auditing, but recently a 4th edition was published (9789463720069). The 2nd edition is no longer available, and was published with a different publishing company, Pearson.
I understand that the text that you would like to refer to is also part of the 4th edition. I would recommend to quote the newest publication. The page numbers have changed though: pages 30 to 32.
We give you permission to quote from these three pages from the 4th edition, but the 4th edition should be clearly referred to in your thesis/articles.

Good luck!

With best regards,
Inge van der Bijl

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Amos AKINOLA <amos.akinola@uniosun.edu.ng>
to AUP, rhayes

Dear Sir,

I acknowledge the rare privilege given to me in pursuit of academic excellence and this I cannot forget in a hurry. Once again, I am grateful and shall revert on successful completion of my programme.

Thank you.

Amos Olusola Akinola

University Compliance Certification

This is to certify that the thesis by Amos Olusola AKINOLA in the Department of Management and Accounting, Faculty of Social and Management Sciences, Lead City University, Ibadan is in full compliance with the approved University Format and Style.

Name

Date

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