


## The effect of automated accounting systems (AAS) on audit independence: Empirical Evidence from South West, Nigeria.

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## 1. Introduction

The advent of large-scale production with the alienation of owners from day to day management of corporations brought the need for owners to engage agents in the management of firms. It behooves the management to render the account of their stewardship to the owners and this stewardship is rendered with the provision of financial statements. The truthfulness and fairness of these financial statements require a third party to examine the records as maintained and submitted by the management to the owners and other stakeholders. This third party is required (the external auditor) to lend credence or otherwise to these reports and provide assurance to the stakeholders on the extent (without an iota of compromise) that the reports represent the actual activities of a firm within the reporting period.

Ability of external auditors to discharge this responsibility unhindered requires that the auditors should be independent of both owners and managers. Lending credibility and assuring to inspire the confidence of owners in the stewardship of the management rests squarely on the auditors' independence. This is to say that auditors must not only be independent in mind but must also be independent in fact. The independence of external auditors is better aligned to be assessed from the audit process of audit planning, conduct of various tests, and expression of opinion.

To guarantee the independence of the auditor entails that audit procedures are free of interference of any sort. Also, it requires the integrity and exercise of the best judgment of the engagement team at all times. The importance of audit independence has led to an attempt to critically examine factors that affect this, with little or no attempt to empirically examine what could be the effect of technology in the promotion of audit independence. More so, existing empirical studies emphasise either independence on audit quality or credibility of financial statements (Olagunju 2011; Ogbeide et al., 2018; Yakubu and Williams, 2020) while the majority were archival and conceptual in nature (Gwilliam & Marnet, 2015; Church et al., 2018; Jenkins & Stanley, 2019)

The near absence of empirical study of the three major elements in the external audit process (planning, conduct of test, and expression of opinion) coupled with a lack of attention on the effects of automated accounting systems on auditor's independence necessitates the need for a reappraisal of this concept in a technology-driven environment.

An auditor's independence is the existence of freedom to carry out an audit assignment with no interference (either directly or indirectly) from anybody/circumstances and for the auditor to freely and objectively express their opinion on an audit assignment. However, there is a lack of definitions for audit independence. (Beattie & Fearnley, 2015). Audit independence may be regarded as freedom from those pressures and other factors that compromise, or reasonably be expected to compromise an auditor's ability to make unbiased audit decisions.

All these are considerations for the auditor's reaction, attitude, approach, or perception toward the risk of becoming a surrogate in the hands of the auditee (the client). It has also been defined in various ways such as the conditional probability of reporting a discovered breach by (DeAngelo, 1980) while Church, et al. (2018) associated audit independence with the auditor's self-reliance, such that professional judgments are not subordinated to the wishes or desires of others, including clients and according to Magill and Gary, (1991), it is a function of character, with the attributes of integrity and trustworthiness being key.

A working definition for this study is that an auditor's independence is the existence of freedom to carry out audit assignments 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, Owen and Pemberton (2021) submits that it is a matter of degree' Audit independence is the freedom enjoyed sustained in the planning, testing and reporting of assurance engagement. It implies that there is no inhibiting factor/force in the planning, in the conduct of compliance and substantive tests, and the form of expressed opinion by the auditor.

The modern audit process must be objectively carried out and auditor independence is the cornerstone as it provides assurance to stakeholders and lends credibility to the financial statements prepared by the management (IOSCO, 2020). It is therefore imperative for auditors to be independent not only in mind but also in fact.

The provision of assurance to stakeholders and to lend credibility to the financial statements as prepared by the management rests squarely on the ability of the auditor to report their findings with no influence. Jenkins and Stanley (2019) claims that independence is commonly accepted as fundamental to auditing and as been the subject of significant public discussion and debate

for more than ten a century. Generally, lack of audit independence for any reason poses great danger to the users of accounting information.

## 2. Literature Review and Development of Hypothesis

Beattie and Fearnley (2015) identified three areas where auditor's independence is most required and these are program, investigative, and reporting. However, the attendance question that this study answered is how has automated accounting system affects auditor independence when attention is paid to the program independence of auditors during the audit process.

**2.1.1 Programming independence.** This is about planning an engagement. It is the freedom to adopt and apply

strategy considered most appropriate for an audit assignment with no external influence. The program independence connotes that there is no inhibition in any way as to how to execute and report audit assignments and this implies that information for successful assignments is ready and made available by both the management and relevant third parties. Program independence is very crucial in the audit process as it paves the way for auditors to be in absolute control of the execution of assurance engagement with no interference from any quarter. This aspect of independence is believed to benefit from current developments in accounting and auditing with the arrival of e-accounting/auditing.

It is therefore necessary to consider the effect the application of technology has on audit independence as it relates to the auditor's prerogative in the audit program of an audit engagement (Programming independence) hence this study hypothesis that:

**H<sub>0</sub>:** There is no significant effect of the automated accounting systems (AAS) on program independence.

**2.1.2 Investigative independence.** The ability of the auditor to conduct control and substantive tests 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. Investigative independence connotes that there are no inhibiting factors on the auditors to

conduct both compliance and substantive tests. In this case, the auditors have absolute freedom to seek and obtain any record that will facilitate needed evidence. Investigative independence is very important to ensure the credibility and reliability of audit findings and enhance the quality of assurance audit (DeFond & Francis, 2005; Messiers et al., 2014). Investigative independence of audit when considered from a technologically driven environment, this independence is expected to be positively influenced; however, the need to empirically establish this necessitates the formulation of this hypothesis that:

**H<sub>0</sub>:** There is no significant effect of AAS on the investigative independence of auditors.

**2.1.3 Reporting Independence:** This provides leverage for the auditors' ability to choose what 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 a report under the carpet. The ultimate of auditing activities is to issue reports and this requires that the expressed opinion is not influenced in any form rather; it is issued at the sole judgment of the auditor. This was then subjected to empirical confirmation as it was hypothesised that:

**H<sub>0</sub>:** There is no significant effect of AAS on the report independence of the auditor.

The need for auditors' independence is not farfetched as users of financial statements need assurance that figures and facts as presented in the statements are the facts in the entity's books and the 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 published financials (IOSCO, 2020).

Considering the joint effect of the program, investigative, and reporting independence of auditors in an automated accounting system environment, there is a need for a unified empirical basis for the establishment of how has automated accounting system influences audit independence. This is about joint effect hence this study hypothesised that:

**H<sub>0</sub>:** There is no significant effect of automated accounting systems on audit independence

## 2.2 Independence in fact and Independence in mind

There are two important distinctions to independence as related to audit and this is real independence or independence of mind which was equally regarded as epistemic independence which is all about possessing essential knowledge of the audited party which enhances the capability to make independent judgments (CPA Australia, 2019). An auditor who is independent in fact (independence of mind) can make independent decisions (Lindberg & Beck, 2015). Lack of belief in the existence of independence should have no bearing and this was corroborated by the assertion that independence is associated with an auditor's mindset and "entails self-reliance, such that professional judgment is not compromised"(Lindberg & Beck, 2015).

This interference appears common occurrence in a manual accounting system as auditors rely on the management and others for the provision of materials to facilitate auditing of the entity, in addition, there is frequent interaction between personnel of the audit firm and the auditee and this can create unnecessary bound in between, unlike under the present dispensation in a big organisation where accounting system is now largely electronically. The other is independence in appearance which is also regarded as epistemological dependence (CPA Australia, 2018). Epistemological connotes what is perceived of an audit by others that it seems the auditor is quite independent of clients' manipulations (IFAC, 2013).

Similarly, the US SEC rule supports the fact that whether audit independence is by appearance or in fact, an accountant cannot be considered independent except the accountant is capable of exercising objective and impartial judgment in all circumstances of engagement. It therefore behooves on public accountant to act objectively to the extent that a reasonable and informed third party will have no reason(s) to doubt the integrity of the Accountant (Limperg, 1932; Hayes et al., 2021).

From various positions as canvassed above it will not be difficult to say that there is no perfect system anywhere hence there is a need to examine the attainment (or otherwise) of relative auditor independence under an automated accounting system which bring about the concept of automated audit.

The main objective of this study therefore is to address the lack of empirical evidence on the effect of the application of accounting technology on the independence of auditors. There appear

no known empirical efforts to examine audit independence through the practical components (program, investigative, and reporting) of the independence. Not only does this study bridge the literature gap but in addition, provides audit clients and practitioners with the overall benefits of automated accounting systems on audit independence on one hand and the other hand, regulatory authorities, audit standard setters, and professional accounting bodies to formulate needed standards and operational guidelines to drive the process suitable for e-accounting and e-auditing.

### **2.3 Automated Accounting System**

The introduction of technology into business is reshaping not only accounting but also auditing. All aspects of accounting are now computerized especially in large-sized entities while most medium-sized entities have also among others computerised their payroll, account payables, account receivables, and inventory management. The most commonly used accounting package in South West, Nigeria is Sage 50 Cloud while the next is the QuickBooks accounting package. Automated accounting system then demands that auditors conduct assurance functions using technology (Itang, 2018). This study also independently corroborates the finding of Itang, (2018) on the usage of accounting software (See Table 2 of this study)

International Accounting Federation (IFAC) recognises the fact that the introduction of technology into auditing will have huge effects on audit independence hence a survey was initiated by the IESBA's Technology Task Force in 2020 to seek for the views of practitioners about the impact of technology on independence matters. (IFAC, 2020) However, the result of that survey is yet to be in public view. The need for academics to provide the lead on this important aspect of the audit process is the motivating factor for this study as most existing efforts on audit independence lack attention to what influence technology poses.

### **2.4 Theoretical Review**

Theories of inspired confidence (Limperg, 1932) and lending of credence (Hayes et al., 2021) are both crucial to this study as both in one way supportive of the need for auditors' independence while in another way, for the auditor to inspire confidence in the audit reports such audit should be independent in appearance and in fact

Public accountants who execute audit functions independently will be able to defend the veracity of financial accounts but if auditor independence 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 the auditor's independence but if auditor independence 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. These theories therefore are the underpinning for this study as they address the importance of external auditors independent.

## 2.5 Empirical Review

Akpom and Dimkpah (2014) conducted a study that centered on the determinants of auditor independence. The study employed survey design, the validity of the instrument established while collated data subjected to analysis of variance, the results which found 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 study did not specifically consider the implication of technology on audit independence or examine the independence in fact from the perspective of the practical aspect of independence (type of independence)

Minh-Duc (2021) studied the factors that enhance auditor independence in developing countries in the context of globalisation: Evidence in Vietnam and the study used archival research method to analyse and establish the research problems and verify by experimental data. The study took the group discussions with experts and surveyed 350 auditors who functioned in different audit assignments. The results showed that globalisation supports auditors, audit firms, and professional associations to improve auditor independence. Especially, the factors that enhance the auditor independence driven by international integration such as knowledge and technology.

The study claimed to have taken a new approach to auditor independence from globalisation obtainable in Vietnam. It studied the effect of technology on audit independence and established a coefficient of determination of 3.3% but failed to provide information or data to support whether the finding is significant or not. The study hypothesised that auditing technology



increases the auditor independence. Besides, the approaches and what constitutes technology and the measurement of audit independence remained unknown. The study aimed at the same as with present study.

Another study by Omondi and Ochieng (2017) examined the elements affecting the independence of external auditors in Kenya with the employment of a structured questionnaire; primary data were obtained and subjected to regression analysis. The study found that there is a slight positive but insignificant link between audit committees and audit independence. It also found a weak relationship between firm size and audit independence. The study, though on audit independence yet not directly focus on how automated accounting systems can affect audit independence.

In Rathi (2015) factors affecting the independence of auditors were considered and the employed questionnaire was drawn on a five-point Likert scale which was subjected to reliability on the Cronbach test with a resulting alpha coefficient of 0.911. Data collected was analysed descriptively on mean and standard deviation. The study found that advanced knowledge of audit fees contributes to objectivity and impartiality audit of financial statements and that auditors' expression of opinion by standard has a positive impact on audit independence. The explanatory variable differs from the automated accounting system.

### **In Rethi (2015) Removed**

Salawu (2020) considered the perceived ineffectiveness of applicable regulations at its best to promote the susceptibility of statutory auditors to compromise independence in Nigeria. They found that restriction on advertisement is most effective in the promotion of audit independence. It also found that peer review and audit rotation were ineffective. This study like others did not pay particular attention to the effects of accounting automation on the practical aspect of audit independence.

A study on leverage with a collection of primary data was conducted by Yakubu and Williams (2020) and it examined the impact of the independence of statutory auditor on the reliability of financial statements (RFS) of the manufacturing companies in Nigeria. The study found that audit independence has a positive and significant effect on the reliability of financial statements

and also was Non-Audit Service (NAS) on RFS. The study's primary goal was not on the effect of automated accounting systems on audit independence even though its finding is a contribution to how NAS affects audit independence.

Wakili (2021) conducted a study titled study of Literature on audit independence and its influencing factors. The study employed a desk system research design. The review finds that non-audit services, audit tenure, significance of the client, and audit-client relationships pose the greatest danger to audit independence. Like most studies on audit independence, the study did not give specific attention to accounting automation or the practical aspect of audit independence

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) by Beattie and Fernely, (2015), 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 demonstrates 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 researchers 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 is currently accessible (both theoretical and empirical). However, there is a general understanding that joint provision has a negative impact on how people see auditor independence.

Beattie and Fernely (2015)'s REMOVED

This study therefore carefully looked at the main activities of external auditors for assurance service which embraces program (planning), investigation (obtaining evidence), and report (expression of opinion). It is conceived that if independence can be established in these areas then audit independence will not be far away from attaining "audit in fact" This study went further to look at how can accounting automation inhibit or promote this audit independence in fact

### 3.1 Research Method

This study employed an exploratory/cross sectional research design subjected to analysis once. Questionnaire was randomly distributed. The population of the study comprises of 21, 559 financial members of the Institute of Chartered Accountants of Nigeria as at May, 2022 (ICAN, 2022), while a minimum sampled size of 393 was determined using Taro Yamane at 5% degree of error but additional 5% was added to make provision for non or invalid responses, making the study's minimum sample size to 410.

However, structured questionnaire drawn on four Likert's scale were randomly distributed (as to guarantee equal opportunity for selected participants) to 514 Chartered Accountants in private practice in South West, Nigeria. 389 copies of questionnaire were completed and returned out of which 27 were filled by were filled by Accountants and others not presently audit service engagement hence regarded as invalid.

### 3.2. Measurement of Variable

**Table 1:** Accounting packages/software in usage

Variables	No of Items	Sources
<i>Dependent (Audit Independence:</i>		
	(AUDIN)	

Programme Independence	06	Younkins (1983); Al-Bashtawi, and Al-Husban,(2013); Beattie and Feranley (2015); CICA (2020); Ezuwore-Obodoekwe and Agbo (2020);
Investigative Independence	05	Younkins (1983); Al-Bashtawi, and Al-Husban,(2013); Glover and Prawitt (2014); Beattie and Feranley (2015); ); Ezuwore-Obodoekwe and Agbo (2020);
Reporting Independence	02	Younkins (1983); Al-Bashtawi, and Al-Husban (2013); Beattie and Feranley (2015); Diane et al. (2018); ISAs 700, (2016 ); Ezuwore-Obodoekwe and Agbo (2020) IOSCO( 2020);
<b>Independent: (Automated Accounting System: (AAS)</b>		
<b>Receivables</b>	07	Alaoma et al. (2020); Dirie and Ramli (2022). Oyimba and Ugwu (2023); Pargmann et al (2023)., Schibsted (2023).
<b>Payables</b>	06	Alaoma et al. (2020)., Dirie and Ramli (2022)., Nkwasiwe et al. (2023); Pargmann et al (2023)., Singh et al. (2020).
<b>Inventory</b>	06	Wei et al (2023); Dirie and Ramli (2022)., Pargmann et al (2023).
<b>Payroll</b>	06	Tuan et al. (2023); Ahmed et al (2023); Palladan and Palladan (2018)., Pargmann et al (2023)., Ojedele (2023); Putra et al (2023).

**Sources:** Authors' Computation

Seven constructs were developed and 38 questions raised from literatures majorly as described in Table 1 above for the attention of participants.

### 3.3. Model Specification

The models for the achievement of this study's objectives are as follows:

**Model 1:** The objective is to determine the effect of automated accounting systems on the program independent of external auditors.

$$\text{PROIND} = f(\text{REC}, \text{PAY}, \text{INV}, \text{ROLL}) \dots \dots \dots \text{i}$$

$$\text{PROIND} = \beta_0 + \beta_1 \text{REC} + \beta_2 \text{PAY} + \beta_3 \text{INV} + \beta_4 \text{ROLL} + e_i \dots \dots \dots \text{ii}$$

**Model 2:** The objective is to determine the effect of automated accounting system on the investigative independence of external auditors.

$$\text{INVIND} = f(\text{REC}, \text{PAY}, \text{INV}, \text{ROLL}) \dots \dots \dots \text{i}$$

$$\text{INVIND} = \beta_0 + \beta_1 \text{REC} + \beta_2 \text{PAY} + \beta_3 \text{INV} + \beta_4 \text{ROLL} + e_i \dots \dots \dots \text{ii}$$

**Model 3:** The objective is to determine the effect of automated accounting system on the reporting independence of external auditors.

$$\text{REPIND} = f(\text{REC}, \text{PAY}, \text{INV}, \text{ROLL}) \dots \dots \dots \text{i}$$

$$\text{REPIND} = \beta_0 + \beta_1 \text{REC} + \beta_2 \text{PAY} + \beta_3 \text{INV} + \beta_4 \text{ROLL} + e_i \dots \dots \dots \text{ii}$$

**Model 4:** The objective is to establish the significant effect of automated accounting systems on external auditors' independence.

$$\text{AUDIND} = f(\text{REC}, \text{PAY}, \text{INV}, \text{ROLL}) \dots \dots \dots \text{i}$$

$$\text{AUDIND} = \beta_0 + \beta_1 \text{REC} + \beta_2 \text{PAY} + \beta_3 \text{INV} + \beta_4 \text{ROLL} + e_i \dots \dots \dots \text{ii}$$

Where:

PROIND = Program Independence

INVIND = Investigative Independence

REPIND = Reporting Independence

REC = Electronic Management of Receivables

PAY = Electronic Management of Payables

INV = Electronic Management of Inventory

ROLL = Electronic Management of Payroll

$\beta_0$  = Intercept of Slope

$\beta_1, \beta_2, \beta_3, \beta_4$  = Estimated Parameters

$e_i$  = Stochastic Error Term

The 362 copies of validly returned questionnaire were subjected to reliability and validity test.

The results are as shown below

**Table 2:** Reliability and Validity

Variables	Factor Loading	Cronbatch's Alpha	Composite Reliability	AVE
<i>Application of Automated Accounting System</i>				
	Item 1	0.858		
	Item 2	0.947		
	Item 3	0.849	0.779	0.916
				0.785

**Audit Independence:**

i. Program Independence	Item 1	0.857			
	Item 2	0.781			
	Item 3	0.720			
	Item 4	0.757			
	Item 5	0.809			
	Item 6	0.880	0.941	0.978	0.889
ii. Investigative Independence	Item 1	0.800			
	Item 2	0.691			
	Item 5	1.154			
	Item 6	0.939			
	Item 7	0.715	0.959	0.941	0.768
iii. Reporting Independence	Item 4	0.716			
	Item 5	0.522	0.815	0.556	0.392

**Source:** Authors' Computation

The above results (Table 2) for reliability test confirm that all Cronbanch Alpha (CA) have value not less than 0.7 which establishes the reliability of research instrument while composite reliability (CR) and average variance extract (. AVE) have value not less than 0.7 and 0.5 respective except item 5 for unrestricted right of decision. Overall, the result indicates that the questions as raised are valid enough for their purposes.

## 4.0 Results and Discussions

As earlier reported in Akinola and Olagunju (2023), data collected were subjected to both inferential analysis was carried out with the aid of multiple regression analysis to empirically test four hypothesis of the study at 5% level of significance (95% confidence level)

### 4.1 Descriptive analysis

**Table 3:** Accounting packages/software in usage

Questions	Frequencies	Percentage (%)
Quick Book	48	13.26
Sage 50 Cloud	265	73.20
Wave Financial	14	3.87
Xero Accounting	4	1.10
Zoho Book	1	0.28
Others	30	8.29
<b>Total</b>	362	100

**Sources:** Authors' Computation

Table 3 above shows the accounting packages/software usage of various respondents. Based on the table above, 73.2% uses sage 50 Cloud, 8.3% uses other applications not mentioned and 13.3% uses Quickbooks. Few (4.2%) 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. This result aligned with a study that reported that Sage 50 Cloud is the most common accounting package in Nigeria (Itang, 2018)

#### 4.2.1. Test of Hypotheses

**Hypothesis One:** There is no significant effect of automated accounting system on the program independence of auditors

##### 4.2.1.1 Regression Result

**Table 4:** Audit independence - Program independence

Variables	Coefficient	Std Error	p-value	t-Statistics	Multicollinearity Statistics	
					Tolerance	VIF
Constant	0.533	0.186	0.004	2.866		
Receivable (REC)	0.371	0.042	0.000	9.154	0.515	1.942
Payables (PAY)	0.425	0.044	0.000	10.222	0.491	2.036
Inventory (INV)	0.195	0.048	0.000	4.935	0.542	1.844
Payroll (ROLL)	0.290	0.039	0.000	7.089	0.476	2.103
R	0.835					
R <sup>2</sup>	0.694					
Adjusted R <sup>2</sup>	0.694					
S. E. of Regression	0.64212					
Sum of Square	147.196					
F-Stat	205.484					
Prob	0.000					

Source: Authors' Computation

Table 4 above shows a coefficient of determination ( $R^2$ ) of 0.697 which suggest that application of automation into accounting system brings a positive variation of 69.7% to program independence of external auditors while other factors besides automation of accounting system are responsible for 30.3% variation in programmer independence of external auditors.

Result of Durbin-Watson shows value of 2.224 which is between the thresholds of 1.5-2.5 (Durbin & Watson, 1951) and this establishes the fact that there is no presence of autocorrelation in residuals and this establishes the fact that the assumptions of linear regression are fulfilled

The F-statistic with value (205.484) which measures the strength of regression reveal that automation of account receivables, account payables, payroll and inventory are jointly significant ( $p\text{-value} = 0.000 < \alpha 0.05$ ) and can account for positive changes in the program independence of external auditors. This further suggest that there is significant effect of automated accounting system on program independence of external auditors and that null hypothesis of the study should be rejected while alternate hypothesis which state that there is significant effect of automated accounting system on program independence of external auditors should be accepted.

This shows that if other factors are held constant, that automation of receivables, payables, inventory and payroll will respectively cause positive changes of 31.7%, 42.5%, 19.5% and 29.9% to the program independence of auditors and all these changes are found significant at 95% of confidence level.

The results of tolerance which ranges between 0.476 and 0.542 which are higher than 0.1 and the result of variance inflation factor (VIF) of between 1.844 and 2.103 which are all below 10.0 suggests the absence of multicollinearity.

**Hypothesis Two:** There is no significant effect of automated accounting systems on investigative independence of auditors

#### 4.2.1.2 Regression Result

Table 5: Audit independence - Investigative independence

Coefficient	Multicollinearity Statistics
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Variables		Std Error	p-value	t-Statistics	Tolerance	VIF
Constant	0.05	0.154	0.923	0.096		
Receivable (REC)	0.025	0.042	0.000	6.081	0.460	2.172
Payables (PAY)	0.042	0.035	0.000	0.744	0.664	1.505
Inventory (INV)	0.211	0.053	0.000	4.173	0.302	3.316
Payroll (ROLL)	0.451	0.064	0.000	7.695	0.226	4.430
R	0.851					
R <sup>2</sup>	0.724					
Adjusted R <sup>2</sup>	0.721					
S. E. of Regression	0.61355					
Sum of Square	134.303					
F-Stat	233.779					
Prob	0.000					
Durbin-Watson	1.862					

**Source:** Authors' Computation

Table 5 above shows a coefficient of determination ( $R^2$ ) of 0.724 which indicate that automation of receivables, payables, inventory and payroll (independent variables) brings a positive variation of 69.7% to investigative independence of external auditors (dependent variables) while other factors besides independent variables are responsible for 30.3% variation in investigative independence of external auditors. Durbin-Watson result shows value of 1.862 which is between the thresholds of 1.5 - 2.5 (Durbin & Watson, 1951) and this establishes the fact that there is no presence of autocorrelation in residuals and this establishes the fact that the assumptions of linear regression are fulfilled

The F-statistic with value (233.779) which measures the strength of regression reveal that automation of account receivables, account payables, payroll, and inventory are jointly significant ( $p\text{-value} = 0.000 < \alpha 0.05$ ) and can account for positive changes in the investigative independence of external auditors. In addition, this suggest that there is significant effect of automated accounting system on investigative independence of auditors and that null hypothesis of the study

should be rejected and that alternate hypothesis which state that there is significant effect of automated accounting system on investigative independence of auditors should be accepted.

The results suggest that if other factors are held constant, that automation of receivables, payables, inventory and payroll will respectively cause positive changes of 24.9%, 2.5%, 21.1% and 45.1% to investigative independence of auditors and all these changes are found significant at 95% of confidence level except that effect of automation of payable on investigative independence of auditors is found to be insignificant.

The results of tolerance which ranges between 0.226 and 0.664 which are higher than threshold of 0.1 and the results of variance inflation factor (VIF) of between 1.505 and 4.430 which are all below the threshold of 10.0 suggests the absence of multicollinearity

**Hypothesis Three:** There is no significant effect of automated accounting system on reporting independence of auditors

#### 4.2.1.3 Regression Result

**Table 6:** Audit independence – Reporting independence

Variables	Coefficient	Std Error	p-value	t-Statistics	Multicollinearity Statistics	
					Tolerance	VIF
Constant	0.015	0.154	0.923	0.096		
Receivable (REC)	0.808	0.042	0.000	6.081	0.460	2.172
Payables (PAY)	0.064	0.035	0.000	0.744	0.664	1.505
Inventory (INV)	0.112	0.053	0.000	4.173	0.302	3.316
Payroll (ROLL)	0.101	0.064	0.000	7.695	0.226	4.430
R	0.945					
R <sup>2</sup>	0.893					
Adjusted R <sup>2</sup>	0.892					
S. E. of Regression	0.38098					
Sum of Square	51.816					

F-Stat	748.11
Prob	0.000
Durbin-Watson	2.332

Source: Authors' Computation

Table 6 above reveals a coefficient of determination ( $R^2$ ) of 0.893 which indicates that automation of receivables, payables, inventory and payroll (independent variables) brings a positive variation of 89.3% to reporting independence of external auditors (dependent variables) while other factors besides independent variables are responsible for 10.7% variation in reporting independence of external auditors. Result of Durbin-Watson shows value of 2.332 which is between the thresholds of 1.5 - 2.5 (Durbin & Watson, 1951) and this establishes the fact that there is no presence of autocorrelation in residuals and this establishes the fact that the assumptions of linear regression are fulfilled

The F-statistic with value (748.011) which measures the strength of regression reveal that automation of account receivables, account payables, payroll and inventory are jointly significant ( $p\text{-value} = 0.000 < \alpha 0.05$ ) and can account for positive changes in the reporting independence of external auditors. In addition, this suggest that there is significant effect of automated accounting system on reporting independence of external auditors and that null hypothesis of the study should be rejected while alternate hypothesis which state that there is significant effect of automated accounting system on reporting independence of auditors should be accepted.

The results further suggest that if other factors are held constant, that automation of receivables, payables, inventory and payroll will respectively cause positive changes of 80.8%, 6.4%, 11.2% and 10.1% to reporting independence of external auditors and all these changes are found significant at 95% of confidence level except that of the effect of automation of payable on reporting independence of external auditors which is found to be insignificant  $p\text{-value} = 0.61 > \alpha = 0.05$ . The results of tolerance which ranges between 0.132 and 0.262 which are higher than threshold of 0.1 and the results of variance inflation factor (VIF) of between 3.816 and 7.592 which are all below the threshold of 10.0 suggests the absence of multicollinearity

**Hypothesis Four:** There is no significant effect of automated accounting systems on external auditors' independence

## 4.2.1.4 Regression Result

**Table 7:** Automated accounting systems and external auditors' independence

Variables	Coefficient	Std Error	p-value	t-Statistics	Multicollinearity Statistics	
					Tolerance	VIF
Constant	0.015	0.154	0.923	0.096		
Receivable (REC)	0.808	0.042	0.000	6.081	0.460	2.172
Payables (PAY)	0.064	0.035	0.000	0.744	0.664	1.505
Inventory (INV)	0.112	0.053	0.000	4.173	0.302	3.316
Payroll (ROLL)	0.101	0.064	0.000	7.695	0.226	4.430
R	0.945					
R <sup>2</sup>	0.893					
Adjusted R <sup>2</sup>	0.892					
S. E. of Regression	0.38098					
Sum of Square	51.816					
F-Stat	748.11					
Prob	0.000					
Durbin-Watson	2.332					

**Source:** Authors' Computation

Table 7 above shows a coefficient of determination ( $R^2$ ) of 0.751 which suggest that application of automation into accounting system brings a substantial and positive variation of 75.1% to external auditors' independence while other factors besides automation of accounting system are responsible for 30.3% variation in external auditors' independence. Result of Durbin-Watson shows value of 1.994 which is between the thresholds of 1.5-2.5 (Durbin & Watson, 1951) and this establishes the fact that there is no presence of autocorrelation in residuals and this establishes the fact that the assumptions of linear regression are fulfilled

The F-statistic with value (269.291) which measures the strength of regression reveal that automation of account receivables, account payables, payroll and inventory are jointly

significant ( $p\text{-value} = 0.000 < \alpha 0.05$ ) and can account for positive changes in the independence of external auditors. This further suggest that there is significant effect of automated accounting system on independence of external auditors and that null hypothesis of the study should be rejected while alternate hypothesis which state that there is significant effect of automated accounting system on independence of external auditors should be accepted

The results further suggest that if other factors are held constant, that automation of receivables, payables, inventory and payroll will respectively cause positive changes of 13.5%, 66.5.5%, 6.2% and 44.4% respectively to independence of auditors and all these changes are found significant at 95% of confidence level except that of automation of inventory that show a positive but insignificant effect at 95% of confidence level. The results of tolerance which ranges between 0.189 and 0.391 which are higher than 0.1 and the result of variance inflation factor (VIF) of between 2.555 and 5.285 which are all below 10.0 suggests the absence of multicollinearity.

The coefficient of determination for combined elements of independence of external auditors in response to the automated accounting system is positive and substantial at 75.1%. This was also significant at 5% significant level. The introduction of automaton of accounting system curtails some of the threats to auditors' independence e.g., threat of intimacy, access to financial and non-financial information etc. This indicating that application of technology into accounting activities promotes independence of auditors in the planning process of audit assignment. Auditors are in position to design effective procedures with no interference from third party

Similarly, each types of independence as suggested by Beattie and Fearnley (2015) were found to have positively influenced when accounting system are automated. That is, automated accounting system was found to have positive and significant influence on program, investigative, and reporting independence of external auditors. ( $R^2 = 0.697$ , Statistics = 205.484,  $p\text{-value} = 0.000$ ;  $R^2 = 0.724$ , Statistics = 233.779,  $p\text{-value} = 0.000$ ;  $R^2 = 0.893$ , Statistics = 748.011,  $p\text{-value} = 0.000$ ) respectively.

The findings of this study provides that automation of accounting system can truly promote audit independence in fact this is because this study painstakingly examine each operational aspect of external audit engagement where independence or not of auditors are apparent and of greater

importance in audit engagement. The finding aligned with the Minh-Duc (2021) that submits that auditing technology increases the auditor independence. The implication of this is that automated accounting system has great potential to promote audit independence.

## 5. Conclusion

The study painstakingly examined each operational aspect of audit engagement where auditing independence should be the cornerstone and the findings confirm that independence is a possibility when accounting system is automated. This is as a result of significant effects of automated accounting system on the three elements to promote audit independence as envisioned in Beatie and Fearnely (2015) and also addressed their concern on measurement of audit independence on which they earlier commented that 'proxy measures - sometimes with dubious validity been employed'

This study empirically laid foundation for evidence that automation of accounting records stands to be of great assistance to the promotion of independence of auditors whether in the planning, conduct of compliance and substantive test and expression of opinion. The findings of this study on the effect of automated accounting system on programme independence of auditors aligned with the finding of Olayiwola et al. (2015) on impact of automated accounting system on audit planning.

Generational concern on lack of independence as obtainable under manual accounting system will to large extent be redressed with the advent of full automation of clients accounting system which will promote remote and continuous auditing of client's activities with little or no restriction. Activities of large sized clients will be beneficial as accounts of these firms are fully automated with some allow direct access to their servers by the management of their auditing firms. Audit staffs on engagement duties will need to possess technical skills require functioning in an automated accounting system and be acquitted with clients' electronically driven accounting system.

Medium size clients have to embrace full automation which beside other benefits will promote audit independence and boost investors and creditors confidence in relating with the firms.

### 5.1. Future Research Agenda

It is therefore suggested that there should be concerted efforts of researchers, practitioners and standard setters to comprehensively pay attention and conduct further studies in this regard as to establish process and procedure that will translate the benefits of automated accounting system for the promotion of external auditors' independence.

It is further suggested that similar study should be conducted in other countries as that will establish the universality or otherwise of this study's findings which will better serve the profession, clients, and audit standard setters among others. Similarly, there could be a revisit to the construct chosen for the study, enhance same and subject them to participants that will include not only audit practitioners but that will include the drivers of standard setter, regulatory authorities and possibly the audit clients.

There is no doubt (with the findings of this study) that accounting automation stands to promote the in-fact-audit independence.

### References

- Ahmed, A. M., Mohammed, C. N., & Ahmad, A. M. (2023). Web-based payroll management system: Design, implementation, and evaluation. *\*Journal of Electrical Systems and Information Technology*, 10\*(17), 1-16. <https://doi.org/10.1186/s43067-023-00082-5>
- Akinola, A. O., & Olagunju, A. (2023). Automated accounting system and external audit fees: Empirical evidence from Nigeria. *\*KIU Interdisciplinary Journal of Humanities and Social Sciences*, 4\*(1), 55-81. [https://kijhus.kiu.ac.ug/assets/articles/1682727806\\_automated-accounting-system-and-external-audit-fees-empirical-evidence-from-nigeria.pdf](https://kijhus.kiu.ac.ug/assets/articles/1682727806_automated-accounting-system-and-external-audit-fees-empirical-evidence-from-nigeria.pdf)
- Akpom, U. N., & Dimkpah, Y. O. (2014). Determinants of auditor independence: Comparison of the perceptions of auditors and non-auditors in Lagos, Nigeria. *\*Journal of Finance and Accountancy*,\* pp. 1-17. <https://www.semanticscholar.org/paper/Determinants-of-auditor-independence%3A-A-comparison-Akpom/717275aef4b66b0279208df38a8338c226ac095>
- Alaoma, E. J., Unung, O. G., & Anaezichukwuolu, A. G. (2020). Impact of accounting information system on credit management: Problems and prospects. *\*European Journal of Business, Economics and Accountancy*, 8\*(3), 18-31. <https://idpublications.org/wp-content/uploads/2020/09/full-paper-impact-of-accounting-information-system-on-credit-management-problems.pdf>
- Al-Bashtawi, S. H., & Al-Husban, H. (2013). Determinants of audit electronic accounting information systems: A case study in the Jordanian Commercial Banks. *\*European*

- Scientific Journal, 9\*(10), 72-92. <https://core.ac.uk/download/pdf/328023584.pdf>
- Beattie, V., & Fearnley, S. (2015). Auditor independence and non-audit services: A literature review. Retrieved from <https://www.semanticscholar.org/paper/Auditor-independence-and-NonAuditServices%3AA-BeattieFearnley/7707c1d0b5ad75e3720aab61b9aefbeabc7d463b>
- Church, B. K., Jenkins, J. G., & Stanley, J. D. (2018). Auditor independence in the United States: Cornerstone of the profession or thorn in our side? *Accounting Horizons*, 32\*(3), 145–168. <https://doi.org/10.2308/acch-52122>
- CPA Australia. (2019). A guide to understanding auditing and assurance: Australian listed companies (pp. 1-26). Retrieved from <https://www.cpaaustralia.com.au/media/project/cpa/corporate/documents/tools-and-resources/auditassurance/guideunderstandingauditassurance.pdf?rev=640c3a0d984a3a162e6b13ed280ee>
- DeAngelo, L. E. (1980). Auditor size and audit quality. *Journal of Accounting and Economics*, 2\*, 183-199. [https://doi.org/10.1016/0165-4101\(81\)90002-1](https://doi.org/10.1016/0165-4101(81)90002-1)
- DeFond, M., & Francis, J. (2005). Audit research after Sarbanes-Oxley? *Auditing: A Journal of Practice and Theory*, 24\*, 5-30. <https://doi.org/10.2308/aud.2005.24.s-1.5>
- Diane, J., Erskine, R., & Bird, B. (2018). The International Code of Ethics for Professional Accountants: Key areas of focus for SMEs and SMPs. International Federation of Accountants. Retrieved from <https://www.ifac.org/knowledge-gateway/supporting-international-standards/discussion/international-code-ethics-professional-accountants-key-areas-focus-smes-and-smpps>
- Dirie, A. N., & Ramli, A. (2022). The status of computerized accounting system adoption by small enterprises in Mogadishu. *Journal of Positive School Psychology*, 26\*(4), 1755-1766. <https://journalppw.com/index.php/jpsp/article/download/3357/2190/3826>
- Ezuwore-Obodokwe, C. N., & Agbo, E. I. (2020). Relationship between auditor's independence and the credibility of audited financial statements in Nigeria. *Journal of Accounting Information and Innovation*, 6\*(9), 26-37. <https://www.researchgate.net/publication/344902550>
- Glover, S. M., & Prawitt, D. F. (2014). Enhancing auditor professional skepticism: The professional skepticism Continuum. *Current Issues in Auditing*, 8\*(2), 1-10. <https://doi.org/10.2308/ciia-50895>
- Gwilliam, D., & Marnet, O. (2015). Auditor independence. Wiley Online Library. <https://doi.org/10.1002/9781118785317.weom010036>
- Hayes, R., Wallage, P., & Elmer, P. (2021). *Principles of international auditing and assurance* (4th ed., pp. 4, 30-32). Amsterdam University Press. <https://research.vu.nl/en/publications/principles-of-international-auditing-and-assurance>



- ICAN. (2022). Institute of Chartered Accountants of Nigeria - ICAN. (2022). FM List as at May 31, 2022 Up to Year 2022 Subscription. Retrieved from [https://icanig.org/members/documents/FMLIST\\_310522.pdf](https://icanig.org/members/documents/FMLIST_310522.pdf)
- IFAC. (2013). The international federation of accountants' code of ethics for professional accountants. International Ethic Standards Board for Accountants, para 290.6. Retrieved from <https://www.ethicsboard.org/publications/2013-handbook-code-ethics-professional-accountants1>
- IFAC. (2020). Impact of technology on audit independence. International Federation of Accountants. Retrieved from [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&c=&cad=rja&uact=8&ved=2ahUKEwilodL8578AhX0gP0HHRANB1IQFnoECBkQQ\\_url=https%3A%2F%2Fwww.ifac.org%2Fsystem%2Ffiles%2Fpublications%2FfilesFImpact\\_of\\_Technology\\_on\\_Auditor\\_Independence-Survey.pdf&usg=AOvVaw29vEjd4jeznpgRGklwAyqP](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&c=&cad=rja&uact=8&ved=2ahUKEwilodL8578AhX0gP0HHRANB1IQFnoECBkQQ_url=https%3A%2F%2Fwww.ifac.org%2Fsystem%2Ffiles%2Fpublications%2FfilesFImpact_of_Technology_on_Auditor_Independence-Survey.pdf&usg=AOvVaw29vEjd4jeznpgRGklwAyqP)
- IOSCO. (2020). Principles of auditor independence and the role of corporate governance in monitoring an auditor's independence. A statement of the Technical Committee of the International Organisation of Securities Commission. Retrieved from <https://www.iosco.org/library/pubdocs/pdf/ioscopd133.pdf>
- International Accounting Standards No 700 (2016). Forming an opinion and reporting. International Accounting Standards Board, IASB. Retrieved from <https://www.ifac.org/knowledge-gateway/supporting-international-standards/discussion/international-code-ethics-professional-accountants-key-areas-focus-smes-and-smeps>
- Itang, A. E. (2018). Challenges impending effective implementation of internal accounting controls in computerized systems: A survey of Nigerian's SMEs (pp. 16-28). International Doctoral Conference: New Challenges in Global Economy. Retrieved from <https://www.ligsuniversity.com/data/2018-09-15-05-02-52-Akamanwam-Effiong-Itang.pdf>
- Jenkins, G. J., & Stanley, J. D. (2019). A current evaluation of independence as a fundamental element of auditing profession in the United States. \*Current Issues in Auditing, 13\*(1), 17-27. <https://www.doi.org/10.2308/acch-52122>
- Limperg, T. Jr. (1932). The function of the Accountant and the theory of inspired confidence, Part II. Limperg Instituut. Retrieved from [http://www.ikiu.ac.ir/public-files/profiles/items/090ad\\_1424503223.pdf](http://www.ikiu.ac.ir/public-files/profiles/items/090ad_1424503223.pdf)
- Lindberg, D. L., & Beck, F. D. (2015). Before and after Enron: CPAs' views on auditor independence. \*The CPA Journal, 74\*(11), 1-4. <https://www.leg.state.nv.us/Session/78th2015/Exhibits/Assembly/CL/ACL430C.df>
- Magill, H. T., & Gary, J. P. (1991). \*CPA professional responsibility: An introduction\* (15th ed.). South-Western Publishing Company. Retrieved from <https://www.amazon.com/Cpa-Professional-Responsibilities-Harry-Magill/dp/0538801212>

- Messier, W., Glover, S., & Prawitt, D. (2014). \*Auditing & Assurance Services: A Systematic Approach\* (12<sup>th</sup>)
- Minh-Duc, L. D. (2021). Enhancing auditor independence in developing countries in context of globalization: Evidence in Vietnam. *Journal of Accounting, Business and Finance Research*, 13(2), 37-48. <https://doi.org/10.20448/2002.132.37.48>
- Nkwasiwe, N., Katsigaire, E. A., & Tobias, B. (2023). Accounts payable management and financial performance of manufacturing firms: A case of Kazire Health Products Limited. *International Journal of Research and Scientific Innovation*, X(II), 85-100. <https://www.rsisinternational.org/journals/ijrsi/>
- Ogbeide, I. E., Okaiwele, I. M., & Ken-Otokiti, D. (2018). Auditor independence and audit quality. *Accounting & Taxation Review*, 2(1), 152-173. <http://atreview.org/home/abstract.php?id=24&aTitle=Auditor%20Independence%2ad%20Audit%20Quality>
- Ojedele, M. I. (2023). Computerized accounting systems and payroll accounting. *Journal of Accounting and Financial Management*, 9(6), 19-37. <https://doi.org/10.56201/ijssmr.v8.no1.2022.pg32.40>
- Olagunju, A. (2011). An empirical analysis of the impact of auditor as independence on the credibility of financial statement in Nigeria. *Research Journal of Finance and Accounting*, 2(3), 82-98. <https://iiste.org/Journals/index.php/RJFA/article/view/329>
- Olayiwola, A. B., Kumshe, A. M., & Bello, A. B. (2015). Impact of automated financial accounting system on audit processes of selected companies in Nigeria. *Research Journal of Finance and Accounting*, 18(6), 116-121. <https://www.iiste.org/Journals/index.php/RJFA/article/view/26129>
- Omondi, H. M., & Ochieng, D. E. (2017). Internal factors influencing external auditors independence among practicing accountants in Kenya. *Africa Development Finance Journal*, 1(2), 117-144. <https://www.researchgate.net/publication/325082702>
- Owens, J., & Pemberton, J. L. (2021). Cooperative compliance: A multi-stakeholder and sustainable approach to taxation. Kluwer Law International B.V. <https://www.researchgate.net/publication/361586169>
- Onyimba, R. C., & Ugwu, B. N. (2023). Impact of receivable management on selected pharmaceutical firms in Nigeria. *Nigerian Journal of Banking and Finance*, 12(10), 28-33. <https://www.researchgate.net/publication/371687331>
- Palladan, A. A., & Palladan, N. Y. (2018). Employees' views on payroll computerization and its impact on their productivity: A grounded theory approach. *Arabian Journal of Business and Management Review*, 8(2), 1-5. <https://www.researchgate.net/publication/325737417>

- Pargmann, J., Riebenbauer, E., Flick-Holtsch, D., & Berding, F. (2023). Digitalisation in accounting: A systematic literature review of activities and implications. *Empirical Research in Vocational Education and Training*, 15(1), 2-37. <https://doi.org/10.1186/s40461-023-00141-1>
- Putra, D. P., Dian, P., & Agus, S. (2023). Development of a personnel and payroll information system at Madrasah Ibtidaiyah Misbahun Nasyiin School. *Intelmatiks*, 3(2), 52-56. <https://doi.org/10.25105/itm.v3i2.17145>
- Rathi, N. S. (2015). Factors affecting the independence of auditors. In *Proceedings of 12th International Conference on Business Management* (pp. 1-14). Retrieved from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2699693&download=yes](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2699693&download=yes)
- Salawu, M. A. (2020). Auditor independence regulations: A case of Nigeria. *Journal of Accounting, Finance and Auditing Studies*, 6(4), 145-163. <https://doi.org/10.32602/jafas.220.033>
- Schibsted, I. (2023). The role of technology in accounts receivable: Trends, tools, and Chaser. Retrieved from <https://www.chaserhq.com/blog/the-role-of-technology-in-accounts-receivable-trends-tools-and-chaser>
- Tuan, Z. T. M., Marshita, H., Shukriah, S., & Isma, M. B. (2023). Inventory management practices among small and micro businesses during COVID-19 pandemic. *Accounting and Finance Research*, 12(4), 86-99. [https://www.researchgate.net/publication/375278158\\_Inventory\\_Management\\_Practices\\_among\\_Small\\_and\\_Micro\\_Businesses\\_during\\_COVID-19\\_Pandemic](https://www.researchgate.net/publication/375278158_Inventory_Management_Practices_among_Small_and_Micro_Businesses_during_COVID-19_Pandemic)
- Wakili, G. K. (2021). Auditor independence threats & factors affecting independence. *International Journal of Recent Technology and Engineering*, 8(32), 917-923. <https://dx.doi.org/10.35940/ijrte.C1253.1083S219>
- Wei, C. C., Ramiah, S., & Razali, N. F. (2023). Inventory management systems. *Journal of Applied Technology and Innovation*, 7(3), 13-20. [https://www.researchgate.net/publication/372653862\\_Inventory\\_Management\\_Systems](https://www.researchgate.net/publication/372653862_Inventory_Management_Systems)
- Yakubu, R., & Williams, T. (2020). A theoretical approach to auditor independence and audit quality. *Corporate Ownership and Control*, 17(2), 124-141. [https://www.researchgate.net/publication/339033296\\_A\\_theoretical\\_approach\\_to\\_audit\\_or\\_independence\\_and\\_audit\\_quality](https://www.researchgate.net/publication/339033296_A_theoretical_approach_to_audit_or_independence_and_audit_quality)
- Younkins, E. W. (1983). History of auditors' independence in the US. *Academy of Accounting Historians Notebook*, 6(1), 1-7. Retrieved from <https://egrove.olemiss.edu/aah-notebook/vol16iss1/1>