

A WEBOMETRIC META-ANALYTICAL REVIEW OF THE DETERMINANTS OF AUDITOR'S INDEPENDENCE: AN EMPIRICAL APPROACH

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ABSTRACT

This study meta-analytically summarized the findings and conclusions of 65 related studies from 2005 and 2021, to ascertain the relationship between some selected variables and auditor's independence, to prove the applicability of pool data in accounting research. The meta-analyzed data were ranked and converted to numeric data and econometrically tested with SPSS version 9 software. The findings of this study thus, demonstrates the possibility of an empirical-meta-analysis study in accounting research. Ultimately, Findings from Spearman's Rank Correlation analyses disclosed a strong positive relationship between all the independent variables (audit fee, non-audit services, auditor tenure, client firm size and client affiliation with auditor) and auditors' independence. Accordingly, this study concludes that all the independent variables of the study can influence and impair the independence of the auditor. Notably, this study has proved and popularized the practicability of meta-analysis in accounting research, and therefore, recommends its application.

Key Words: Pool data, Meta-analysis, Auditors' independence, Audit Fee, Non-audit services, Mandatory audit partner rotation, Client Firm size, Client affiliation with auditor.

INTRODUCTION

One of the widely researched and debated concepts in auditing and accounting profession is the independence of auditors. Auditors' independence has been mercilessly questioned and scrutinised by scholars and financial statement users from ages past. This is perhaps due to accounting and audit scandals and corporate failures recorded in the first decade of the 21st century, and the confidence the public ties to it. However, accounting scholars have not adequately pooled and meta-analyzed the findings and conclusions of studies in this area. This is widely practiced in medical and clinical research. This study attaches great importance to pooling webometric details of findings, conclusions and authorship of studies conducted in specific areas of accounting. It strongly believes the possibility of generating desirable secondary data from the findings and conclusions of previous studies for quantitative econometric analyses. This study is therefore, designed to meta-analytically generate data from studies on auditor's independence to quantitatively ascertain the nature of relationship of selected determinants of auditor's independence.

Statement of Problem: Accounting research has witnessed and recorded a lot on auditors' independence but lacks a comprehensive webometric meta-analytical appraisal and documentation of the findings and conclusions of studies done so far (Beck & Wu., 2006; Carey & Simnett, 2006; Omer, Bedard, & Falsetta, 2006; Joe & Vandervelde, 2007; Knechel & Vanstraelen, 2007; Manry, Mock & Turner, 2008; Wang & Tuttle, 2009; Spain, Ruiz-Barbadillo, Go´mez-Aguilar & Carrera, 2009 and Li, 2010). Scholars tend to give more attention to econometric models and analytical tools than findings and conclusions of related studies. Empirical findings and conclusions of related studies are often scantily referenced under literature review and discussion of findings in most accounting research. While econometric models and analytical tools are important, the findings and conclusions of previous studies substantiate and strengthen the findings and conclusions of

current studies. Emphatically, accounting research, unlike medical and laboratory research lacks pool data studies (Huedo-Medina, Sanchez-Meca, Marin-Martinez & Botella, 2006; Nissen & Wolski, 2007; Dahabreh, 2008). Only a hand full of researchers such as Poeroy & Thornton (2008); Lim (2011); Khlif & Chalmers (2015); Mokhtar (2017); Velte (2019) have recently shown interest in its application in accounting research. This is a serious issue gap, and is the principal motivating factor of this study, because, an econometric model or tool is not an end but a means to an end.

Objectives of the Study: Beyond justifying the possibility of pooling data for quantitative analysis in accounting research, the specific objectives of this study are:

- 1) To ascertain the nature of relationship between audit fee and auditor's independence.
- 2) To ascertain the nature of relationship between non-audit services and auditor's independence.
- 3) To ascertain the nature of relationship between mandatory audit partner rotation and auditor's independence.
- 4) To ascertain the nature of relationship between client firm size and auditor's independence.
- 5) To ascertain the nature of relationship between client affiliation with auditor and auditor's independence.

Research Hypotheses: The hypotheses of this study are all stated in the null form as follows:

- 1) There is no positive significant relationship between audit fee and auditor's independence.
- 2) There is no positive significant relationship between non-audit services and auditor's independence.
- 3) There is no positive significant relationship between auditor's tenure and auditor's independence.
- 4) There is no positive significant relationship between client firm size and auditor's independence.
- 5) There is no positive significant relationship between client affiliation with auditor and auditor's independence.

Literature Review

Pool Data and Meta-analysis: Pool data entails the pooling, summarizing and reanalyzing of data, records and results from related studies (Friedenreich, 2002). It provides useful and reliable results for decision making, because it pools time series data of different entities (Alemayehu, 2011). Meta-analysis on the other hand is a dimension of pool data analysis that entails a systematic synthesis of research results from previous separate but related studies (Alemayehu, 2011).

Auditor's Independence: This is the professional and public expectation that an auditor would exercise due diligence to honestly, transparently and objectively make an opinion that is not influenced by any unprofessional obligation to or interest of the management or owners of its client firm. This is a very important and fundamental issue in auditing, because it is a yardstick for audit quality and reliability of financial statement (Tepalagul, & Lin, 2015).

Determinants of Auditor's Independence

- a) **Audit Fee:** This is the financial consideration audit firms receive for examining and expressing opinion on the financial statements of their client firm. This is different from non-audit service fees, and is often considered as a major determinant of and threat to the independence of the auditor (Aronmwan, Ashafoke & Mgbame, 2013).
- b) **Non-audit Service:** This is the provision of accounting services by an audit firm side-by-side with its audit assignment. Non-audit services are usually viewed as being more profitable and creating economic bond between auditors and their clients, and is often seen as being capable of impairing the independence of an auditor (Tepalagul & Lin, 2015).

- c) **Auditor’s Tenure:** This in this context is synonymous with mandatory auditor rotation, which entails the changing of auditors after a period of not more than five years. This is premised on the assumption that as the auditor’s tenure lengthens, the auditor may develop a close relationship with the client and become susceptible to management pressure and compromise his independence (Tepalagul & Lin, 2015).
- d) **Client Firm Size:** This is measured (among others) by a firm’s net assets and earnings, and is often assumed that economically important clients carry greater weight in their auditor’s portfolio, which is capable of impairing their independence (Gaver & Paterson, 2007).
- e) **Client Affiliation with Auditor:** This is the unprofessional relationship between audit firms and audit client firms, which occurs when an auditor sees its client as a potential employer, or when an auditor becomes too close to client’s management against the expectation of shareholders.

These factors (variables) are diagrammatically represented in Fig. 1:

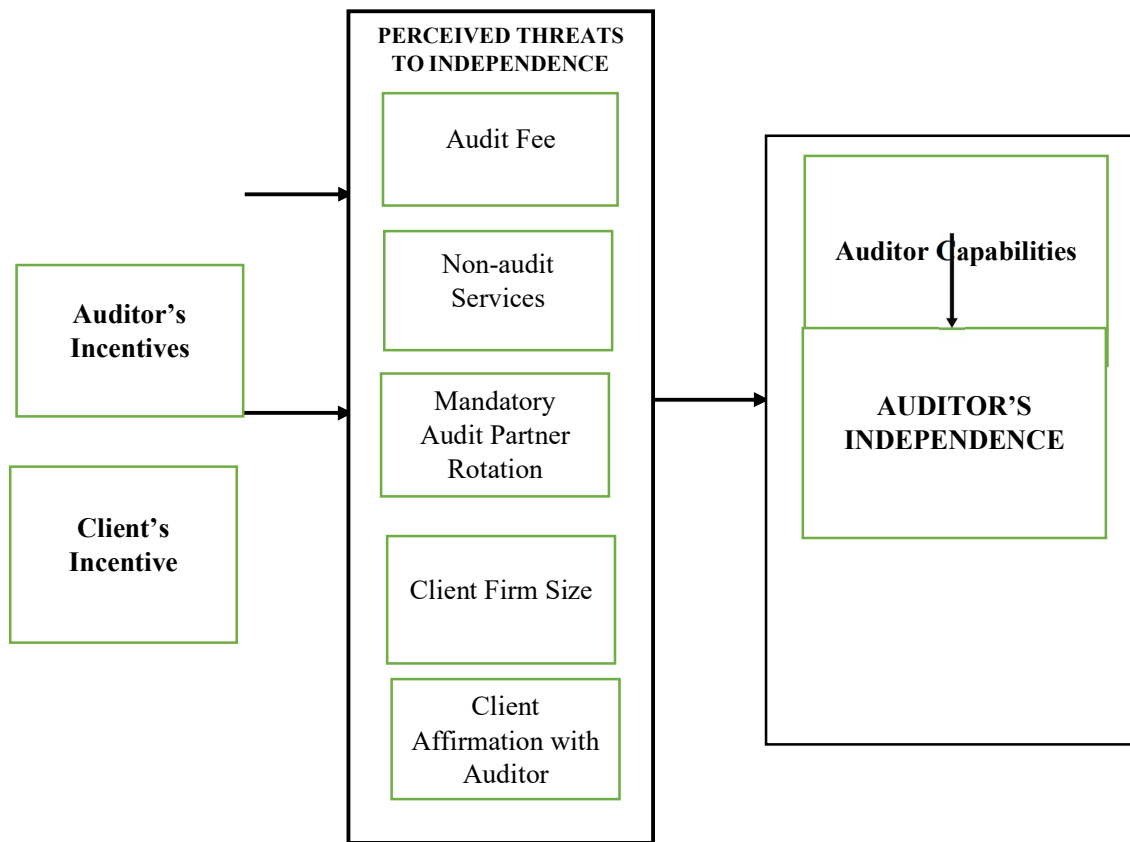


Fig. 1: Conceptual framework on Determinants of Auditor’s Independence

Empirical Meta-analysis on Determinants of Auditor’s Independence

Below is a synthesis and or summary of the findings and conclusions of related studies on the determinants of auditors’ independence.

Table 1: Webometric Meta-analyses on Auditors' Independence.

S/N	Year	Author(s)	Research Findings/conclusions
1	2005	Krishnan, Heibatollah, & Zhang	<ul style="list-style-type: none"> Non-audit fee is positively associated with auditor's independence.
2	2005	Ghosh & Moon.	<ul style="list-style-type: none"> There is a positive association between auditor tenure and audit quality.
3	2006	Krishnamurthy, Zhou & Zhou.	<ul style="list-style-type: none"> Non-audit fees is positively associated with auditor independence.
4	2006	Beck & Wu.	<ul style="list-style-type: none"> There is no positive relationship between non-audit services and auditor independence; thus, non-audit services cannot impair auditor's independence.
5	2006	Carey & Simnett	<ul style="list-style-type: none"> There is a positive significant relationship between auditor's tenure and auditor independence, as long partner tenure is associated with lower likelihood of going concern opinions.
6	2006	Omer, Bedard, & Falsetta	<ul style="list-style-type: none"> There is no negative implication of longer auditor tenure on auditor independence, rather it increases the auditors' chances of detecting fraud.
7	2006	Francis & Ke.	<ul style="list-style-type: none"> Non-audit fees is positively associated with auditor independence.
8	2007	Krishnan.	<ul style="list-style-type: none"> Non-audit fees is positively associated with auditor independence.
9	2007	Bae, Rho & Ro	<ul style="list-style-type: none"> Prolonged audit tenure significantly limits auditors' independence.
10	2007	Hoitash, Markelevich & Barragato.	<ul style="list-style-type: none"> There is a statistically significant association economic bonding (affiliation) and auditor behaviour.
11	2007	Knechel & Vanstraelen	<ul style="list-style-type: none"> There is no relationship between auditor's tenure and auditor's independence, as longer tenure neither increases nor decreases the likelihood of going concern opinions.
12	2007	Joe & Vandervelde	<ul style="list-style-type: none"> There is no positive relationship between non-audit services and auditor independence, rather the joint provision of audit assignment and non-audit services has the advantage of knowledge transfer and efficiency.
13	2007	Gul, Jaggi & Krishnan.	<ul style="list-style-type: none"> Non-audit services impair auditor independence; Client firm size is positively related to auditor independence; Auditor tenure is positively related to auditor independence.
14	2007	Bamber & Iyer.	<ul style="list-style-type: none"> Longer audit partner can impair the auditor independence and judgement.
15	2007	Hunt & Lulseged	<ul style="list-style-type: none"> Client firm size is positively related to auditor independence.
16	2007	Gaver & Paterson	<ul style="list-style-type: none"> Auditor independence is positively associated with client's firm size.
17	2007	Srinidhi & Gul	<ul style="list-style-type: none"> There is a positive association between higher non-audit service fees and low quality accruals (auditor independence)
18	2008	Manry, Mock & Turner	<ul style="list-style-type: none"> Longer auditor tenure cannot impair auditor independence particularly for large client firms, rather it improves audit quality.
19	2008	Chen., Lin, & Lin.	<ul style="list-style-type: none"> Audit partner rotation is positively related with audit quality and therefore, does not impair auditor's independence.
20	2008	Lim & Tan	<ul style="list-style-type: none"> Non-audit service can significantly impair auditor independence
21	2008	Robinson	<ul style="list-style-type: none"> There is a significant positive relationship between non-audit (tax) service and auditor independence.

22	2009	Li.	<ul style="list-style-type: none"> • Audit fees are positively related to auditors independence; • Client size is positively related to auditor’s independence; • Non-audit service is negatively related to auditor independence.
23	2009	Chi, Huang, Liao & Xie.	<ul style="list-style-type: none"> • There is a positive relationship between mandatory audit partnership and audit quality, hence, auditor’s tenure does not impair auditor’s independence.
24	2009	Gul, Fung & Jaggi	<ul style="list-style-type: none"> • There is a positive relationship between auditor affiliations with client’s firm with auditor independence.
25	2009	Callaghan, Parkash, & Singhal	<ul style="list-style-type: none"> • Non-audit service is negatively related to auditors’ independence.
26	2009	Ghosh, Kallapur & Moon.	<ul style="list-style-type: none"> • Non-audit fees are negatively related to auditor independence.
27	2009	Ruiz-Barbadillo, Go’mez-Aguilar & Carrera	<ul style="list-style-type: none"> • Mandatory audit firm rotation has no positive relationship with auditor independence, relative to issuance of “going-concern opinion.
28	2009	Wang & Tuttle	<ul style="list-style-type: none"> • There is a relationship between mandatory audit firm rotation and auditor independence, because mandatory firm rotation results in improved auditor independence.
29	2009	Ruiz-Barbadillo, Go’mez-Aguilar & Carrera	<ul style="list-style-type: none"> • There is no positive association between audit partner rotation and auditor independence, as there is no empirical evidence that mandatory audit firm rotation is associated with higher likelihood of issuing going concern opinions.
30	2010	Mostafa & Hussien.	<ul style="list-style-type: none"> • Mandatory audit rotation is positively associated with auditors’ independence.
31	2010	Kanagaretnam, Krishnan & Lobo	<ul style="list-style-type: none"> • There is a positive relationship between client’s firm size and auditor independence; auditors tolerate less earnings management in larger firms.
32	2010	Li	<ul style="list-style-type: none"> • There exist a positive association between audit firm tenure and auditor independence, especially for large clients.
33	2011	Sharma, Sharma & Ananthanarayan	<ul style="list-style-type: none"> • There is a positive association between clients’ firm importance (size) and abnormal accruals (auditor independence).
34	2011	Abbott, Parker, & Peters	<ul style="list-style-type: none"> • There is no significant relationship between non-audit services and auditor independence.
35	2011	Seetharaman, Sun & Wang.	<ul style="list-style-type: none"> • There is no positive relationship between non-audit tax services and tax related restatements (auditor independence).
36	2011	Ye, Carson, & Simnett.	<ul style="list-style-type: none"> • There is a positive relationship between auditors close affiliation (alumni director) with client firm and auditor independence. • There is a significant positive association between longer audit tenure and auditor independence, as longer audit tenure can attract non-audit services which impair auditor independence.
37	2011	Yuniarti	<ul style="list-style-type: none"> • There is a positive relationship between audit fees to Big4 audit firms and auditor’s independence and audit quality.
38	2011	Daniels	<ul style="list-style-type: none"> • Audit firm rotation significantly increases auditor independence.
39	2012	Chi, Douthett & Lisic	<ul style="list-style-type: none"> • There is a negative relationship between client firm size and Big 5 auditors relative to independence.

40	2012	Chan, Janakiraman & Radhakrishnan	<ul style="list-style-type: none"> • Combination of audit and non-audit services can significantly impair auditor independence.
41	2012	Daugherty, Dickins, Hatfield & Higgs	<ul style="list-style-type: none"> • There is a significant positive relationship between mandatory audit partner rotation and auditor independence, because mandatory partner rotation increases the likelihood of relocation of auditors.
42	2013	Blay & Geiger	<ul style="list-style-type: none"> • There is a positive significant relationship between higher current and subsequent audit fee and auditor independence.
43	2013	Markelevich & Rosner	<ul style="list-style-type: none"> • Non-audit services are fraudulent and are highly positively associated with auditors' independence.
44	2013	Habib	<ul style="list-style-type: none"> • Non-audit fees and modified audit opinion (independence) are negatively associated.
45	2015	Tepalagul & Lin.	<ul style="list-style-type: none"> • There is a positive association between client's affiliations with auditor and auditor independence.
46	2015	Ali & Nesrine	<ul style="list-style-type: none"> • The provision of non-audit services by an incumbent auditor can impair auditor independence. • There is a positive relationship between personal and financial (economic) relationships and auditor independence.
47	2015	Mamahros & Hussin	<ul style="list-style-type: none"> • Longer audit firm tenure enhances auditor independence, as it reduces earnings management. • Non-audit fees significantly impairs auditor's independence, as it exacerbates earnings management.
48	2015	Stanisic, Radojevic, Stanic & Rajin.	<ul style="list-style-type: none"> • There is a positive relationship between auditor tenure and auditor independence, as auditor switching can lead to improved informative value of auditor reports.
49	2016	Cameran & Trombetta.	<ul style="list-style-type: none"> • There is a positive relationship between mandatory audit firm rotation and auditor independence, as it increases audit quality.
50	2016	Tobi, Osasrere & Emmanuel.	<ul style="list-style-type: none"> • There is a positive relationship between audit fee and auditor independence. • There is a positive relationship between audit firm rotation and auditor independence.
51	2017	Fontaine, R., Khemakhem, H. & Herda, D. N.	<ul style="list-style-type: none"> • There is a significant relationship between mandatory audit partner rotation and auditor independence, as it is a threat to Audit Committee.
52	2017	Garcia-Blandon & Argiles-Bosch	<ul style="list-style-type: none"> • There is no significant relationship between auditor tenure and audit quality (auditor independence).
53	2017	Hay	<ul style="list-style-type: none"> • Non audit services are associated with a loss of independence;
54	2018	Alareeni.	<ul style="list-style-type: none"> • There is a significant relationship between non-audit services and auditor's independence. • There is a significant relationship between auditor tenure and auditor's independence.

55	2018	Kharsharmh & Desoky.	<ul style="list-style-type: none"> The provision of non-audit services by auditors to their audit clients impair their independence.
56	2018	Aliu, Okpanachi & Mohammed.	<ul style="list-style-type: none"> There is a direct strong relationship between auditor independence and client firm size.
57	2018	Aliu, Okpanachi & Mohammed.	<ul style="list-style-type: none"> High audit fees have the likelihood of compromising auditors' independence, thereby, resulting in lower audit quality.
58	2018	Qawqzeh, Endut, Rashid, Johari, Hamid & Rasit.	<ul style="list-style-type: none"> Long auditor tenure significantly impairs audit quality and auditor independence.
59	2019	Marques, Major & Veiga	<ul style="list-style-type: none"> Provision of non-audit services impairs auditor independence. Long auditor's tenure impairs auditors independence
60	2019	Otuya	<ul style="list-style-type: none"> Longer auditor tenure does not impair the independence of the auditor. Higher incentives does not impair the independence of the auditor.
61	2020	Lokman, Bakri	<ul style="list-style-type: none"> Auditor tenure has positive and significant influence on auditor's independence
62	2020	Bassey & Olatunbosun	<ul style="list-style-type: none"> Audit cost (fee) determines auditor's independence and audit quality. Audit tenure influences auditor's independence.
63	2020	Duc, Yen, Thuy, Hung & Vu	<ul style="list-style-type: none"> Audit firm personality which can be considered and interpreted as auditor's affiliation with client firm significantly determines auditor's independence.
64	2021	Joseph, Nyor & Ormin	<ul style="list-style-type: none"> Auditor rotation determines auditor's independence; Non audit services do not determine auditor's independence.
65	2021	Norziaton, I.K & Muharam, N.N	<ul style="list-style-type: none"> Non audit fees influence external auditors' independence Audit tenure do not influence external auditors' independence.

Source: Authors' Compilation from (2022)

METHODOLOGY

Data related to the determinants of auditor's independence were meta-analysed from related studies. These were findings and conclusions of sixty five (65) previous studies on determinants of auditor's independence, published between 2005 and 2021. Findings and conclusions on the independent variables were numerically ranked (R*) from 1 to 3:

1 = no /negative relationship/does not affect auditor's independence R¹;

2 = positive relationship/impairs auditor's independence R²;

3 = significant positive relationship/significantly impair auditor's independence R³;

The dependent variable, auditor's independence was given an average constant numeric figure (3) and multiplied by number of observations/findings with respect to the independent variables. The numeric rank figures were subjected to Spearman's Rank Correlation, with SPSS version 19. The model of this study is econometrically specified as:

$$AUDIN = \beta_0 + \beta_1AUDFE + \beta_2NAUSE + \beta_3MAPAR+ \beta_4CLIFS + \beta_5CLAWA + Ut$$

Where:

AUDIN = Auditors' Independence (Dependent Variable);

AUDFE = Audit Fee (Independent Variable₁);

NAUSE = Non Audit Service (Independent Variable₂);
 AUTEN = Auditor’s Tenure (Independent Variable₃);
 CLIFS = Client Firm Size (Independent Variable₄);
 CLAWA = Client Affiliation with Auditor (Independent Variable₅);
 Ut = Error Term.

Data Presentation, Analysis and Findings

Table 2: Presentation of Data

Year	Variables									
	AUDFE		NAUSE		AUTEN		CLIFS		CLAWA	
	Rank	Total	Rank	Total	Rank	Total	Rank	Total	Rank	Total
2005	R ¹	-	R ¹	-	R ¹	-	R ¹	-	R ¹	-
	R ²	-	R ²	2	R ²	-	R ²	-	R ²	-
	R ³	-	R ³	-	R ³	2	R ³	-	R ³	-
2006	R ¹	-	R ¹	-	R ¹	1	R ¹	-	R ¹	-
	R ²	-	R ²	2	R ²	-	R ²	-	R ²	-
	R ³	-	R ³	6	R ³	3	R ³	-	R ³	-
2007	R ¹	-	R ¹	0	R ¹	1	R ¹	-	R ¹	-
	R ²	-	R ²	-	R ²	4	R ²	6	R ²	-
	R ³	-	R ³	9	R ³	3	R ³	-	R ³	3
2008	R ¹	-	R ¹	-	R ¹	1	R ¹	-	R ¹	-
	R ²	-	R ²	-	R ²	-	R ²	-	R ²	-
	R ³	-	R ³	6	R ³	-	R ³	-	R ³	-
2009	R ¹	-	R ¹	-	R ¹	1	R ¹	-	R ¹	-
	R ²	2	R ²	2	R ²	2	R ²	-	R ²	-
	R ³	-	R ³	-	R ³	3	R ³	3	R ³	3
2010	R ¹	-	R ¹	-	R ¹	-	R ¹	-	R ¹	-
	R ²	-	R ²	-	R ²	4	R ²	2	R ²	-
	R ³	-	R ³	-	R ³	-	R ³	-	R ³	-
2011	R ¹	-	R ¹	1	R ¹	-	R ¹	-	R ¹	-
	R ²	2	R ²	2	R ²	2	R ²	2	R ²	2
	R ³	-	R ³	-	R ³	6	R ³	-	R ³	-
2012	R ¹	-	R ¹	-	R ¹	-	R ¹	-	R ¹	-
	R ²	-	R ²	-	R ²	-	R ²	2	R ²	-
	R ³	-	R ³	3	R ³	3	R ³	-	R ³	-
2013	R ¹	-	R ¹	-	R ¹	-	R ¹	-	R ¹	-
	R ²	-	R ²	2	R ²	-	R ²	-	R ²	-
	R ³	3	R ³	3	R ³	-	R ³	-	R ³	-
2015	R ¹	-	R ¹	-	R ¹	-	R ¹	-	R ¹	-
	R ²	-	R ²	2	R ²	4	R ²	2	R ²	4
	R ³	-	R ³	3	R ³	-	R ³	-	R ³	-
2016	R ¹	-	R ¹	-	R ¹	-	R ¹	-	R ¹	-
	R ²	2	R ²	-	R ²	2	R ²	-	R ²	-
	R ³	2	R ³	-	R ³	-	R ³	-	R ³	-
2017	R ¹	-	R ¹	-	R ¹	1	R ¹	-	R ¹	-
	R ²	-	R ²	2	R ²	2	R ²	-	R ²	-
	R ³	-	R ³	-	R ³	-	R ³	-	R ³	-

2018	R ¹	-	Y = 3	R ¹	-	Y = 6	R ¹	-	Y = 6	R ¹	-	Y = 3	R ¹	-	Y = 0
	R ²	-		R ²	-		R ²	-		R ²	-		R ²	-	
	R ³	3		R ³	6		R ³	6		R ³	3		R ³	-	
2019	R ¹	-	Y = 0	R ¹	1	Y = 6	R ¹	1	Y = 4	R ¹	-	Y = 0	R ¹	-	Y = 0
	R ²	-		R ²	2		R ²	2		R ²	-		R ²	-	
	R ³	-		R ³	-		R ³	-		R ³	-		R ³	-	
2020	R ¹	-	Y = 3	R ¹	-	Y = 0	R ¹	-	Y = 6	R ¹	-	Y = 0	R ¹	-	Y = 3
	R ²	2		R ²	-		R ²	2		R ²	-		R ²	-	
	R ³	-		R ³	-		R ³	3		R ³	-		R ³	3	
2021	R ¹	-	Y = 0	R ¹	1	Y = 9	R ¹	1	Y = 9	R ¹	-	Y = 0	R ¹	-	Y = 0
	R ²	-		R ²	2		R ²	2		R ²	-		R ²	-	
	R ³	-		R ³	-		R ³	-		R ³	-		R ³	-	
			X ₁ = 0			X ₂ = 3			X ₃ = 3			X ₄ = 0			X ₅ = 0

Source: Authors' Computation from Meta-analysed Related Studies on Auditor's Independence.
 Note:

- * Y = Dependent Variable (Auditor's Independence);
- * X₁ = 1st Independent Variable (Audit Fee);
- * X₂ = 2nd Independent Variable (Non –audit Service);
- * X₃ = 3rd Independent Variable (Auditor Tenure);
- * X₄ = 4th Independent Variable (Client Firm Size);
- * X₅ = 5th Independent Variable (Client Affiliation with Auditor).

Table 2 was generated from the summarised findings and conclusions of sixty five (65) articles in Table 1. It is presented according to the ranking of summarized findings and or conclusions made by scholars with respect to threats to auditor's independence, from 2005 to 2021.

Test of Hypotheses and Discussion of Findings:

The null hypotheses and findings of this study were tested and discussed based on the outcomes of E-View 9 in Tables 2 and 3, under the following **decision rule** to:

- (a) Reject H₀, if P value is < 0.05,
- (b) Accept H₀, if P value > 0.05.

Table 3: Correlation Analysis Result for Auditor's Independence and Audit Fee

		AUDIN Y	AUDFE X ₁
Spearman's rho	AUDIN	Correlation Coefficient	1.000
		Sig. (2-tailed)	.973**
		N	.000
		N	16
	AUDFE	Correlation Coefficient	.973**
		Sig. (2-tailed)	1.000
	N	.000	
	N	16	

** Correlation is significant at the 0.05 level (2-tailed).

Source: Author's Computation from SPSS 19 (2022)

The correlation result in Table 3 shows that auditor’s independence and audit fee are strongly and positively related, as evident in the correlation coefficient (97%). Importantly, the probability value (0.000) is statistically significant as it is less than the standard critical p-value of 0.05. This necessitates a rejection of the first null hypothesis of the study for the alternate, meaning that: “*There is a positive significant relationship between audit fee and auditor’s independence*”.

Table 4: Correlation Analysis Result for Auditor’s Independence and Non-Audit Service

			AUDIN Y	NAUSE X ₂
AUDIN	Correlation Coefficient		1.000	.874**
	Sig. (2-tailed)		.	.000
	N		16	16
NAUSE	Correlation Coefficient	Spearman's rho	.874**	1.000
	Sig. (2-tailed)		.000	.
	N		16	16

** Correlation is significant at the 0.05 level (2-tailed).

Source: Author’s Computation from SPSS 19 (2022)

The outcome of Table 4 implies a significantly positive relationship between auditor’s independence and non-audit service, with correlation coefficient of 87%. Again, the low probability value of 0.000 in the table against the chosen significant value of 0.05 required a rejection of the second null hypothesis for the alternate, which implies that: “*There is a positive significant relationship between non-audit services and auditor’s independence*”.

Table 5: Correlation Analysis Result for Auditor’s Independence and Auditor’s Tenure

			AUDIN Y	AUTEN X ₃
AUDIN	Correlation Coefficient		1.000	.857**
	Sig. (2-tailed)		.	.000
	N		16	16
AUTEN	Correlation Coefficient	Spearman's rho	.857**	1.000
	Sig. (2-tailed)		.000	.
	N		16	16

** Correlation is significant at the 0.05 level (2-tailed).

Source: Author’s Computation from SPSS 19 (2022)

The Spearman’s Rank Correlation result in Table 5 with respect to auditor’s tenure shows a strong relationship between auditor’s independence and auditor’s tenure, because the correlation coefficient is as high as 86%. Remarkably, the probability value in the result is less than the chosen alpha value ($P = 0.000 < 0.05$), and required a rejection of the third null hypothesis for the a priori expectation. This implies that: “*There is a positive significant relationship between auditor’s tenure and auditor’s independence*”.

Table 6: Correlation Analysis Result for Auditor’s Independence and Client firm Size

		AUDIN Y	CLIFS X ₄
Spearman's rho	AUDIN	Correlation Coefficient	1.000
		Sig. (2-tailed)	.978**
		N	.000
Spearman's rho	CLIFS	Correlation Coefficient	.978**
		Sig. (2-tailed)	1.000
		N	.000
		N	16
		N	16

** Correlation is significant at the 0.05 level (2-tailed).

Source: Author’s Computation from SPSS 19 (2022)

The correlation coefficient (98%) in Table 6 shows that auditor’s independence has a very strong positive relationship with client firm size. Again, at a significant level of 0.05, the p-value of client firm size is less than the predetermined alpha value ($P = 0.000 < 0.05$), This requires the rejection of the fourth null hypothesis for the alternate, meaning that: “ *There is a strong positive relationship between client firm size and auditor’s independence*”.

Table 7: Correlation Analysis Result for Auditor’s Independence and Client’s Affiliation with Auditor

		AUDIN Y	CLAWA X ₅
Spearman's rho	AUDIN	Correlation Coefficient	1.000
		Sig. (2-tailed)	.989**
		N	.000
Spearman's rho	CLAWA	Correlation Coefficient	.989**
		Sig. (2-tailed)	1.000
		N	.000
		N	16
		N	16

** Correlation is significant at the 0.05 level (2-tailed).

Source: Author’s Computation from SPSS 19 (2022).

The correlation analysis (99%) in Table 7 again reveals that auditor’s independence is very strongly related to client affiliation with auditor. Similarly, the probability value of client affiliation with auditor (0.000) is less than the predetermined alpha value of 0.05, which necessitated a rejection of the fifth null hypothesis of the study in favour of the alternate which implies that: “ *There is a strong positive relationship between client affiliation with auditor and auditor’s independence*”.

From the result presented and the associated analysis, it can be inferred that there is a positive relationship between auditors’ independence and all the explanatory variables, but at varying degrees of significance. This is consistent with the *a priori* expectations implied in the research model, which expect the coefficients of all the explanatory variables (AUDFE, NAUSE, AUTEN, CLIFS and CLAWA) to be greater than zero (i.e. $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$ and $\beta_5 > 0$). This, of course, is the case in Tables 3, 4, 5, 6 and 7 (0.9739, 0.874, 0.857, 0.978, and 0.989). The findings of this study further imply that all the independent variables are capable of not only determining auditors’ independence, but can also impair and influence the independence and opinion of the auditor.

CONCLUSIONS AND RECOMMENDATION

Drawing from the scientific meta-analysis and empirical test of the findings and conclusions of related studies on auditor's independence, this study concludes that a pool-meta-analytical empirical study is possible and practicable in accounting research. Drawing from the Spearman's Rank Correlation analysis and findings, this study further concludes that audit fee, non-audit services, auditor tenure, client firm size and client affiliation with auditor are all strongly and positively related to and can impair auditors' independence. This study recommends that pool-meta-analysis studies should be popularized in accounting research.

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