Structural Equation Model for the Relationship between Accounting Information System and Internal Audit Effectiveness with Moderating Effect of Experience

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DOI: https://doi.org/10.37134/ibej.vol12.6.2019

Abstract

Accounting information system and internal audit effectiveness assist management in making appropriate decisions. The experience of accountants and auditors may enhance decision making. Moreover, the effect of accountants' and auditors' experience on the relation between accounting information system and internal audit effectiveness was not considered in the previous studies. This research aims to develop a structural equation model for the moderating effect of experiences on the relation between accounting information system characteristics and the internal audit effectiveness in Iraqi stock exchange-traded companies. Five constructs representing the characteristics of accounting information system have been selected including integration, flexibility, reliability, relevance, and timeliness. A quantitative approach has been used to achieve the research objective. A survey was conducted on 365 respondents including accountants, auditors and managers in several companies in the Iraqi stock exchange. Statistical Package for the Social Sciences and Analysis of Moment Structure were used to analyze the data and develop the structural equation model. The research results indicated that all the selected accounting information system characteristics had significant effects on internal audit effectiveness. Moreover, experience moderated the relationships between flexibility, integration characteristics, and internal audit effectiveness. Such research findings can assist organizations in assessing and enhancing the quality of their information and the skills and knowledge of their employees, particularly their accountants and auditors.

Keywords:

Accounting information system, internal audit effectiveness, experience

INTRODUCTION

Effective internal audit supports organizations to diminish operational risks and to improve the reliability of financial reporting that helps to increase the shareholders' trust (Abbas and Iqbal, 2012). The development of internal audit (IA) in the accounting information system (AIS) helps to protect corporate assets from losses and misuse and keep the organization's financial data accuracy (Jones and Rama, 2003). Accounting represents a significant information source for decision-making and, particularly, managerial decision making is extensively approved. Many researchers (Nicolaou, 2000; McGilvray, 2008; Sri Mulyani,

Manuscript received July 17, 2019; revised Oct 27, 2019; published December 27, 2019

2009; Bazley, et al., 2014) found that good quality of the information provided by AIS helps all levels of management to make proper decisions which lead to achieving the goals of an organization. According to Soudani (2013), AISs are responsible for recording, analyzing, monitoring and evaluating companies' financial conditions. Moreover, it can enhance the control and governance processes through information and risk assessment (Tan, 2016). The experience of the accountant's staff and management is an important factor that can enable the management to make the right decisions that improve IA performance. A high level of experience of accountants and auditors indicates that the organization can perform better than others with low experience levels (Classen, et. al., 2012).

The internal audit plays a great role in evaluating and verifying the accuracy of the information, reports and financial statements generated by the AIS. Therefore, to enhance the information credibility and reliability and to ensure the organization's success and continuity, this research came to find out the impact of the AIS on the quality of internal audit in the Iraqi stock exchange-traded companies. Since these companies deal mainly with the financial information, this research investigates the effect of important quality characteristics of the AIS on the IA by considering the moderating effect of accountants' and internal auditors' experience. The researchers utilized different AIS characteristics based on their study field. Therefore, and to generalize the findings, the most frequent characteristics in the previous studies have been used in this research to measure the AIS quality.

Several authors defined effectiveness in terms of attaining the IA aims and objectives but in various manners. Arena and Azzone (2009) defined internal audit effectiveness (IAE) as "the capacity to obtain results that are consistent with targets". Since IA is one of the organization activities, then achieving IA aims are related to IAE. The IAE is defined as "the extent to which an internal audit office meets its supposed objective or the extent to which it meets the intended outcome" (Mihret and Yismaw, 2007). Abbas and Iqbal (2012) found that effective internal audit systems aid organizations to minimize operational risk and to enhance the financial reporting reliability which helps to build the trust of shareholders. In the same context, Laudon and Laudon (2004) explained that an improvement of IA effectiveness affected positively the quality and reliability of the information system. Therefore, effective IA helps to improve the evaluation of risk and enhance the risk management effectiveness (Mihret and Yismaw, 2007) and enhance control and governance processes by applying a systematic and disciplined approach to the assessment of risk and information which aid organizations to achieve its goals and objectives (Tan, 2016).

Researches investigate the impact of AIS on organization performance or organization department and activities and explore the influence of AIS on internal control. Moorthy et al. (2011) addressed the significant effect of AIS and IT in general on the effectiveness of both internal audit and internal control in organizations. Tan (2016), investigated the AIS impact on the internal auditor in Turkey. He stated that the main role of internal audit is helping organizations to reach their goals by assessing the effectiveness of risk management, control, and governance. AISs can identify, analyze, classify, assemble, record, review and report events, which help internal auditors to achieve their goals. Al-Qudah and Ahmed (2011) indicated in their study that AIS has an impact on IAE in Jordan commercial bank. In the same context, Shanti (2013) showed that the application of AIS in the Jordanian industrial sector leads to improve the effectiveness of internal auditing by increasing compliance with preset laws and policies, as well as providing necessary information in time to make decisions. Likewise, Hussein (2005) confirmed the effect of AIS on internal auditing systems.

Accounting information must have essential characteristics to achieve its objectives such as importance, appropriateness, accuracy, credibility, timing, understanding and absorption (Abdallah, 2014). Qualitative characteristics are the characteristics of AIS which aim to increase its usefulness and understandability (Bukenya, 2014). Hiedmann et.al., (2008) indicated that integration, flexibility, accessibility, formalization and media richness are determinants of successful AIS. Romney (2009), stated that the most important characteristic of AIS reliability, efficiency, integration, and flexibility. On another side, Ong et al. (2009) and Wixom and Todd (2005), stated that good AIS are defined by achieving four dimensions: reliability, flexibility, integration, accessibility, and timeliness. Finally, Napitupulu et al. (2016) used four factors to identify good and effective AIS namely integration, reliability, flexibility and efficiency.

Experience is the collective knowledge learned by persons which helps them in taking the right decision (Vera-Munoz, Kinney Jr, & Bonner, 2001). Experience enables individuals to have the skill and knowledge in managing their work, developing relevant information, and using proper decisions making. Experience is still in the infancy stage in business researches. High levels of experience help the management take right decisions (von den Driesch et al., 2015; Saatcioglu, et al., 2012; Vasudevan & Chawan, 2014). Datta and Iskandar-Datta (2014) stated that that audit management experience has a major impact on organizations strategic decision. High experience has a positive impact on the development of new product and services, dynamic capabilities of companies, as well as the internal competitiveness (Saatcioglu et al., 2012; Vasudevan & Chawan, 2014; von den Driesch et al., 2015). Auditors' good experience helps them to reduce the negative impact of errors and dereliction in the financial statements reports prepared by less experience accountants. However, previous studies did not investigate the impact of experience on the relationship between AIS and IAE. Almaliki et al. (2018) is one of the first who developed a conceptual model to clarify the relationship between AIS characteristics and IAE with experience as a moderator.

CONCEPTUAL MODEL

This research adopted with some modification of the conceptual model developed by Almaliki et al. (2018). The direct effect of AIS on IAE is eliminated since the effects of AIS characteristics are considered. The same AIS characteristics are utilized including integration, flexibility, reliability, relevance, and timeliness. The agency theory is adopted to support the developed conceptual model and the hypotheses. The agency theory discusses the relations between the owner(s) of organization and its top management (Changwony and Rotich, 2015; Adams, 1994). The management has the experience and the ability to control the accounting information and the accounting policies and estimates, which may conflict with the other stakeholders' interests. Hence to achieve the balance in this relation, there is a need to introduce a third party that is the internal auditors to monitor the whole activities of the organization (Peursem and Pumphrey, 2005). The developed conceptual model is introduced in Figure 1. The independent variables are integration, flexibility, reliability, relevance, and timeliness. The IAE is the dependent variable and the experience is the moderated variable.

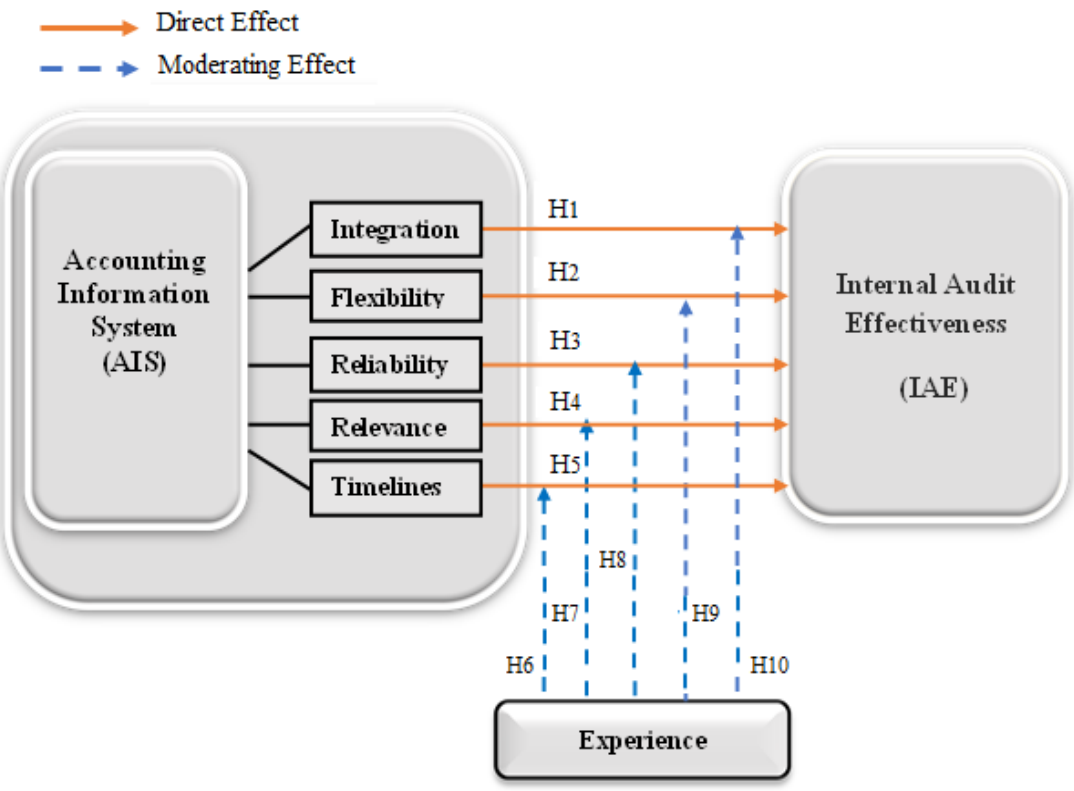


Figure 1: Conceptual Model

Based on the conceptual model in Figure 1, the following hypotheses used are developed:

Direct Hypotheses

H_1: There is significant effect of integration on IAE
H_2: There is significant impact of Flexibility on IAE
H_3: There is significant impact of reliability on IAE
H_4: There is significant impact of relevance on IAE
H_5: There is significant impact of timeliness on IAE

Moderating Hypotheses

H_6: Experience moderates the effect of timelines on the IAE
H_7: Experience moderates the effect of relevance on the IAE
H_8: Experience moderates the effect of reliability on the IAE
H_9: Experience moderates the effect of flexibility on the IAE
H_{10}: Experience moderates the effect of integration on the IAE

METHODOLOGY

A questionnaire was used for data collection (refer to Appendix A). Each independent variable comprised of 10 items and the dependent variable comprised of 10 items too, while the moderated variable comprised of 8 items. The items of all constructs were developed

based on previous studies in the same field. The sources of measurement of all items were introduced (refer to Appendix B). The questionnaires were distributed to the respondents (accountants, internal auditors, managers) in 120 companies at the Iraqi stock exchange. The preliminary questionnaire was subjected to a pilot study and experts' judgments to reach the final questionnaire. The questionnaires were distributed by hand to the respondents to avoid any ambiguity in the questions and to avoid any delay. The whole process of distributing the questionnaire and collecting the responses took around 2 months. Sampling was based on the simple random sampling technique. The number of survey questionnaires distributed was 400 questionnaires however, only a total of 375 questionnaires were returned. The valid responses that were used in the analysis process were 365, resulting in a response rate of 91%. SPSS was used to analyze the data collected. The items of all constructs were coded to facilitate the data analysis. The first stage of analysis was to explore the respondents' demographic information. Descriptive statistics such as mean and standard deviation were used to analyze the data. Reliability tests were conducted including Cronbach's Alpha for internal consistency and Kaiser-Meyer-Olkin and Bartlett's test for checking the adequacy of the data for the next analysis such as exploratory factor analysis (EFA). AMOS was utilized for data analysis on a total of 365 responses to develop the structural equation model (SEM).

RESULT AND DISCUSSIONS

Demographic Information

Table 1: Respondents' Educational Achievement

Educational Achievement	Frequency	Percent %	Valid Percent %
High School and Vocational Education	85	23.28	23.28
Diploma	70	19.17	19.17
Bachelor	150	41.09	41.09
High Diploma	12	3.28	3.28
Master	30	8.21	8.21
PhD	18	4.93	4.93
Total	365	100.00	100.00

Table 1 illustrates that a large percentage of respondents (41.09%) have bachelor degrees, and followed by high school and vocational education certificates (23.28%). The less percentage of respondents has a high diploma (4.93%).

Table 2: Respondents' Occupation

Respondents' Occupation	Frequency	Percent %	Valid Percent %
Accountant	175	47.94	47.94
Auditor	85	23.28	23.28
Account Manager	60	16.43	16.43
Audit Manager	45	12.32	12.32
Total	365	100.00	100.00

Table 2 demonstrates that the accountants represent the large percentage of respondents (47.94%), and followed by the auditors (23.28%). The audit managers represent less percentage of respondents (12.32%). Generally, the managers represent a good percentage of 28% (16.43% +12.32%) which could contribute to the research findings.

Table 3: Respondents' Experience

Respondents' Experience	Frequency	Percent %	Valid Percent %
3-5 years	70	19.17	19.17
6-10 years	80	21.19	21.19
11-20 years	140	38.35	38.35
21-30 years	60	16.43	16.43
31-40 years	15	4.10	4.10
Total	365	100.0	100.00

It can be seen from Table 3 that most respondents have 11-20 years of experience, and followed by respondents who have 6-10 years of experience. Fewer respondents have 31-40 years of experience. In total, respondents who have more than 10 years of experience account for 60% of the sample, with 21.19% of the respondents have more than 6 years of experience, which could reflect good responses.

Descriptive Statistics of CFA

The descriptive statistics including the averages of mean and standard deviation of all constructs are introduced in Table 4 with the minimum and maximum levels of them.

Table 4: Mean and Standard Deviation of all Constructs

Construct	N	Minimum	Maximum	Mean	Std. Deviation
Integration	365	1.00	5.00	2.58	1.117
Flexibility	365	1.00	5.00	3.00	1.075
Reliability	365	1.00	5.00	2.81	1.114
Relevance	365	1.00	5.00	3.01	1.092
Timeliness	365	1.00	5.00	2.98	1.280
Internal Audit Effectiveness	365	1.00	5.00	2.95	1.026
Experience	365	1.00	5.00	2.39	1.270

In general, the items of all terms show high percentages of agree, strongly agree, and neutral, which indicates positive trends against most items of all constructs. Moreover, the means of all constructs items range between 2.39 and 3.01, and the standard deviations range between 1.026 and 1.280. This indicates that the data are convergent, consistent, and confirm

the relationship of the mean to the rest of the data. This can lead to obtaining reliable results of the questionnaire content analysis.

Reliability Test

The Cronbach Alpha values of all constructs are introduced in Table 5.

Table 5: Reliability Test of All Constructs

No	Construct	Number of Items	Alpha Value
1	Integration	10	0.976
2	Flexibility	10	0.986
3	Reliability	10	0.981
4	Relevance	10	0.985
5	Timeliness	10	0.951
6	Internal Audit Effectiveness	10	0.977
7	Experience	8	0.943

It can be seen from Table 5 that all constructs achieve high Cronbach Alpha values (greater than 0.7). These values mean that there is a high degree of internal stability of all constructs. The high values mean that we can rely on these constructs in achieving the objectives of the study and in the analysis of the results.

Inter–Item Correlation

The item-test correlation should be at least 0.2. Low item-test correlation means that the content of the item needs to be revised or the item should be removed from the test (Aller et al., 2013). The KMO and Bartlett test is introduced in Table 6.

Table 6: KMO and Bartlett's Test of CFA

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.928
Bartlett's Test of Sphericity	Approx. Chi-Square	35520.698
	Df	2278
	Sig.	.000

Legend, df= degree of freedom, Sig.= significance

Table 6 indicates that KMO and Bartlett's results are within the acceptable limits, where KMO is more than 0.5 and Bartlett's test is less than 0.05. This reveals that the data is adequate for further analysis.

DEVELOPMENT OF STRUCTURAL EQUATION MODEL

Measurement Model

This study demonstrates the development of the measurement model of the relation between AIS and IAE with the experience as a moderator. Several tests are conducted to analyze the data and test its reliability followed by the EFA to reduce the study variables. Some of the items of some constructs are deleted because they did not fit in the model well and 59 remaining items are distributed across the seven constructs. The goodness of fit reveals the validity of the final measurement model, which indicates the readiness for developing the structural equation model (SEM).

Model Validity

The final measurement should be measured for validity to develop the structural model. Construct validity is usually used for validity measurement. To measure the model validity, this study uses the construct validity that includes convergent validity and discriminant validity.

Convergent Validity

In this research, AVE and CR are used to measure the convergent validity. AVE is the average amount of variance in observed variables that a latent construct is able to explain (Farrell, 2010). AVE should be equal to 0.50 and above (Hair et al., 2011). Table 7 shows average variance extracted (AVE) and composite reliability (CR).

Table 7: Convergent Validity Results

Constructs	Composite Reliability (CR)	Average Variance Extracted (AVE)
Integration	0.884	0.677
Flexibility	0.835	0.605
Reliability	0.832	0.599
Relevance	0.828	0.557
Timeliness	0.821	0.520
Internal Audit Effectiveness	0.873	0.666
Experience	0.824	0.504
Rule of Thumb	> 0.7	≥ 0.5

Table 7 shows that all constructs have values of AVE ≥ 0.5 and composite reliability of all constructs is also higher than 0.70, which fits the acceptable values and proves that the convergent validity is achieved through the correlations between the items of each construct.

Discriminant Validity

The discriminant validity is attained when there is no correlation between two different dimensions. The discriminant validity can be estimated by AVE-SV test. This test compares the average variance extracted value (AVE) and the share variance (SV) between dimensions (Henseler *et al*., 2015). The discriminant validity of all constructs is shown in Table 8.

Table 8: Constructs Discriminant Validity

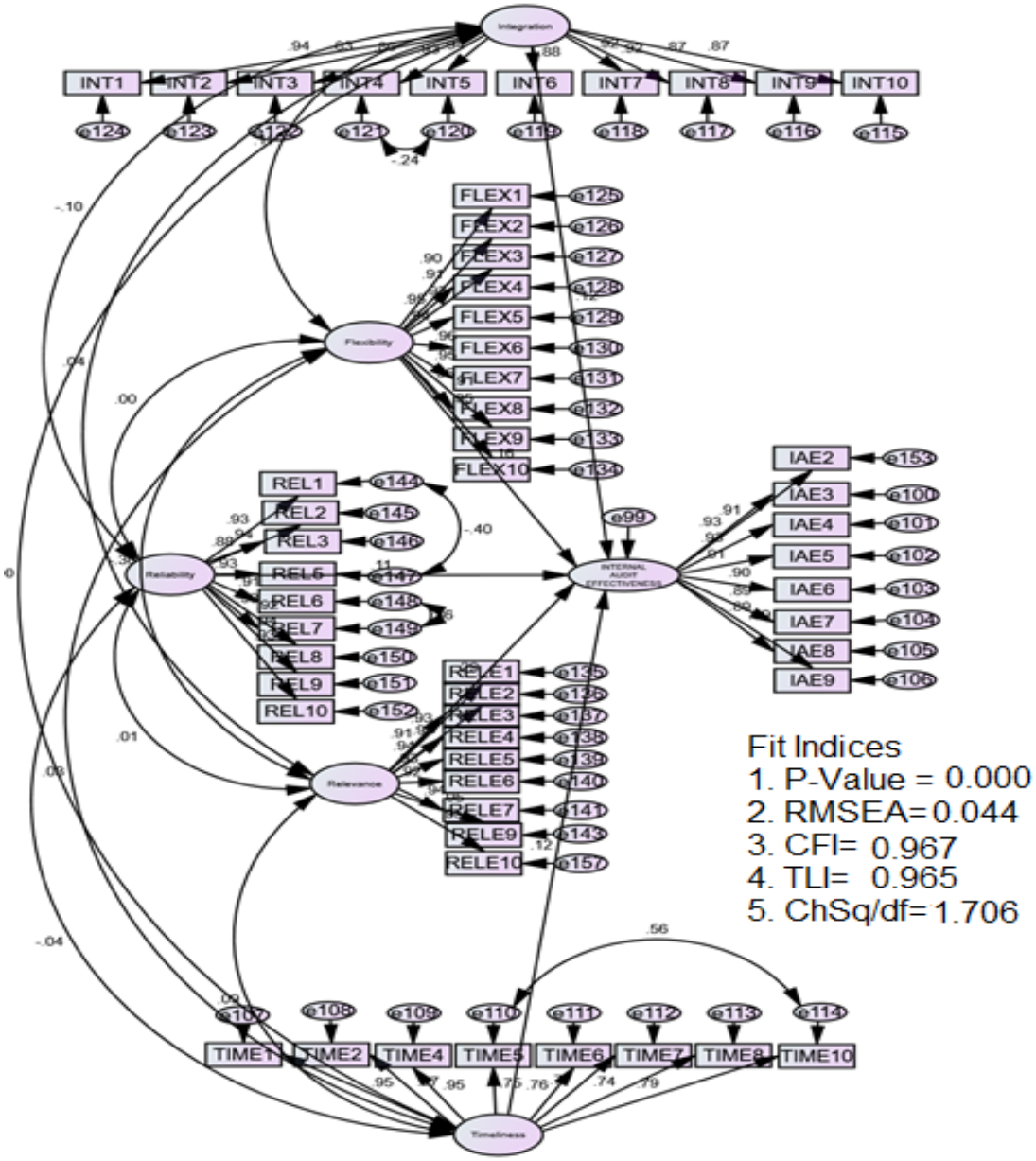
	INT	FLEX	REL	RELE	TIME	IAE	EXP
Integration	0.710						
Flexibility	0.024	0.735					
Reliability	0.002	0.576	0.707				
Relevance	0.700	0.008	0.055	0.707			
Timeliness	0.560	-0.043	-0.004	0.506	0.778		
Internal Audit Effectiveness	0.707	-0.008	0.022	0.706	0.752	0.746	
Experience	0.702	-0.058	-0.012	0.704	0.587	0.701	0.816

INT=Integration; FLEX=Flexibility; REL=Reliability; RELE= Relevance; TIME=Timeliness; IAE= Internal Audit Effectiveness; EXP= Experience

In Table 8, the off diagonal values represent the variance shared and diagonal values represent the square root of AVE. The AVE square root values are greater than the variance shared between two constructs indicating high discriminant validity.

STRUCTURAL EQUATION MODEL EVALUATION

The structural equation model is developed firstly without the moderator to show the direct effect of AIS characteristics on the IAE, and tested for goodness of fit indices (see Figure 2). Then, the model is developed considering the moderating effect.



INT=Integration; FLEX=Flexibility; REL=Reliability; RELE= Relevance; TIME=Timeliness; IAE= Internal Audit Effectiveness; EXP= Experience

Figure 2: Structural equation model without moderator

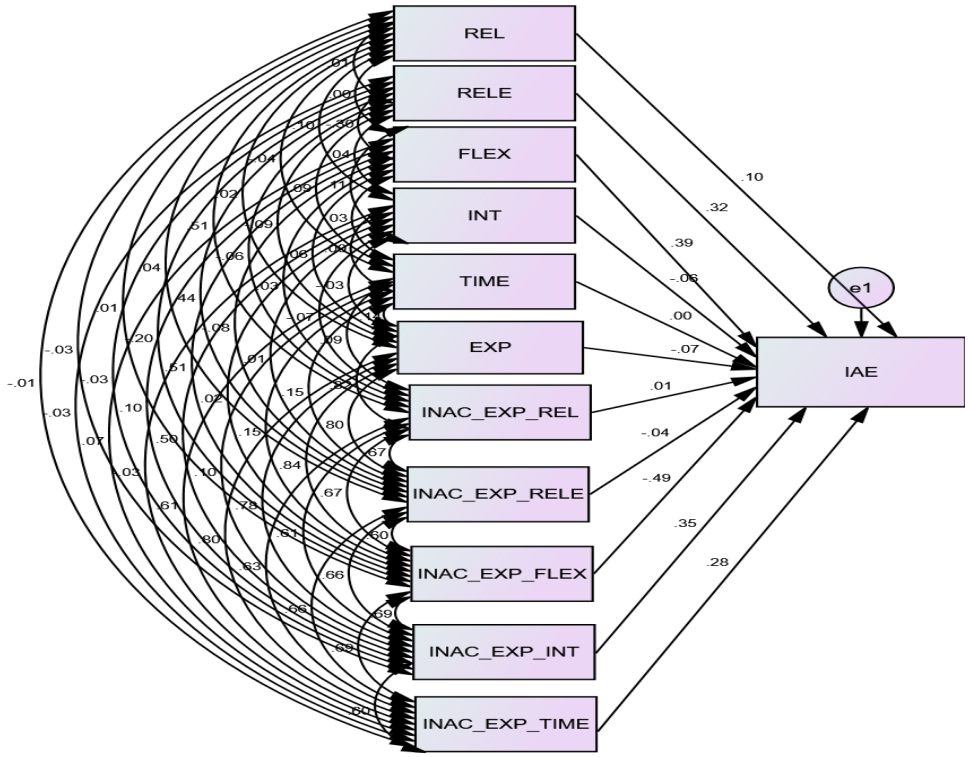
The structural equation model (SEM) without the moderator is tested to determine the model fit using the same indices used in the case of the measurement model. The goodness of fit of the SEM is introduced in Table 9. As shown in Table 9, all the obtained indices values of all constructs fall within the acceptable values. This indicates that the model fits closely the data and ensures the structural model adequacy.

Table 9: Goodness of Fit of the Structural Equation Model

Fit index	Modified Model	Recommended values	Source
χ^2/df	1.706	≤ 5.00	Hooper *et al*. (2008)
GFI	0.920	≥ 0.90	Hooper *et al*. (2008)
AGFI	0.914	≥ 0.90	Hooper *et al*. (2008)
CFI	0.967	≥ 0.90	Hooper *et al*. (2008)
IFI	0.967	≥ 0.90	Hooper *et al*. (2008)
TLI	0.965	≥ 0.90	Hair *et al*. (2006)
RMSEA	0.044	≤ 0.10	Hooper *et al*. (2008), Hair *et al*. (2010)

χ2/df=normed chi-square, GFI= comparative fit index, AGFI= adjusted goodness-of-fit statistic, CFI= comparative fit index, IFI= Incremental fit indices, TLI= Tucker-Lewis, Index, RMSEA= root mean square error.

The structural equation model with moderator is introduced in Figure 3. The model is used to show the effect of the experience on the relation between AIS and IAE. Each indicator of an AIS construct is multiplied by each indicator of the moderating variable leading to produce indicators for a latent interaction term. The statistical significance of the moderating effect is tested by a bootstrapping procedure. Therefore, the experience indicators are multiplied with the AIS and IAE indicators to create a new interaction term called experience *(AIS) including INAC- EXP-INT, INAC- EXP-REL, INAC- EXP-RELE, INAC- EXP-FLEX, INAC- EXP-TIME. The new paths are tested to determine the significance of the interaction effect.



INT=integration; FLEX=flexibility; REL=reliability; RELE=relevance; TIME=timeliness; IAE=internal audit effectiveness; INAC=interaction

Figure 3: Structural equation model with moderator

HYPOTHESES TESTING

Hypothesis testing is a method to test if a hypothesis is probable to be true. The hypothesized relations between constructs were put in null hypotheses, which presume true.

Regression Weights of Direct Hypotheses

The regression analysis is used to test the direct hypotheses effect.

Table 10: Regression Weights of Direct Hypotheses

Hypothesis	Relation			Estimate	St. Error	C.R.	P
H1	IAE	<---	INT	.109	.048	2.287	.022
H2	IAE	<---	FLEX	.150	.050	2.979	.003
H3	IAE	<---	REL	.098	.046	2.123	.034
H4	IAE	<---	RELE	.273	.050	5.453	***
H5	IAE	<---	TIME	.095	.039	2.429	.015

INT=Integration; FLEX=Flexibility; REL=Reliability; RELE= Relevance; TIME=Timeliness; IAE= Internal Audit Effectiveness; SE= standard error; CR =critical ratio; P=probability.

Table 10 indicates all estimates for independent variables are positive and their p-values which are less than 0.05 shows that these relationships are significant. This means that five constructs of AIS have significant effects on the IAE. This confirms the validity of the first five direct hypotheses between the constructs integration, flexibility, reliability, relevance, timeliness, and the IAE that tested by the correlation analysis. It can be seen that all the direct hypotheses are supported. The regression analysis is used to test the direct hypotheses effect.

Regression Weights of Moderating Effect Hypotheses

For testing the moderation effect, interaction terms were generated using the imputation function in AMOS and then the data was imported from SPSS and run. The regression analysis is used to test the moderating hypotheses. The regression weights with the experience (moderator) are shown in Table 11.

This relation is tested by hypothesis H_6, which hypothesizes that experience moderates the effect of timeliness on the IAE. As shown in Table 11, the path coefficient of INAC_EXP_TIME on IAE is 0.058, which indicates that the increase in the interaction of EXP_TIME by one unit leads to an increase in IAE by 0.058. This estimate has a small standard error (SE) of 0.030, and a critical ratio (CR), 1.929 is above zero. The probability (*P*) of getting this ratio is 0.054, which is more than 0.05 indicating that the regression weight for the interaction of EXP_TIME in predicting the IAE is insignificant. This means that the experience does not moderate the effect of timeliness on the IAE. Thus, the proposed hypothesis is rejected.

Table 11: Regression Weights with Moderator

Hypothesis	Relation			Estimate	St. Error.	C.R.	P
H6	IAE	<---	INAC_EXP_TIME	.058	.030	1.929	.054
H7	IAE	<---	INAC _EXP_RELE	-.009	.036	-.246	.805
H8	IAE	<---	INAC _EXP_REL	.002	.036	.063	.950
H9	IAE	<---	INAC _EXP_FLEX	.111	.038	-2.894	.004
H10	IAE	<---	INAC _EXP_INT	.094	.039	2.426	.015

INT=integration, FLEX=flexibility, REL=reliability, RELE=relevance, TIME=timeliness, IAE=internal audit effectiveness, CR= critical ratio, p= probability of getting CR, INAC=interaction.

H_7 hypothesizes that experience moderates the effect of relevance on the IAE. As shown in Table 11, the path coefficient of INAC_EXP_ RELE on IAE is -0.009, which indicates that the increase in the interaction of EXP_TIME by one unit leads to a decrease in IAE by -0.009. This estimate has a small SE of 0.036, and a CR=-0.246 is below zero. The *P* of getting this ratio is 0.805, which is more than 0.05 indicating that the regression weight for the interaction of EXP_RELE in predicting the IAE is insignificant. This means that the experience does not moderate the effect of relevance on the IAE. Thus, the proposed hypothesis is rejected.

H_8 hypothesizes that experience moderate the effect of reliability on the IAE. As shown in Table 11, the path coefficient of INAC_EXP_ REL on IAE is 0.002, which indicates that the increase in the interaction of EXP_ REL by one unit leads to an increase in IAE by 0.002. This estimate has a small SE of 0.036, and a CR=0.063 is above zero. The *P* of getting this ratio is 0.950, which is more than 0.05 indicating that the regression weight for the interaction of EXP_REL in predicting the IAE is insignificant. This means that the experience does not moderate the effect of reliability on the IAE. Thus, the proposed hypothesis is rejected.

H_9 hypothesizes that experience moderate the effect of flexibility on the IAE. As shown in Table 11, the path coefficient of INAC_EXP_ FLEX on IAE is 0.111, which indicates that the increase in the interaction of EXP_ FLEX by one unit leads to an increase in IAE by 0.111. This estimate has a small SE of 0.038, and a CR=-2.894 is below zero. The *P* of getting this ratio is 0.004, which is less than 0.05 indicating that the regression weight for the interaction of EXP_ FLEX in predicting the IAE is significant. This means that the experience moderates the effect of flexibility on the IAE. Thus, the proposed hypothesis is supported. Experience helps accountants to understand well all the AIS functions and tasks, thus they will be able to increase the AIS flexibility to adapt to any updates or changes. The experience also increases the ability of auditors to monitor and follow up the implementation of plans and policies and to avoid risks and errors in advance based on reliable and accurate accounting information.

H_{10} hypothesizes that experience moderates the effect of integration on the IAE. As shown in Table 11, the path coefficient of INAC_EXP_ INT on IAE is 0.094, which indicates that the increase in the interaction of EXP_ INT by one unit leads to an increase in IAE by 0.094. This estimate has a small SE of 0.039, and a CR=2.426 is above zero. The *P* of getting this ratio is 0.015, which is less than 0.05 indicating that the regression weight for the

interaction of EXP_ INT in predicting the IAE is significant. This means that the experience moderates the effect of integration on the IAE. Thus, the proposed hypothesis is supported. The experience of accountants and auditors enhances the integration between all functions of AIS and IA and with other information systems in the organizations, which helps to provide reliable and accurate financial information, and consequently increases the effectiveness of the of planning, implementation and control tasks so as to provide all the information needed by the decision-makers.

The summary of all hypotheses including the direct hypotheses and the moderating hypotheses is introduced in Table 12.

Table 12: Summary of Research Hypotheses

No.	Hypothesis	Result
1	H1: there is a significant effect of integration on IAE	Fail to reject
2	H2: there is a significant effect of Flexibility on IAE	Fail to reject
3	H3: there is a significant effect of reliability on IAE	Fail to reject
4	H4: there is a significant effect of relevance on IAE	Fail to reject
5	H5: there is a significant effect of timeliness on IAE	Fail to reject
6	H6: experience does moderate the effect of timelines on the IAE	Rejected
7	H7: experience does moderate the effect of relevance on the IAE	Rejected
8	H8 : experience does moderate the effect of reliability on the IAE	Rejected
9	H9: experience does moderate the effect of flexibility on the IAE	Fail to reject
10	H_{10}: experience does moderate the effect of integration on the IAE	Fail to reject

CONCLUSION

AIS and its characteristics are important to improve the IAE. This study contributes to the literature by testing the moderating effect of experience, which is a new variable in accounting studies. Consequently, this study demonstrates the development of a structural equation model of the relation between AIS and IAE with the experience as a moderator. Several tests and analyses were conducted to test the normality and reliability of the data for further analysis such as confirmatory factor analysis and structural equation model development. The development of the measurement was demonstrated. This model was tested for validity to come out with the structural equation model (SEM) using the confirmatory factor analysis. Both measurement and structural equation model were validated using various measures of goodness of fit. The regression analysis was used to test the direct hypotheses effect and the moderating effect of experience. All the direct hypotheses are supported, which confirm the significant effect of the AIS quality characteristics on the IAE. Regarding the moderating hypotheses, the experience only moderates the relations between integration and flexibility characteristics and the IAE. On the other hand, the moderated effect of experience on the timeliness, reliability and relevance were not supported. The SEM model confirmed the effect of AIS on enhancing the audit process and assisting management in making the right decisions. Moreover, the model confirmed the role of experience in improving the accounting, and auditing reports, consequently, enhances management

decision making. Governments can benefit from this study because better internal audit performance of companies will lead to better GDP and high income of citizens. The study offers a foundation for the researchers to do more researches on the role of experience on AIS and IAE and their relation.

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Appendix A

Section (A) Background Information (Demographic Factors)

Please answer the following questions and mark (X) in front of the appropriate answer, please tick one only.

1- What is your age?

- Less than 20 years
- 20-30 years
- 31-40 years
- 41-50 years
- More than 50 years

2- What is your educational achievement?

- High School
- Diploma degree
- Bachelor degree
- Master's degree
- PhD degree

3- What is your occupation?

- Accountants' managers
- Accountants
- Internal auditors
- Other: Please specify (……..)

4- How long have you been working for this company?

- Less than 1 year
- 1-3 years
- 3-5 years
- 5-7 years
- More than 7 years, Please specify (…….)

Section (B): Research Variables

All the items of research variables are measured using five Likert scale: Please circle the most appropriate statement according to the scale.

(1) Strongly Disagree

(2) Disagree

(3) Neutral

(4) Agree

(5) Strongly Agree

I. Independent Variables

1- Integration

No.	Statement	1	2	3	4	5
1	Software, hardware and networks in my organization are complementing each other in formal procedures					
2	All business processes are simple and understandable					
3	Centralized data management improves the accuracy of data and information management					
4	The decision-making process is based on an integrated database of AIS					
5	The applied AIS encourages the spirit of creativity and innovation among all employees					
6	AIS is integrated with other management information systems					
7	The integration of AIS improves the internal audit effectiveness					
8	AIS enhance compliance with laws and accounting standards					
9	The AIS includes internal control which reduce the cases of fraud in the accounting data					
10	AIS are integrated with other information systems					

2- Flexibility

No.	Statement	1	2	3	4	5
1	AIS is useful for all stakeholders as a result of business development					
2	AIS provides various options for selection					
3	AIS has the ability to adapt to modern legislation and laws					
4	AIS has the ability to adapt to accounting standards and their amendments					
5	AIS flexibility contributes in improving the organization performance					
6	AIS provide a computer-based database system to store and retrieve data					
7	AIS provides information capable of correcting previous events					
8	The processing speed of the AIS helps in doing work quickly					
9	AIS can track all events in an efficient manner					
10	The flexibility of AIS affects the internal audit effectiveness					

3- Reliability

No.	Statement	1	2	3	4	5
1	Reliability of AIS outputs is important for decision makers					
2	The result of AIS are free from error and bias					
3	The reliability of AIS system improves the organization performance					
4	AIS helps predictability					
5	The information contained in the financial reports issued by the AIS are credible and transparent					
6	Management trusts the quality of AIS					
7	AIS provides information that reduces errors during work					
8	The AIS provides accurate and relevant information					
9	The use of AIS enables to manage our tasks effectively					
10	The reliability of accounting information affects the internal audit effectiveness					

4- Relevance

No.	Statement	1	2	3	4	5
1	AIS provides efficient and relevant information to serve any purpose					
2	AIS provides relevant information for decision making					
3	AIS provides operational reports related to the current operations of the organization					
4	AIS contributes to make the output information more suitable for decision-					

	makers					
5	AIS provides relevant information to achieve organization's goals					
6	AIS provides relevant information supporting organization strategy					
7	AIS provides relevant information to solve problem in hands					
8	The use of AIS issues periodic reports on all the organization activities for decision making					
9	Relevant Information meets the information need of the consumer					
10	The relevance of AIS affects the internal audit effectiveness					

5- Timeliness

No.	Statement	1	2	3	4	5
1	Requested information is created immediately upon request					
2	Information supplied automatically upon processing is completed					
3	Reports are provided frequently on a systematic, regular basis such as daily reports, weekly reports					
4	There is no delay between an event occurred and relevant information being reported					
5	Correct and consistence information is provided on time when required					
6	Data is available regularly enough to influence management decisions					
7	The information from AIS reflects the current state of the world that it represents					
8	The use of AIS assists in reducing cost and time					
9	The processing speed of the AIS helps in doing work quickly					
10	The timeliness of AIS affects the internal audit effectiveness					

II. Dependent Variable

Internal Audit Effectiveness

No.	Statement	1	2	3	4	5
1	The internal audit improves organization performance					
2	The internal audit reviews operations to ascertain that results are consistent with organization goals					
3	The internal audit determines the adequacy and effectiveness of the internal accounting and operating controls					
4	The internal audit reviews the accuracy and reliability of financial reports					
5	The internal audit reviews the compliance with policies, plans, laws and regulations					
6	The internal audit improves the effectiveness of risk management					
7	The internal audit reviews the economical, and efficient use of resources					
8	The internal audit evaluates the internal control system					
9	The internal audit improves the organization's productivity					
10	The internal audit develops appropriate annual audit plans					

III. Moderated Variable

Experience

No.	Statement	1	2	3	4	5
1	Experience enables the management to make accurate decision					
2	Experience enables the employees to do their task efficiently					
3	Experience enhances the internal audit performance\e					
4	The performance of the AIS depends on employees professional knowledge and experience					
5	The organization trains the employees to increase their skill and knowledge in AIS					
6	The experience help auditors to use software and hardware in AIS in an efficient					

	manner					
7	Experience helps auditors to achieve consistent, and quality results					
8	There is a relationship between auditor experience and ethical decision making					

Appendix B

Source of Constructs Items

Construct	Number of Items	Sourcesf
Integration	10	Chenhall & Morris (1986); Napitupulu et al. (2016); Tan (2016); Qatanani and Hezabr (2015)
Flexible	10	Napitupulu et al., (2016); Shagari et al. (2017); Tan (2016)
Reliability	10	Napitupulu et al. (2016); Shagari et al. (2017)
Relevance	10	Teru et al. (2017); kh Al-Dalabeeh and Al-Zeaud (2012); Abdallah (2014); Shagari et al. (2017)
Timeliness	10	Chenhall & Morris (1986); Patel (2015); Shagari et al. (2017)
Experience	8	Toth (2012); Altawalbeh et al. (2017); Herda and Martin (2016)
Internal Audit Effectiveness	10	Alzeban and Gwilliam (2014)