

# **THE IMPACT OF COMPETENCIES, RISK MANAGEMENT AND AUDITORS INTERACTIONS ON INTERNAL AUDIT EFFECTIVENESS IN LIBYAN COMMERCIAL BANKS**

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**Abstract:** Internal audit (IA) has become an important and integral function of organizations in achieving their objectives and protecting their assets. Nonetheless, IA effectiveness has received scant attention in the literature, especially in the context of developing countries such as Libya. The research aimed To analyze the impact of competencies of the internal audit team, risk management and interaction between internal auditors and audit committees on internal audit effectiveness in Libyan commercial banks. The research used the quantitative methodology for analysis.the sampling technique used in this research was random sampling. Participants in research included 105 auditors selected from branches of commercial banks in Libya. The research adopted the descriptive method using the survey from the commercial banks and its branches and analysing the impact of competencies, rick managment and auditors interection on internal audit effectivness. The results of this research showed that: firstly; Competencies of an Internal Audit team on Internal audit effectiveness was significant and positive correlation. Secondly; Risk management on Internal audit effectiveness was higer significant and positive correlation. Thirdly; Interaction between IA and AC on Internal audit effectiveness was significant and positive correlation.

**Keywords:** Competencies of Internal Audit team, Risk Management, Interaction between Internal Auditors and Audit Committees and Internal Audit Effectiveness.

## **1 Introduction**

Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

Arens et al. (2005) define auditing as the „accumulation and evaluation of evidence about information to determine and report on the degree of correspondence between the information and established criteria“. The American Accounting Association (AAA) guidelines (1973) defines auditing as „a systematic process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events to ascertain the degree of correspondence between these assertions and established criteria, and communicating the results to interested parties“. Thus varied definitions for auditing are provided by different authors and professional bodies/association. (Arens, 2005).

The Professional Practices Framework in the Institute of Internal Auditors (IIA) Research Foundation (2004) defines 'Internal Auditing as 'an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes'. Sarens and DeBeelde (2006) view internal audit as a function that is needed by senior management to 'compensate for the loss of control the management experiences as the result of increasing complexity in an organization'. Under International Standards for Auditing (ISA) in the International Auditing and Assurance Standards Board (IAASB) internal audit means „an appraisal activity established within an entity as a service to the entity. Its functions include, amongst other things, monitoring internal control'. From the above definitions, in a nutshell, it can be concluded that internal audit emphasizes on management control, effectiveness of operations and governance resulting in value additions for companies. (Beelde, 2006).

Co-operation between the internal and external auditor is also considered an important factor that impacts on IA effectiveness. Arena and Jeppesen (2010) indicate that the coordination and co-operation between the internal and external auditor is becoming one of 'intellectual jurisdiction', where external auditing, as the superior profession, controls the knowledge base of internal auditing but allows internal auditors to practice IA as they please.

Risk management is also considered an important factor that impacts on IA effectiveness (Albercht . 1988). Mihret and Yismaw (2007) and Mihret and Woldeyohannis (2008) also contend that risk management to IA is considered as a determinant of IA effectiveness and it is identified as one of the factors that bode well for a good IA department profile (Mihret 2009). Albercht et al. (1988) find that the visible risk of management to IA is the most important factor that enhances IA effectiveness. In addition, the IIA's Standards for Professional Practice of Internal Auditing (1100–Independence) state that internal auditors should have the support of senior management and of the board so that they can gain the cooperation of auditees and perform their work free from interference. (the Institute of Internal Auditors, 2000).

This is the first known research to research issues concerning the internal audit function in public enterprises operating in Libyan commercial banks, where there are no regulations or guidelines to instruct organizations on how to manage their internal audit departments. Unlike the West, in Libya there are no professional standards and

international professional bodies available to internal auditors, resulting in organizations establishing their own guidelines on the practice of IA.

This research provides insights into IA in Libyan banks and whether the internal audit function is perceived to be effective, thereby enhancing practitioners' understanding of the merits and limitations of IA in Libya. As a research on competencies of internal audit teams, processes and activities of internal auditors and the level of interaction between internal auditors and audit committees, it enhances understanding of the internal audit profession's global configuration. By conducting research on IA in Libya, this research will enhance the understanding of IA effectiveness in Libya where the environment Libyan commercial banks works.

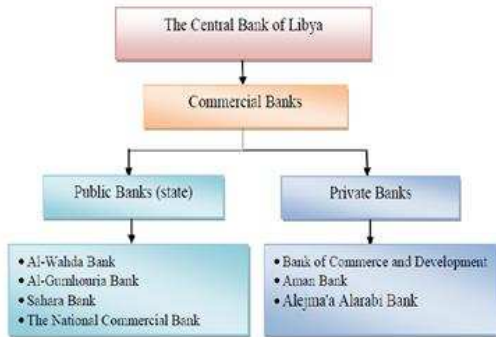


Figure 1: Structure of Libyan Commercial Banks

## 1.1 Research Question

Internal audit departments have been established in Libyan public enterprises to evaluate the activities of organizations as a service to management. Despite the importance of shedding light on IA effectiveness in various economic activities in Libya, no formal guidelines have been provided to manage internal audit departments. Furthermore, most previous studies have focused on external audit.

Thus, due to the limited research conducted concerning IA effectiveness, the growing importance of IA in organizations, and the possible influence of some factors on IA practices then the question arising is:

- What are the impact of competencies of the internal audit team, risk management and interaction between internal auditors and audit committees on internal audit effectiveness in Libyan commercial banks?

## 1.2 Research Objective

To analyze the impact of competencies of the internal audit team, risk management and interaction between internal auditors and audit committees on internal audit effectiveness in Libyan commercial banks.

## **2 Literature Of Reserach**

### **2.1 Agency Theory**

Agency relationship could be defined as a contract among the organization owner(s) and its top management. Managers work with the organization as agents to perform some service on behalf of owners who delegate some decision making authorities to managers. These authorities could be misused by managers to meet their own personal interests. Therefore, the existence of the audit committees, and the external and internal auditors will help the organization in enhancing their performance, and also will ensure that the management carries out its plans according to procedures).

Considered internal auditors as agents and monitors for a variety of the internal audit users that include the board, audit committee and senior management. Agency problems could occur when the board or its audit committee is inefficient, and hence, the senior management is likely to be a powerful influence over the internal audit. This complex web creates an inherent dilemma for the internal audit: how can it carry out their monitoring role over management if it is ineffective itself. (Ittonen, 2010).

By definition, agency theory attempts to describe a relationship where one party (the principal) delegates work to another (the agent). Furthermore, it is concerned with resolving the problems in a relationship with conflict of interests and risk sharing when attitudes toward risk diverge. The Encyclopedia Britannica defines “financial agency theory” in the following manner:

“In organizational economics, a means of assessing the work being done for a principal (i.e., an employer) by an agent (i.e., an employee). While consistent with the concept of agency traditionally advanced by legal scholars and attorneys, the economic variants of agency theory emphasize the costs and benefits of the principal-agent relationship. While a beneficial agency cost is one that increases a shareholder's value, an unwanted agency cost occurs when management actions conflict with shareholder interests. Such would be the case when managers put their own interests ahead of an owner's interests (e.g., manipulating short-term earnings at the expense of long-term performance in order to receive a bonus). Ongoing analyses of agency costs are a common managerial tool, especially in corporations that are managed by non-owners, because they serve to indicate whether—or how well—a manager (agent) is fulfilling his fiduciary obligation to an owner (principal).

### **2.2 International Standards for professional practice of internal auditing**

#### **2.2.1 Internal Audit Effectiveness**

Mihret, James & Mula (2010) state that the value-adding role of IA presumes that IA is effective, therefore, IA effectiveness should be studied to assess the value-adding potential of IA. There are two basic reasons why it is important to examine IA effectiveness. One is that it is an indication of the quality of performance and can

describe whether or not the IA function is performing in a satisfactory manner. The second is that the examination can serve as a motivator for an individual or an organization to improve their performance. Mizrahi and Ness-Weisma (2007) maintain that, in general, there are two important tools for achieving managerial accountability in the policy-making process, namely, evaluation and auditing. Nonetheless, as explained earlier, to date very few academic studies have been conducted on IA effectiveness, and despite the general undercurrent in relation to an IA paradigm shift, research has provided mixed findings on IA effectiveness (Mihret J. M., 2010), and has assessed IA effectiveness differently.

Goodwin (2004) makes a comparison between the role of IA in the public and private sectors in Australia and New Zealand. The author highlights that while there is no requirement for private sectors in Australia and New Zealand to establish an internal audit department, the Australian Stock Exchange (ASX) encourages large companies to do so. However, the requirement to establish an IA function in the Australian public sector is not straightforward because of differing State legislation. On the other hand, within the public sector in New Zealand there is no requirement for IA function. The results suggest that internal auditors in the public sector are less likely to report to the chief of financial affairs than those in the private sector. Although the two sectors often outsource IA work, public sector organizations are more likely to use an external auditor for these services. Furthermore, there does not appear to be any significant difference between internal auditors in the two sectors in terms of their interaction with external auditors.

Mihret, James and Mula (2010) apply institutional theory and Marx's (1978) theory of the circuit of industrial capital to relevant theoretical and empirical literature to develop propositions and suggest a research agenda on the antecedents and organizational performance implications of IA effectiveness. Similar to that of Al-Twaijry, Brierley and Gwilliam (2003), their study employed compliance with ISPPA as an indicator of IA effectiveness. It relates to the normative standards (IIA standards) that internal auditors are expected to follow. The authors suggest that the dynamics prevailing in an IA setting impact on IA effectiveness. The extent of internal audit's level of compliance with ISPPA could serve as an additional approach to assess IA effectiveness. They also indicate that empirical testing should not require the adoption of a hard-core positivist mindset or an exclusive focus on agency theory.

Based on the approaches of previous research (e.g., Al-Twaijry, Brierley & Gwilliam 2003; Albercht et al. 1988; Arena & Azzone 2009; Cohen & Sayag 2010; Mihret, James & Mula 2010; Mihret & Yismaw 2007) the present research interprets the views of participants regarding IA effectiveness by identifying seven factors that impact on IA effectiveness, namely, independence, competence, scope of work, performance, co-operation between the internal and external auditor, management support, and awareness of the benefits of effective internal auditing. Subsequently, both the professional and academic literature on these factors is discussed next.

### **2.2.2 Competencies of an Internal Audit Team**

For IA to be effective, internal auditors need appropriate competence to perform their work satisfactorily (Burnaby, 2009). This view is supported by Al-Twaijry, Brierley and Gwilliam (2003) who suggest that the staffing of internal audit departments and the management of its staff is vital to the effective operation of IA, and that unless they possess the necessary competencies the power of internal auditors may be diminished.

Mihret, James and Mula (2010, p. 240) also support this view by stating that ‘technical competence and continuous training are considered essential for effective internal audit’.

Libby and Frederick (1990) indicate that experience is an important tool in enhancing auditors’ knowledge. In addition, Bonner and Lewis (1990) state that years of experience is considered as an indicator of auditors’ knowledge and expertise. Internal auditors require a wide range of competencies to achieve satisfactory performance in the various hierarchical positions within internal audit departments (Burnaby, 2009).

Competence requires knowledge and professionalism that the auditor should acquire from education, on-the-job training, and experience. Thus, legislators set requirements that must be met before people are qualified and entitled to perform audits (Paape, 2007).

### **2.2.3 Risk Management in Internal Auditor**

Use The change in perspective of IA over the last few years has already been discussed. Roughly speaking, we can distinguish between a ‘traditional internal audit’, focused on compliance and monitoring, and a ‘new internal audit’, which is focused on improving corporate performance. ‘Traditional IA’ examines whether line managers, in trying to reach their objectives, respect corporate boundaries and it could, in the short term, reduce efficiency and profitability, i.e. the main performances that measure the results of line managers. Owing to its links to risk management, ‘new IA’ helps managers understand what could prevent them from reaching expected targets (see, for instance, COSO, 2004; Matyjewicz & D’Arcangelo, 2004; Beasley, 2005; Jackson, 2005). According to the IIA Position Statement (2004), the core role of IA in ERM is to ‘provide objective assurance to the board on the effectiveness of an organization’s ERM activities to help ensure key business risks are being managed appropriately and that the system of internal control is operating effectively’. Furthermore, internal auditors can provide consulting services to assist the organization in identifying, evaluating, and implementing risk management methodologies and controls to address significant risks.

The Institute of Internal Auditors, IIA (2004), by stating that the internal audit activity should evaluate and contribute to the improvement of risk management, control and governance, recognizes the assurance and consulting role of internal auditing in corporate governance and simultaneously in risk assessment. Action plans defined and implemented for risk mitigation regular follow-up on the progress of implementation plans aimed at mitigating risk.

The auditor uses his professional judgment and takes into account many factors when assessing inherent risk. The auditor is able to assess some of the inherent risk by considering the organization as a whole, because some risks are created by the entity’s culture and management style. Every organization is subject to its own inherent risks and the internal auditor should catalogue them for use in risk assessment. When the auditor assesses the inherent risk, he must establish the obstacles that will prevent from the bad implications resulting from those risks. This consideration deals with the control risk (Cohen, & Sayag, , 2010).

### **2.2.4 Interaction between Internal Audit and Audit Committee**

The position of IA in an organization is bounded; it is a corporate unit that should have a large amount of autonomy and independence in order to perform its activities in a

proper manner. A key decision about the organizational role of IA concerns its relationship with the audit committee (AC). Growing interest in corporate governance has led a few scholars to explore such a link (see, for instance, Scarbrough., 1998; Goodwin & Yeo, 2001; Raghunandan, 2001, Goodwin, 2003). IA and the AC are two different control bodies: IA operates within the organization, while the AC is made up of members of the Board of Directors.

These two bodies, however, have related purposes: one of the objectives of the AC is to monitor and evaluate the internal control system, which is also the primary goal of the IA team (see, for instance, COSO, 1992; Blue Ribbon Committee, 1999; Combined Code, 2003).

A real interaction between IA and AC is very important for both (Raghunandan, 1998; Bishop, 2000; Goodwin, 2003) and, in fact, many guidelines and standards promote such cooperation. Furthermore, some scholars stress its importance for the performance of audit committees.

Focusing on IA, the interaction with the AC makes information exchange and data availability easier (Raghunandan, 1998; Bishop, 2000; Walker, 2004; Mat Zain., 2006). The AC monitoring of IA could also help identify problems in IA itself and offer opportunities for improvement.

The audit committee is expected to monitor banks risk, the integrity of the bank's financial statements and internal controls, the qualifications and independence of the bank's independent auditor, the performance of both the bank's internal audit function and its independent auditor, and the bank's compliance with laws and regulations. In this resource guide, we provide audit committee members with important information to help them understand their role and responsibilities as they navigate the governance landscape and perform their duties. We also provide helpful tools, including examples of an audit committee charter, an audit committee report, a financial expertise questionnaire, a meeting planner and a self-assessment tool for audit committees. In addition, the Questions section includes a variety of inquiries you can make of management, internal audit professionals or the independent auditors on selected topics and performance.

### **2.3 Commercial Banks in Libya**

Commercial banks are the earlier banking institutions that have been established in Libya since the beginning of the 19th century. However, these banks were established by foreign countries such as Italy and Britain without any establishment for the Libyan owned banks at that time. For example, the Banco di Roma was established in 1907, the Bank of Napoli, the Bank of Italy and the Banco di Sicilia in 1913 and the Barclays Bank in 1943. In 1963 most of these banks became Libyan joint-stock companies that were owned by the Libyan government or the Libyan people with at least 51% in accordance with the law No.4 of 1963 that aimed to organize and build the Libyan banking system (Central Bank of Libya, 2006). For instance, the Banco di Roma became the Umma Bank, the Banco di Sicilia became the Sahara Bank and the Barclays Bank eventually became the Gumhouria Bank. Later in 1970, the Banking Law No.153 of 1970 passed for nationalizing all banks in Libya to be owned completely by Libyan public and private sectors (Central Bank of Libya, 2006).

## 2.4 Conceptual Framework and Hypothesis Development

The research framework uses in this thesis. (Arena, & Azzone, 2009) Model, three independent factors. Competencies of internal audit teams, Activities of IA in risk management and the interaction between internal auditors and audit committees are identified as having an impact on the internal audit effectiveness, which is the dependent variable.

In this study, the Arena and Azzone 2009 model for measuring internal audit effectiveness in Libya commercial banks has been adopted for a couple of reasons. Firstly, as compared to the other models discussed earlier, this model is more suitable as it is most current and it also extends the traditional approach of internal auditing to include effective management support activities. Secondly it recognizes the fact that individuals may sometimes have interests which are different from organization goals, and this causes conflicts of interests among the concerned parties. Finally, the model also recognizes agency problems arising from agency relationships in the organization.

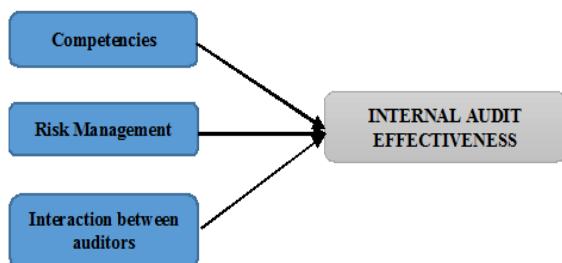


Figure 2: The framework model (Arena, M & Azzone, G, 2009)

- **Hypothesis (1):** Competencies of an internal Audit team has a positive impact on internal audit effectiveness in Libyan commercial banks.
- **Hypothesis (2):** Activities of IA in risk management has a positive impact with internal audit effectiveness in Libyan commercial banks.
- **Hypothesis (3):** The interaction between internal auditors and audit committees has a positive impact on internal audit effectiveness in Libyan commercial banks.

## 3 Research Method

### 3.1 Type of Research

This study employs a quantitative research paradigm to enable understanding as to whether the internal audit function is perceived to be effective. It is worth mentioning here that this study is concerned with the profession of internal auditing. However, organization type characteristics were not used for the basis of analysis in this study as they were outside the scope of the research question. The selection of the three types of enterprises merely ensured the presence of internal audit practice.



### 3.2 Population and Sample

Populations in this research are the employees of the Libyan commercial banks. The workforce encompasses 520 Auditor. Bless, Higson-Smith and Sithole (2013) defined population as the complete set of events, people or things to which the research findings are to be applied. In this study, the research population constituted of heads of departments, supervisors and workers. To successfully conduct the research, proportionate random sampling procedure was used. Proportionate random sampling, according to Babbie (2013), is a modification of random sampling in which you divide the whole population into two or more strata based on one or more attributes. In this study, the participants were divided according to departments (i.e. Heads of departments, superiors and employees).

To ensure that samples adequately represent the relevant strata, 120 respondents were randomly selected from all internal auditing department. When choosing a sample, there are two important issues have considered: will the sample be representative of the population, and will the sample be precise.

Table 1: Sample of Commercial Banks and its branches

banks	Number of Branches	Population of Auditor	Number of Sample
National Commercial Bank	56	52	16
Wehdah Bank	76	89	28
Sahara Bank	41	23	7
Jamhoria Bank	107	221	69
total	280	520	120

Sample size of this research was selected as a total of 120 auditors of population. Sample was almost 23% of population.

### 3.3 Variables of Research

The research variables were used in this study consist of dependent variables audit process, the quality of the audit report and the scope of work. On the other hand, to measure the impact of internal audit, this research considered the competencies of an internal audit team, risk management and interaction between IA and AC as independent variables while internal audit effectiveness as dependent variables. An operational definition is measurement of a variable and for assigning a value of the case for the variable. Research variables and operational definitions are being explained in Table

2.

Questions of this table are explained in the next paragraphs of this article.

### 3.4 Data Collection

Data collection technique is intended to obtain materials that are relevant, accurate and reliable. Method of data collection in this research used two ways: primary data collected by survey and investigation.

This research study is going carried out through structured questionnaires survey administered to different respondents in commercial banks in Libya.

Table 2: Research variables and operational definitions

N O	Variables	Indicators	Items
1	Internal audit effectiveness (Y)	audit process the quality of the audit report scope of work	See Q (1)
2	Competencies of an Internal Audit team (X1)	indicators that personal quality, general knowledge, and expertise	See Q (2)
3	Risk management (X2)	Identifying risk management Implementation of IA recommendations Assessing and testing risk management	See Q (3)
4	Interaction between IA and AC (X3)	Communication between IA and AC Evaluating audit plant Determining objectives	See Q (4)

Survey is most preferred techniques because it provides more generalized outcomes of the population area unlike other methods such as case studies (Beelde, 2006) and therefore more generalized conclusions can be drawn from surveys. Further it would be cost effective and saves both respondents' and researchers' time as the questions are short in nature and require almost no prolonged explanations unless warranted.

### 3.5 Data Analysis Techniques

Data analysis technique is an attempt to find the answer of the research hypothesis. There are two methods of data analysis used in this research.

#### 3.5.1 Descriptive Statistical Analyses

Descriptive statistical analysis aimed to give a description of data that used in the research. Descriptive statistical analysis in this research described the data for each indicator that used to measure latent variables. In this part, the data will be described in terms of minimum value and the maximum value in table.

Descriptive statistical analysis of Internal audit effectiveness, Competencies of an Internal Audit team, Internal Auditors in risk management, interaction between IA and AC will be descriptive.

### **3.5.2 Inferential Statistical Analyses**

This part includes explanations about the impact of Resources and Competencies of an Internal Audit team, Processes and Activities: Involvement of Internal Auditors in risk management and interaction between IA and AC on Internal audit effectiveness.

- a. Impact of Competencies of an Internal Audit team on internal audit effectiveness.
- b. Impact of Processes and Activities: Involvement of Internal Auditors in risk management on internal audit effectiveness.
- c. Impact of Organizational role: level of interaction between IA and AC on Internal audit effectiveness.

### **3.5.3 Data Analysis Methods**

According to (Malhotra, 2010), multiple regression involves a dependent variable and two or more independent variables. If a dependent variable depends on more than one independent variable, then the relationship between two variables is called multiple regression. The formulation of multiple linear regression analysis model that can be used is as follows

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + \dots + b_n X_n + e \quad (1)$$

Which: Y = dependent variables  
a = constant number as an intersection  
b = coefficient regression  
X = dependent variable  
e = error term

Unit from each variables still difference, it is need to equated first by using standardized beta, then no constant (Gujarati, 2006). It means, because this research use questionnaire, the answer of respondent are different and it has not same unit, by this case need to equate by use standardized beta. Multiple regress equation that used in this research is:

$$Y_1 = b_1 X_1 + b_2 X_2 + b_3 X_3 + e \quad (2)$$

Which:  
Y = variables of Internal audit effectiveness  
b = coefficient regression  
X<sub>1</sub> = variable of Competencies  
X<sub>2</sub> = variable of risk management  
X<sub>3</sub> = variable of interaction between IA and AC  
e = error term

Model above able to be used then to predict the influences between independent variable toward dependent variable that looks at standardized coefficient ( $\beta$ ) each independent variable.

**4    Research Results And Discussion**

**4.1    Respondents Characteristic**

The result of questionnaire which are collected from 105 auditors as respondents, we have the representation of respondents characteristic based on the experience and gender of the respondents as elaborate bellow:

Table 3: Demographic of Sample

N o.	Experience	Total Respondents (seniority)	Percent experien ce ( % )
1	Less than 5 years	17	16%
2	5 to 10 years	47	45%
3	11 to 20 years	28	27%
4	More than 20 years	13	12%
Total		105	100%
1	Male	79	75%
2	Female	26	25%
Total		105	100%

**4.2    Descriptions of Variable**

Table 4 below, the definition of number (score) 5,4,3,2, and 1 present as follows:

- 5            : Strongly agree
- 4            : Agree
- 3            : Doubtful
- 2.          : Disagree
- 1            : Strongly disagree

Competencies of an Internal Audit team were measured by three main indicators, namely personal quality, general knowledge, and expertise. Based on validity and reliability test, all indicators were valid and reliable to measure Competencies of an Internal Audit team. According to table 4 the indicators were clearly described. The Total Mean of participant’s opinion of Competencies of an Internal Audit team was 4.12 of 5. This result showed high and positive Competencies of an Internal Audit team in the company.

Risk management was measured by three main indicators, namely Identifying risk management, Implementation of IA recommendations, Assessing and testing risk management. According to table 4 the indicators were clearly described. The Total Mean of participant’s opinion of Risk management was 4, 13 of 5. This result showed a high and positive Risk management.

Interaction between IA and AC was measured by three main indicators, namely Communication between IA and AC, Evaluating audit plant, determining objectives.

According to table 5 the indicators were clearly described. The Total Mean of participant's opinion of Interaction between IA and AC was 4.13 of 5. This result showed a high and positive Interaction between IA and AC.

Table 4 Descriptive Statistics of Variables

Resp.	1	2	3	4	5
No. X1	0	3	230	1067	437
Per. X1	0%	0.1%	13%	61%	25 %
No. X2	0	2	170	938	360
Per. X2	0%	0.1%	11.5%	63.8%	24.5%
No. X3	0	0	160	879	321
Per. X3	0.1%	1.4%	11.8%	62%	22.6%
No. Y	0	4	165	561	300
Per. Y	0%	0.4%	16%	54.5%	29 %

### 4.3 Multiple Linear Regression

Linier Regression use to calculate the influence of each independent variable, Competencies of an Internal Audit team( $X_1$ ), Risk management ( $X_2$ ), Interaction between IA and AC ( $X_3$ ) to the dependent variable which is internal audit effectiveness( $Y$ ).

Regression equation is funtionate to find the relation between dependent and independent variable by using SPSS for Windowsver 13.00. The regression model is presented in Table 5:

According to Table 5 we obtain the regression equation as follows:

$$Y = 0,723 + 0,159 X_1 + 0,308X_2 + 0,249X_3 \quad (3)$$

- Internal audit effectiveness will increase about 0,159 for every one unit addition  $X_1$  (Competencies of an Internal Audit team). So if, Competencies of an Internal Audit team has 1 unit increasing, then maka Internal audit effectiveness will increase 0,159 unit with the assumption that another variable is considered as constant.

Table 5: Regression Equation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.723	3.329		.217	.829
	X1	.159	.079	.224	2.008	.047
	X2	.308	.087	.353	3.542	.001
	X3	.249	.105	.269	2.375	.019

- Internal audit effectiveness will increase 0.308 unit for every one unit addition of  $X_2$  (Risk management), so if Risk management increase 1 unit, then Internal audit

effectiveness will increase 0.308 unit with the assumption that another variable is considered as constant.

- Internal audit effectiveness will increase 0,249 unit for every one unit addition of  $X_3$  (Interaction between IA and AC ), so if Risk management increase 1 unit, then Internal audit effectiveness will increase 0,249 unit with the assumption that another variable is considered as constant.

**4.4 Determination coefficient ( $R^2$ )**

To obtain the contribution of independent variables (Competencies of an Internal Audit team ( $X_1$ ), Risk management ( $X_2$ ), and Interaction between IA and AC ( $X_3$ ) toward dependent variable (Internal audit effectiveness) we can use  $R^2$  value as presented in the Table 6 below:

Table 6: Coefficient of correlation and determination

Model	R	R Square	Adjusted R Square
1	.775	.601	.589

Coefficient of determination is used to calculate the influence or contribution of independent variable toward dependent variable. From analysis of Table 6 we have gotn the result of adjusted  $R^2$  ( the coefficient of determination) is 0,589. Means that 58,9% Internal audit effectiveness variable will be influenced by another independent variable which are: Competencies of an Internal Audit team ( $X_1$ ), Risk management ( $X_2$ ), and Interaction between IA and AC ( $X_3$ ). Whereas another 41,1% of Internal audit effectiveness variable will be influenced by another variable undscribe in this research.

**4.5 Validity and Reliability Test**

Validity test can be done by correlating every single factors or variables to the total factors by using product moment correlation ( $r$ ). Criteria of the test whether to accept or reject the hypothesis validity can be done by:

$H_0$ :  $r = 0$ , there is no valid data on the level of trust ( $\alpha$ ) 5%.

$H$  :  $r \neq 0$ , there is valid data on the level of trust ( $\alpha$ ) 5%.

Hypothesis no l ( $H_0$ ) is accepted if  $r_{test} < r_{table}$ , and vise versa the alternative hypothesis alternatif ( $H_1$ ) is accepted if  $r_{test} > r_{table}$ .

The validity test done by using SPSS ver. 22.0 program, employ product moment correlation which resulting value of each question items with a thorough score item of questions as presented in the table 7 below:

Instrument can reliable if it has reliability more than 0,6 ( $\alpha > 0,6$ ) (Malhotra, 2010).

Table 7: Validity and Reliability Test

No.	Variable	r Test	alpha cronbach	Notes
1	X1	0.777	0,891	Reliable & Valid
2	X2	0.685	0,939	Reliable & Valid
3	X3	0.721	0,940	Reliable & Valid
4	Y	0.751	0,882	Reliable & Valid

If alpha score smaller than 0,6 the instrument is not reliable. decision making criteria is consider if the value of reliability alpha coefficient higher than 0,6 so that the variable is reliable.

#### 4.6 Hypothesis Test

According to table 5, t test use to obtain if independent variable partially has a significant influence toward dependent variable. Then it also said, t test > t Table or - t test < t Table then the result is significant so reject  $H_0$  rejected and accept  $H_1$ . If t count < t Table or - t test > -t test then the result is not significant so accept  $H_0$  and reject  $H_1$  rejected. T test result presented inTable 5.

- t test between  $X_1$  (Competencies of an Internal Audit team) and Y (Internal audit effectiveness) indicates t test = 2,008. While t Table ( $\alpha = 0.05$  ; db residual =101) is 1,984. Because t test > t Table that is 3,244 > 1,984 or sig t (0,047) <  $\alpha = 0.05$  then influence of  $X_1$  (Competencies of an Internal Audit team) toward Internal audit effectivenessis significant. Means, reject  $H_0$  and accept  $H_1$ . In short, Internal audit effectivenesscan be influenced significantly by Competencies of an Internal Audit team or by increasing Competencies of an Internal Audit team then Internal audit effectiveness will significantly increase.
- t test between  $X_2$  (Risk management) and Y (Internal audit effectiveness) indicates t count = 3,542. While t Table ( $\alpha = 0.05$  ; db residual = 101) is 1,984. Because t test > t Table is 3,542 > 1,984 or sig t (0,001) <  $\alpha = 0.05$  then the influence of  $X_2$  (Risk management) to Internal audit effectivenessis significant with alpha 5%. It means  $H_0$  is rejected and  $H_1$  is accepted. In short, Internal audit effectiveness can be influenced significantly by Risk management or by increasing Risk management then Internal audit effectiveness will significantly increase.
- t test between  $X_3$  (Interaction between IA and AC) and Y (Internal audit effectiveness) indicates t count = 2,375. While t Table ( $\alpha = 0.05$  ; db residual = 101) is 1,984. Because t test > t Table is 2,375 > 1,984 or sig t (0,019) <  $\alpha = 0.05$  So the influence of  $X_3$  (Interaction between IA and AC) to Internal audit effectivenessis significant in alpha of 5%. This means, reject  $H_0$  and accept  $H_1$ . In short, Internal audit effectivenesscan be influenced significantly by the Interaction between IA and AC or by increasing the Interaction between IA and AC so that Internal audit effectiveness will increase significantly.

#### 4.7 Discussion

The aim of this research is to test and analyze the research questions, and based on hypothesis tested and findings in this research revealed that has a positive impact on internal audit effectiveness in Libyan commercial banks, the results of this research, the

descriptive statistical analysis for Competencies of an Internal Audit team, Risk management, and Interaction between IA and AC were determined as following:

#### **4.6.1 The Impact of Competencies of an Internal Audit team on internal audit effectiveness**

The analysis showed that impact of competences on internal audit effectiveness considered by Libby and Frederick (1990) indicate that experience is an important tool in enhancing auditors 'knowledge. On the research result that general knowledge has a positive impact on internal audit so that mean all the auditing whereas working in Libyan banks has a good knowledge, however all the auditor has an understanding of and ability to contribute to the range of services internal audit can provide it realed by Libby and Fredrick. In addition, Bonner and Lewis (1990) state that years of experience is considered as an indicator of auditors 'knowledge and expertise, in table (5.2) most of the participants had longer experience, they have an understanding of how to work within and apply the bank internal audit standards and have extensive experience and knowledge, which is used to guide and focus the work of the internal audit unit. Internal auditors require a wide range of competencies to achieve satisfactory performance in the various hierarchical positions within internal audit departments.

According to Agency theory Internal auditors as agents must perform audit processes at the personal quality, general knowledge, and expertise and other competencies needed to perform their responsibilities perfectly based on the result it can be concluded that there is a higher positive impact of agent (competences) on the principals (internal audit effectiveness).

#### **4.6.2 The Impact of Risk Management on Internal Audit Effectiveness**

This view showed the analysing of the testing result of risk management of internal auditors as one factor which may impact on IA effectiveness. While the indicators used in this research for measurement of risk management in this research was described by three indicators. These indicators are Identifying risk management, Implementation of IA recommendations and Assessing and testing risk management and this variable has gotten the higher positive impact on internal audit effectiveness.

According to Whitfield, 2004, that the identifying risk management also faces significant regulation and have been strongly encouraged to adopt ERM. On the result this indicator has a positive impact on internal audit effectiveness. The analysis showed that all the auditors in Libyan commercial banks have identified and understand how operational objectives link into the higher-level objectives and have knowledge and experience of appropriate methods of managing common risks. Whereas Whitfield said that the higher education community is not unlike the business world regarding risks it faces, and institution wide risk management makes good business sense for institutions of higher learning, as well as on this part the auditors have wide experience of suitable controls to manage risks in a variety of relevant environments, also they are understanding the banks high-level objectives, how these are funded and key related risks. Here where the impact showed in higher position.



#### **4.6.3 The Impact of Interaction between IA and AC on Internal Audit Effectiveness**

Based on the result testing were the interaction between IA and AC has a positive impact on internal audit effectiveness. Interaction between IA and AC described by three indicators as well. These indicators are Communication between IA and AC, Evaluating audit plan and Determining objectives. Where all these indicators measurement the hypothesis of interactions between auditors in Libyan commercial banks.

According to Raghunandan and Bishop, Focusing on IA, the interaction with the AC makes information exchange and data availability easier and Communication between IA and AC. These studies support my research. On this research analysed data were all the auditors have ability to gift audit reports and findings to the Audit Committee and have provides once needed displays to external parties on the work of internal audit. Linked with Raghunandan and Bishop researcher . on the other way all the auditor works in Libya commercial banks Understanding the employment of key outline coverage procedures, together with activity reports to the audit committee, performance management statistics, and annual reports, however the source of advice for team members, gains their respect, is approachable and accessible to them.

## **5 Conclusion**

For The research was conducted to find out which variables that has the influence toward Internal audit effectiveness. Impact of Competencies of an Internal Audit team, Risk management, and Interaction between IA and AC on Internal audit effectiveness.

Regarding to the analysis of multiple linear regression, we can conclude :

1. Competencies have high and positive impact on internal audit. This high impact related to the expertise and high performance of the internal audit team, the knowledge of the internal auditors have positive impact on determining the competencies of the internal auditor. Competencies were described by personal quality, general knowledge, and expertise. These indicators of competencies has a positive and indirect impact on internal audit effectiveness.
2. Risk Management has higher and more positive impact than the other two variables on internal audit effectiveness. Risk management was described by three indicators. These indicator are Identifying risk management, Implementation of IA recommendations and Assessing and testing risk management, where these indicators have a positive impact on internal audit effectiveness.
3. Interaction between IA and AC have high and positive impact and influence on internal audit effectiveness. Interaction was measured by three main indicators, namely Communication between IA and AC, Evaluating audit plan, determining objectives. These indicators have positive impact on internal audit effectiveness as well.

## **6 Recommendation**

Build upon the summary above, the recommended which can be pointed for the benefit of the commercial banks or even for another party as follows:

1. Competencies of the internal auditor department who are working in Libyan commercial bank and its branches were suitable and effective. But, I suggest that if possible they can implement a new system similar to the developed countries. They got the competencies, but they didn't have new system. It's very important that they update this system to be more effective.
2. The Libyan commercial bank is expected to be able to keep up and raise the quality of Risk management, because it has a dominant influence in affecting the Internal audit effectiveness, for instance banks . Thus will raise the Internal audit effectiveness. So my suggestion is to keep the same way and give more support to the internal auditors.
3. According to Interaction between IA and AC of the internal audit effectiveness, there was a good interaction between both of IA and AC. More surveillance for the system of commercial bank is recommended.

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