

Important of Competitiveness of Jordanian External Auditor and the Factors Affecting It Working in IT environment

Dr.Reem Oqab Al- Khasawneh
Medoheart2000@yahoo.com الرئيسي
dr.reemokab@bau.edu.jo
ORCID iD 0000-0002-1144-7559
الهاتف : 0779933220

Abstract

The study aims to identify the factors that affect the competitiveness of Jordanian external auditors working in the information technology (IT) environment. In addition, it has identified to which extent the auditor is aware of the concept and the importance of competitiveness in the information technology environment. It has also touched upon the most important factors affecting the competitiveness of the audit process conducted in an information technology environment. To achieve the purposes of the study, the researcher has used a descriptive method in which literature of audit has been reviewed; furthermore, a questionnaire has been designed and distributed to a group of auditors in Jordan. The study has found that Jordanian auditors are highly aware of the concept and importance of competitiveness of audit offices working in an information technology environment. In addition, the study has indicated that there are a set of factors that affect the competitiveness of auditors; these factors are as follows: using information technology in audit services, audit fees, and professional performance quality as well as professional specialization of auditor in electronic systems plus internal control in IT environment and adherence to the regulations and instructions related to information technology governance in an information technology environment

Keywords: Competitiveness of Auditor, Professional Performance quality, Audit Fees, Professional Specialization, Audit Offices in Jordan.

DOI: 10.7176/RJFA/13-6-03

Publication date: March 31st 2022

Introduction

Audit profession has entered new stage of its developments in light of its great development and rapid growth of using information technology in processing and providing services through e-sites and applications; In addition, companies currently seek to use and apply electronic disclosure. Audit profession is gaining a great importance nowadays since electronic processing environment is complicated and risks related to data processing and storage are diverse; furthermore, auditor shall ensure that data processed is integral and correct; electronic systems shall be examined and their reliability and correct processing shall be ensured. Thus, some audit offices has tended to develop audit means and methods in terms of the use of information technology in audit process; they also seeks to computerize all audit processes performed; in addition, these offices pay greatly attention to develop mental and practical IT capabilities of employees working in audit field. Moreover, services provided by the auditor have been developed in order to include consulting services of field of creating and developing electronic systems as well as internal control systems.

Accordingly, such modern and advance environment has imposed a great competition among audit office. The auditor, therefore, has faced the challenge of achieving the excellence and distinction of services he/she provide; in such case, the auditor attempts to influence the demand for his/her audit services and aims to attract new clients as well as maintain the current clients; to achieve these attempts and goals, the auditor shall develop the skills and methods used in audit processes in a manner that meets client needs and desires and attract the client to continuously work with audit office. As a result, it is noticed that the competition plays an important and effective role in developing auditor performance in information technology environment. Consequently, this study has touched upon the most important factors affecting the competitiveness of Jordanian external auditor; these factors include professional performance and competence of external auditor working in IT environment and the use of informational technology techniques in audit processes as well as professional specialization of audit office, audit fees and providing consulting services related to electronic systems.

In addition, the study aims at analysing the above mentioned factors which affect external auditor's competitiveness in information technology environment; it also identifies to which extent the professional specialization of audit office plays a role in achieving external auditor's competitiveness in information technology environment.

Since audit profession plays an important role in supporting national economy and contributes to the establishment of reliability of financial statements published in financial markets, thereby achieving a growth of financial markets, this study is considered important. In addition, the study outlines the most important

requirements of competitiveness which contributes to the improvement of audit profession and achievement of the highest levels of professional performance in information technology environment.

Competitiveness of accounting and audit fields contributes to the development of profession and reduction of the risks related to information technology audit; it also reduces the responsibilities which auditor may expose to due to the diversity of risks and a lack of clarity of responsibilities of auditor working in information technology environment. Thus, the study examines the most important factors affecting the competitiveness of external auditor in IT environment and answers the following questions:

- Is Jordanian external auditor aware of the competitiveness in information technology environment?
- What are the factors affecting the competitiveness of Jordanian audit offices in information technology environment?
- Does the competitiveness in IT environment contribute to the achievement of advantages Jordanian audit offices?

Theoretical Framework

Concept of competitiveness of external auditor in information technology environment:

Competitiveness refers to a certain feature or a set of characteristics the organization possesses; and these characteristics make the organization distinguished and strong among other; a real challenge, which any organization may face, does not produce or provide the products but it is the ability to meet continuously the changing needs and desires of customers. Regarding audit field, Okab, 2013's study indicated that competitiveness advantages represent the ability of audit offices to provide audit and assurance services, using information technology in according to organizational and legal requirements and the changes of business and information technology techniques. In addition, politics, businessmen and economists discuss widely the competitiveness, using various methodologies and manners; this clearly appear due to the differences of the exact meaning of competitiveness concept; the main source of these difference is the multiple opinions on the possibility of finding the methods which measure the competitiveness. For example, in economy, the competitiveness is viewed at a level of economy as a whole whereas businessmen view the competitiveness at a level of business organisations. The researcher believed that if the competitiveness is achieved at a level of business organizations, its level of macroeconomic will be high. Here, definitions of competitiveness concept can be shown as follows:

Najm (1998) defined the competitiveness as 'a set of skills, techniques, resources and advantages which the management can coordinate and invest in order to create greater values and benefits for the client and to be distinguished among the other competitors'. Aqel (2006) defined it as 'the ability to achieve continuously the profits and acquire an appropriate market share'. Edris & Al-Galbi (2011) defined it as 'the ability to provide the customers with products and services which are more effective and efficient than other; this means that the company achieve a continuous success in the international market in the light of a lack of governmental support and protection. However, this can only be achieved by raising the productivity of production factors – labor, capital and technology- employed in production process.

In audit field, Al-Beraial & Rickards (2011) defined the competitiveness concept as 'ability of external auditor to perform accounting services at a high level of quality and at a right price in order to meet the desires of customers more efficiently than the other auditors. In addition, the researchers believed that the competitiveness in IT environment represents the possession of auditor of a set of practical and scientific skills required for audit, his/her ability to deal with information technology in the firms subject to audit and to use information technology in the process of providing audit services, as well as his /her ability to provide modern service in information technology field such as providing the clients of audit offices with consultations related to electronic systems and internal control systems' design, development and purchase in addition to his / her ability to have the professional specialization of information technology field, i.e certified information systems auditor or existing of a group of specialists of electronic systems in audit office.

First hypothesis

Jordanian auditor is aware of the concept of competitiveness in information technology and communication technology

Importance of competitiveness of external auditor in IT environment

Competitiveness is important since it is considered a tool which creates a competitive environment and contributes to more efficient allocation and use of resources; this results in the following:

- **Improvement and diversity of audit services:** IT environment has imposed on the auditor a necessity of developing audit services in order to be appropriate for technical development of business units. For example, audit offices provide non -audit services such as designing and participating in developing electronic systems; in addition, auditors may be consulted regarding a purchase of electronic accounting systems and internal control systems.

- **Audit client satisfaction:** client desires and expectations of audit process conducted in IT environment shall be examined.
- **External Auditor's Competitiveness :** competitiveness of external auditor in IT environment contributes to a reduction of audit risks, particularly electronic system risks. In addition, factors related to the competitiveness increases the efficiency of audit process. For example, if audit process is conducted by an auditor who is aware of electronic systems and fields of manipulation and penetration, audit risks will reduce. Furthermore, using information technology in audit process contributes to the reduction or prevention of these risks.
- **Competitiveness' factors:** competitiveness' factors contribute to the improvement of professional performance level of auditor working in information technology environment; they also contribute to the reduction of the costs of audit services through using electronic systems in audit processes. Thus, the auditor can determine appropriate and preferential fee of audit, thereby obtaining a large market share and high profitability.

Second Hypothesis

Jordanian auditor is aware of the importance of competitiveness in audit field in information and communication technology environment.

Factors affecting the competitiveness of auditor in information technology environment:

The competitiveness in audit field is one of complicated subjects; the auditor shall adhere to the principles and rules organizing the professional performance; in addition, he/she shall maintain the ethics and behaviours of profession in order to maintain the current clients and attract new clients in information technology environment. Furthermore, the competitiveness is related to the process of providing the most distinguished services with high quality and professionalism. Accordingly, the researcher has believed that there are various factors affecting the competitiveness of external auditor in information technology environment; and they can be summarized as follows:

- **The use and application of information technology in audit processes:** using information technology in audit services is considered one of the necessary requirements through which external auditor achieve a competitive advantage; the auditor can use information technology in planning the audit process and developing audit programs; he/she also can use software specialized in audit, expert systems and in order to perform audit process and decision support systems in order to perform audit tasks such as identification of financial level and assessment of internal control systems. Accordingly, using information technology in audit services contributes to the achievement of high efficiency and quality of providing audit services. Consequently, competitive advantage can be achieved and a large market share can be obtained. Using electronic systems in audit (Al-Samadi 2007) is a challenge; the auditor, therefore, shall be aware of using these systems.
- **Audit fees :** information technology is of the factors affecting audit fees; the impact of information technology on audit fees has two directions: the first is that using information technology in the company subjected to audit process imposes on the auditor the necessity of developing the performance through increasing the professional efficiency and knowledge of information technology fields and the use of electronic techniques (Al-kasswina 2012). In this direction, a new high cost may appear and so the audit incur it; the second direction is that using information technology contributes to the reduction of audit cost through availability of specialized software of audit and expert systems in addition to decision support system which can be used in performing audit processes. Audit fees is one of the factors affection the competitiveness; providing audit services through electronic systems contributes to the reduction of the time required for performing audit processes as well as the reduction of auditors' wages in addition to the possibility of performing more than one audit task due to the use of electronic systems; in addition, using information technology may increase the level of efficiency and professionalism of providing and performing audit services. Accordingly, all advantage of using electronic systems mentioned above contribute to the reduction of audit fees paid to the auditor while the level of professional performance is maintained and the market share increases.
- **Diversification of services (creating new professional services):** Due to the technical development of companies subjected to audit process, and investments of information technology including data processing or providing services through electronic sites or the use of Robot in production processes, the auditor found that creating new professional services become a necessity. As a result, the auditor may provide some companies with consultation services related to the development and purchase of accounting and controlling systems; for example, in Jordan, external auditor shall prepare a report on the effectiveness and efficiency of electric internal control systems which must be submitted to the Central bank. Thus, it is a new role played by the auditor; in addition, if the auditor has the capabilities and skills required for providing these services are available, he/she will possess the competitive

ability.

- **Professional specialization of external auditor working in information technology environment:** professional specialization is a new and important requirement of audit profession; it becomes a necessity in audit profession which has developed due to various developments such as information technology. Certified information systems audit certification, therefore, has appeared; it indicated that the auditor is also specialized in electronic systems as well as protection and confidentiality systems. Professional specialization is very important since it contributes to the improvement of professional work and it also reduces the risks related to audit process or information technology. Thus, auditor who has appropriate professional specialization in information technology contributes to the achievement of competitive advantage, thereby increasing the market share. In addition, audit office may employ a team of specialists of information technology and electronic systems who also contribute to the achievement of competitive advantage and the increase of share market.
- **Quality of professional performance of external auditor in information technology environment:** providing audit services with high level of accuracy and quality is what distinguishes the external auditor; and achieving the professionalism of audit process becomes a necessity because it is considered one of factors of competitive ability and attracts the clients in the light of the need for an audited accounting information in the financial markets.
Audit profession witnesses a strong competition due to the increase of number of the auditors practicing it. And professional performance of providing audit services through using information technology and modern techniques is one of factors support the competitive strength of auditor and it attracts strongly new clients and maintain the current clients; in addition, professional performance increases the profitability of audit office and make it distinguished and unique in the market; consequently, market share of audit office increases.
- **Size of audit office:** audit processes conducted in IT environment require knowledge and technical requirements in order to provide efficiently and effectively audit services. Accordingly, an appropriate capital shall be available in order to establish audit office which can compete national and foreign audit offices in the light of modern technical conditions of accounting works.

Third Hypothesis

There are various factors affecting the competitiveness of audit offices working in information and communication technology environment in the Hashemite kingdom of Jordan.

3. Field Study

3.1 Methodology of Data Collection

In order to collect the data, a questionnaire has been designed; its statements have touched upon the role of expert systems in developing auditor's performance and improving audit service quality. In addition, five-likert scale has been used in order to test the hypotheses of study. Each of the five responses has a numerical value as follows: 5- strongly agree, 4- agree, 3- neutral, 2 - disagree and 1 - strongly disagree.

In order to analyse the data, ranges have been used as follows: 1-1.79 indicates that sample of study does not agree with the factors affecting the competitiveness of audit; 1.8 - 2.59 indicates that sample of study agrees slightly with the factors affecting the competitiveness of audit; 2.60 - 3.30 indicates that sample of study agree moderately with the factors affecting the competitiveness of audit; 3.40 - 4.19 indicates that sample of study agree strongly with the factors affecting the competitiveness of audit; finally, 4.20 - 5 indicates that sample of study agree very strongly with the factors affecting the competitiveness of audit. Furthermore, respondents' responses have been analysed by using statistical package for social sciences (SPSS).

3.2 Population and Sample of Study

Population of Study consists of audit offices; 70 questionnaires have been distributed to various audit offices located in Irbid and Amman; 65 questionnaires have been retrieved; however, 60 questionnaires have been valid for statistical analysis.

Reliability of study's tool

In order to ensure reliability of study's tool, internal consistency (Cronbach's alpha) coefficient has been calculated; and it has ranged from 0.84 to 0.84. Table 1 illustrates these coefficients; and there ratios have been considered appropriate for the purposes of this study.

Table 1
Internal Consistency Cronbach's alpha) Coefficients of Study Fields

Field	Internal Consistency
Awareness of the concept of competitiveness of audit among the auditors in information technology environment.	0.87
Importance of the competitiveness for auditor in information technology environment	0.87
The use of information technology in audit services and the achievement of competitiveness	0.88
Creating new services in audit offices and their role in achieving the competitiveness	0.89
Professional specialization and its role in achieving the competitiveness in information and communication technology environment	0.88
Quality of professional performance of the auditor and its role in achieving the competitiveness	0.90
The degree of adhering to the instructions and rules of governance of information technology and competitiveness	0.89

Demographic characteristics of respondent sample

Table 2 illustrates the demographic characteristics of respondent sample as follows:

Table 2
Demographic characteristics of respondent sample

Demographic characteristics		Frequency	Percentage
Services provided	In field of accounting and audit only	15	35
	Accounting, audit and tax consultations	40	67
	Accounting, audit and various consultations regarding accounting, internal controls and electronic systems	5	8
Type of ownership of audit office	Individual	40	67
	Individual partners	20	33
Professional certifications	Local JCPA	60	100
	CPA	10	17
	CICA Accounting information systems auditor	10	17
Use of information technology	Used in planning and supervising audit processes	60	100
	Used in audit	4	6
	Not used at all	-	-

Table 2 illustrates the following results:

First: Services provided

Table 2 indicates that 76% of respondent sample provide audit, accounting and tax consultations; and 8% of respondent sample provide the above mentioned services in addition to the consultations regarding electronic systems, internal control systems. In addition, these audit offices acquire audit processes of banks and big companies.

Second: Type of ownership of audit office

Table 2 indicates that ownership of audit offices in Jordan is sole proprietorship where its percentage has reached 67%. Accordingly, the competition among audit offices is intensive and strong.

Third: Professional Certifications

Table 2 indicates that 100 of respondents sample hold JCPA certification because this certification is an obligatory condition; a small percentage of respondents sample hold CPA certification and accounting information systems auditor certification.

Fourth : Use of information technology in audit

Table 2 shows that 100% of respondents use information technology system in planning and supervising tasks as well as following up client emails, and printing the reports and audit programs. In addition, table 2 also indicates that 6 % of respondents sample use information technology in audit task; it is considered a very low percentage in Jordan; audit sector does benefit from electronic techniques at all and does not witness any development in the field of using electronic systems in audit tasks. This is mostly attributed to the fact that a largest percentage of audit firms do not use complex electronic systems which require the use of electronic techniques.

Hypotheses Testing

First Hypothesis Testing

Jordanian auditor is aware of the concept of competitiveness in information and communication technology environment.

To test the validity of this hypothesis, arithmetic means and standard deviations of performing of study's sample regarding first hypothesis have been extracted; table 3 outlines them.

Table 3

Arithmetic means and standard deviations of performing of study's sample regarding first hypothesis

Statements	Arithmetic mean	Standard deviation	Response orientation
Competitiveness of audit process conducted in IT environment is expressed as follows:			
High quality services, which are compatible with the nature and complexity of electronic transactions, are provided	3.55	1.171	High
Services which are compatible with the nature of technical advancement such as e-site confirmation, protection and security services as well as data progressing and technical consultations are produced, (auditor has an ability to provide modern services in the field of information and communication technology such as consultations)	3.60	1.181	High
Desires and needs of the clients shall be satisfied in the light of using electronic systems	3.65	1.184	High
Audit fees shall be acceptable and appropriate to the clients	3.54	1.171	High
External auditor shall have practical and scientific skills which are appropriate for the development of electronic financial systems	3.57	1.189	High
Total	3.58	1.176	High

Table 3 shows arithmetic means and standard deviations of statements of first hypothesis; Arithmetic means have ranged between 3.55 – 3.65; the statement stated that the competitiveness means a satisfaction of clients' need and desires in the field of electronic systems has reached the highest arithmetic mean which is 3.65; and total arithmetic mean has reached 3.58. Sample study's responses agree highly that Jordanian auditor is aware of the concept of competitiveness in information and communication technology environment. Thus, response orientation has been high.

In addition, arithmetic mean of the statements which has formed first hypothesis has been compared with standard mark 3 - hypothesis acceptance standard- by using t-test as stated in table 4.

Table 4 Arithmetic Means, Standard Deviations and T-test of Statements which has formed the first hypothesis in comparison with Standard Mark 3

The extent of Jordanian auditor's awareness of fields and concept of competitiveness in information and communication technology environment	Arithmetic Mean	Standard Deviation	T-Value	Freedom Degree	Statistical Significance
	3.58	1.176	6.810	159	000.

Table 4 indicates that there are statistical differences at (≥ 0.05) between arithmetic mean and standard mark 3; T-value has been 6.810; statistical significance has been 0.000. Thus, this hypothesis stipulating that Jordanian auditor is aware of the concept of competitiveness in information and communication technology environment, has been accepted.

Second Hypothesis Testing

Jordanian auditor is aware of the importance of competitiveness in audit field in information and communication technology environment.

To test the validity of this hypothesis, arithmetic means and standard deviations of performing of study's sample regarding second hypothesis have been extracted; table 5 outlines them.

Table 5
Arithmetic means and standard deviations of performing of study's sample regarding second hypothesis

Statements	Arithmetic mean	Standard deviation	Response orientation
Competitiveness of auditor in IT environment may achieve the following advantages:			
The competitiveness provides a competitive environment and achieves a high efficiency of allocating and using the resources	3.70	1.300	High
External audit services shall be improved and developed in a manner that is compatible with technical development	3.75	1.342	High
Audit profession seeks to satisfy clients' desires and needs in the light of quick technical development of financial systems	3.76	1.345	High
Competitiveness contributes to the reduction of audit risks, especially information technology risks	3.62	1.238	High
Competitiveness contributes to the increase of professional performance level of auditor	3.62	1.238	High
Competitiveness contributes to the reduction of the costs of audit processes	3.71	1.300	High
Competitiveness helps the auditor obtain larger market share	3.70	1.300	High
Importance of competitiveness in audit services	3.69	1.510	High

Table 5 shows arithmetic means and standard deviations of statements of second hypothesis; Arithmetic means have ranged between 3.62 – 3.76; the statement, stated that audit profession seeks to satisfy clients' desires and needs in the light of quick technical development of financial systems, has reached the highest arithmetic mean which is 3.76; and total arithmetic mean has reached 3.69. And response orientation has been high.

In addition, arithmetic mean of the statements which has formed second hypothesis has been compared with standard mark 3 - hypothesis acceptance standard- by using t-test as stated in table 6.

Table 6 Arithmetic Means, Standard Deviations and T-test of Statements which has formed second hypothesis in comparison with Standard Mark 3

Electronic audit and audit strategy support in audit offices	Arithmetic Mean	Standard Deviation	T-Value	Freedom Degree	Statistical Significance
	3.69	1.510	5.790	159	000.

Table 6 indicates that there are statistical differences at (≥ 0.05) between arithmetic mean and standard mark 3; T-value has been 5.790; statistical significance has been 0.000. Thus, this hypothesis stipulating that Jordanian auditor is aware of the importance of competitiveness in audit field in information and communication technology environment, has been accepted.

Third Hypothesis Testing

There are various factors affecting the competitiveness of audit offices working in information and communication technology environment in the Hashemite kingdom of Jordan.

To test the validity of this hypothesis, arithmetic means and standard deviations of performing of study's sample regarding third hypothesis have been extracted; table 7 outlines them.

First factor: The use of information technology in audit services.

Second factor: Audit fees

Third factor: Diversification of services (creating new professional services)

Fourth factor: Professional specialization of electronic systems and internal controls

Fifth factor: Quality of professional performance of audit

Sixth factor : a degree of adherence to the instructions and rules of governance of information technology

Each factor has been tested separately; then, they have been tested as a whole as the following:

First factor : The use of information technology in audit services

Table below outlines the factor of the use of information and communication technology in achieving the competitiveness of external auditor; arithmetic means and standard deviations of performing of study's sample regarding third hypothesis have been extracted.

Table 7
Arithmetic means and standard deviations of performing of study’s sample regarding first factor: the use of information technology in audit services

Statements	Arithmetic mean	Standard deviation	Response orientation
The use of specialized software or information and communication technology in achieving the competitiveness in audit services contributes to the following :			
Reduction the cost of audit services	3.89	1.18	High
Provision of high quality and professional services	3.86	1.18	High
The speediness of providing audit services	3.86	1.17	High
The performance of audit services at low cost, thereby offering best price to the clients.	3.92	1.16	High
Reduction of risks related to audit processes	3.92	1.19	High
The use of information technology systems in performing audit tasks and processes	3.88	1.16	High
The impact of the factor of using information and communication technology in the competitiveness	3.89	1.17	High

Table 7 shows arithmetic means and standard deviations of statements of one of the factors affecting the use of information and communication technology in audit services; Arithmetic means have ranged between 3.88 – 3.90; and total arithmetic mean has reached 3.89. And response orientation has been high.

Second factor: Auditor fees

To test the validity of this hypothesis, arithmetic means and standard deviations of performing of study’s sample the statements regarding to the factor of auditor fees and its impact on the competitiveness have been extracted; table 8 outlines them

Table 8
Arithmetic means and standard deviations of performing of study’s sample regarding second field of third hypothesis: factor of audit fees

Statements	Arithmetic mean	Standard deviation	Response orientation
Using of modern techniques and mechanisms in IT environment contributes to the reduction of audit cost, thereby making audit fees appropriate and achieving the competitiveness.	3.90	1.17	High
a specialized knowledge of information technology which the auditor has makes audit fees appropriate and contributes to achievement of the competitiveness	3.88	1.18	High
Availability of information technology departments contributes to the reduction of audit costs because the experts have not been employed for each audit task; thus, audit fees have been affected.	3.88	1.18	High
Factor of audit fees	73.8	1.17	High

Table 8 shows arithmetic means and standard deviations of statements of second factor- audit fees; Arithmetic means have ranged between 3.88- 3.90; And response orientation indicates that audit fees affect highly the competitiveness of auditor.

Third factor: Diversification of services (creating new professional services)

To test the validity of this field, arithmetic means and standard deviations of performing of study’s sample the statements regarding to the factor of diversification of services (creating new professional services) as one of the factors affecting the competitiveness of Jordanian external auditor have been extracted; table 8 outlines them

Table 9
Arithmetic means and standard deviations of performing of study's sample regarding third factor of third hypothesis: diversification of services (creating new professional services)

Statements	Arithmetic mean	Standard deviation	Response orientation
Technical development in the companies subjected to audit process contributes to the development of the services which the auditor can provide; and they may include the following:			
Assurance or trust services related to electronic sites	3.88	1.18	High
Consultations related to electronic systems	3.87	1.19	High
Participation in developing and modernize electronic systems	3.89	1.17	High
Evaluation of electronic accounting and controlling systems	3.88	1.19	High
Providing various services in the field of information technology which contribute to increase auditor's strength	3.88	1.17	High
Diversification of previous technical services and their low fees contribute to achieve clients' satisfaction, thereby maintaining them.	3.90	1.18	High
Services provided by the auditor in IT environment contributes to the achievement of new revenue which is an important part of office revenue.	3.87	1.19	High
Creating various new services is one of factors affecting the competitiveness of the auditor working in IT environment	3.88	1.18	High

Table 9 shows arithmetic means and standard deviations of statements of third factor- diversification of services (creating new professional services) in information and communication technology environment; Arithmetic means have ranged between 3.87 – 3.90; the statement stated that diversification of previous technical services and their low fees contribute to achieve clients' satisfaction, thereby maintaining them, has reached the highest arithmetic mean which is 3.90; and total arithmetic mean has reached 3.88. And response orientation has been high.

Fourth factor: Professional specialization of electronic systems and internal control

To test the validity of this field, arithmetic means and standard deviations of performing of study's sample the statements regarding to fourth factor: Professional specialization of electronic systems and internal control. ; table 10 outlines them

Table 10
Arithmetic means and standard deviations of performing of study's sample regarding fourth factor of third hypothesis: Professional specialization of electronic systems and internal control

Statements	Arithmetic mean	Standard deviation	Response orientation
Professional specialization of the auditor is one of the factors affecting the competitiveness of the auditor working in information technology environment.			
Professional specialization of audit office in the use of information technology is considered important in order to meet the needs of market.	3.90	1.16	High
Professional specialization of information technology is important in order to achieve the competitiveness of audit office	3.87	1.17	High
Professional specialization of information technology contributes to the continuity of audit office and the attraction of new clients in the light of great use of information technology in the companies subjected to audit processes	3.86	1.17	High
Professional specialization of the auditor contributes to the reduction of audit risks in IT environment	3.89	1.19	High
The professional specialization achieved by the presence of a specialized team or the auditors who hold CISA certifications contributes to the achievement of the competitive advantage and the increase of the market share.	3.86	1.16	High
The professional specialization affects the competitiveness of the auditor	3.88	1.17	High

Table 10 shows arithmetic means and standard deviations of statements of fourth factor- professional specialization of electronic systems and internal control; arithmetic means have ranged between 3.86- 3.90; the statement stated that professional specialization of audit office in the use of information technology is considered important in order to meet the needs of market, has reached the highest arithmetic mean which is 3.90; and total arithmetic mean has reached 3.88. And response orientation has been high.

Fifth factor: Quality of professional performance of audit

To test the validity of this field, arithmetic means and standard deviations of performing of study's sample the statements regarding to fifth factor : quality of professional performance of audit, have been extracted ; table 11 outlines them

Table 11

Arithmetic means and standard deviations of performing of study's sample regarding fifth factor of third hypothesis: quality of professional performance of audit

Statements	Arithmetic mean	Standard deviation	Response orientation
Quality of professional performance of the auditor working in IT environment is one of the factors affecting the competitiveness of the auditor			
Performing audit services with a high skill level contributes to the achievement of the competitiveness in IT environment	83.8	1.16	High
Providing audit services with high professional level contributes to the achievement of competitiveness	3.88	1.17	High
Availability of knowledge skill of information technology among the employees contributes to the achievement of competitive advantage	3.87	1.17	High
Availability of professional experience contributes to the achievement of the competitiveness	3.89	1.19	High
Quality of performing audit processes in IT environment contributes to the achievement of the competitiveness	3.86	1.16	High
Quality of professional performance affects the auditor's competitiveness	3.88	1.17	High

Table 11 shows arithmetic means and standard deviations of statements of fifth factor- quality of professional performance of audit; arithmetic means have ranged between 3.86 – 3.89; the statement, stated that availability of professional experience contributes to the achievement of the competitiveness, has reached the highest arithmetic mean which is 3.89; and total arithmetic mean has reached 3.88. Based on response orientation, respondents of study sample agree that quality of the professional performance is one of the factors affecting the competitiveness of Jordanian auditor; response orientation has been high.

Sixth factor: A degree of adherence to the instructions and rules of governance of information technology

To test the validity of this field, arithmetic means and standard deviations of performing of study's sample the statements regarding to sixth factor : a degree of adherence to the instructions and rules of governance of information technology as one of the factors affecting the competitiveness, have been extracted; table 12 outlines them

Table 12
Arithmetic means and standard deviations of performing of study's sample regarding sixth factor of third hypothesis: a degree of adherence to the instructions and rules of governance of information technology

Statements	Arithmetic mean	Standard deviation	Response orientation
adherence to the instructions and rules of governance of information technology is one of the factors affecting the competitiveness of the auditor working in formation technology environment			
A committee of information technology governance in the companies subjected to audit processes helps the concerned authorities ensure that the auditor has an appropriate competence and capacity of performing the audit processes	83.8	1.16	High
A committee of information technology governance in the companies subjected to audit processes helps the concerned authorities ensure that the auditor has an appropriate competence and capacity of performing correctly his /her tasks.	3.90	1.17	High
IT governance committee in the company subjected to audit process ensures that audit teams are IT audit specialists.	3.87	1.17	High
IT governance committee in the company subjected to audit process ensures that audit teams include internationally accredited professional stuffs.	3.89	1.19	High
IT governance committee in the company subjected to audit process ensures that the auditor adheres to information technology standards	3.86	1.16	High
IT governance committee cooperates with external auditor in terms of expressing an opinion on internal controls such as the banks.	3.85	1.19	High
IT governance committee ensures that the auditor adheres to perform audit tasks in accordance with the a approved plan	3.90	1.16	High
The degree of adherence to the instructions and rules of governance of information technology affects the auditor's competitiveness	3.87	1.17	High

Table 12 shows arithmetic means and standard deviations of statements of sixth factor- a degree of adherence to the instructions and rules of governance of information technology ; arithmetic means have ranged between 3.86 – 3.90; the statement, stated that a committee of information technology governance in the companies subjected to audit processes helps the concerned authorities ensure that the auditor has an appropriate competence and capacity of performing correctly his /her tasks, has reached the highest arithmetic mean which is 3.90; and total arithmetic mean has reached 3.87. Based on response orientation, respondents of study sample agree that a degree of adherence to the instructions and rules of governance of information technology affects the auditor's competitiveness; and response orientation has been high.

Hypothesis Testing

To test the validity of this hypothesis, arithmetic means and standard deviations of sample study's responses of the fields of third hypothesis related to the factors affecting the auditor's competitiveness – the use of information technology, audit fees, quality of professional performance, adherence to the instructions and rules of IT governance, creation and diversification of new services and professional specialization in IT environment- have been extracted; table 13 outlines them.

Table 13
Arithmetic Means and Standard Deviations of Sample Study's Responses

Statements	Arithmetic mean	Standard deviation	Response orientation
The factor of the use of information and communication technology affects the auditor's competitiveness.	3.89	1.18	High
The factor of audit fees	3.87	1.17	High
Creation and diversification of new services is one of the factors affecting the competitiveness in IT environment	3.88	1.18	High
Professional specialization affects the auditor's competitiveness	3.88	1.17	High
Quality of professional performance is one of the factors affecting the auditor's competitiveness	3.88	1.17	High
A degree of adherence to the instructions and rules of IT governance in the companies subjected to audit processes affects the auditor's competitiveness	3.87	1.17	High
Total	3.87	1.17	High

Table 13 indicates that arithmetic mean of the fields of third hypothesis – the factors affecting the competitiveness – has been 3.89 as a whole; and response orientation has been high. In addition, arithmetic mean of the statements which has formed third hypothesis has been compared with standard mark 3 - hypothesis acceptance standard- by using t-test as stated in table 14.

Table 14
Arithmetic Means, Standard Deviations and T-test of Statements which has formed third hypothesis in comparison with Standard Mark 3

The factors affecting the competitiveness of the auditor working in IT environment	Arithmetic Mean	Standard Deviation	T-Value	Freedom Degree	Statistical Significance
	3.87	1.17	8.585	159	000.

Table 14 indicates that there are statistical differences at (≥ 0.05) between arithmetic mean and standard mark 3; T-value has been 9.585; statistical significance has been 0.000. Thus, this hypothesis stipulating that there are various factors affecting the competitiveness of audit offices working in information and communication technology environment in the Hashemite kingdom of Jordan, has been accepted.

Results and Recommendations

The study has reached a set of results as follows:

- The auditors working in audit offices in Jordan are aware of the concept of the competitiveness and they agree that competitiveness concept in information and communication technology environment includes the following:
 - Providing high quality services which are compatible with the nature and complexity of electronic transactions;
 - Developing the services provided by audit offices in a manner that is compatible with the nature of technical advancement such as website confirmation services in addition to services related to protection and safety systems, data processing and technical consultations;
 - Auditor's ability to provide modern services in information and communication technology field such as consultations;
 - Satisfying clients' desires and needs in the light of using electronic systems;
 - Appropriateness of audit fees for the clients; and
 - Availability of appropriate scientific and practical skills which Jordanian external auditor has in order to be compatible with the development of electronic financial systems.
- Jordanian auditors are aware of the importance of the competitiveness of audit offices working in information and communication technology environment; competitiveness' importance includes the following:
 - Competitiveness is a tool providing a competitive environment and achieving the efficiency of allocating and using the resources;
 - The competitiveness improves and develops external audit services and makes them diverse in order to be compatible with the technical development;
 - The competitiveness satisfies clients' desires and expectations of audit profession in the light of quick technical development of financial systems;
 - Competitiveness contributes to the reduction audit risks, especially information technology risks;

- Competitiveness contributes to the rise of professional performance of the auditor;
 - Competitiveness contributes to the reduction of audit processes' costs; and
 - Competitiveness helps the auditor obtain a larger market share.
3. The auditors in Jordan have highly agreed that there are a set of factors affecting the competitiveness in information and communication technology environment; these factors include the following:
- The use of information technology in audit services;
 - Audit fees;
 - Quality of professional performance of audit;
 - a degree of adherence to the instructions and rules of governance of information technology
 - Diversification of services (creating new professional services); and
 - Professional specialization of electronic systems and internal controls;
4. Huge and quick development of using information technology in business organizations in Jordan has imposed on audit offices a new reality; auditors as well as audit offices, therefore, shall keep pace with this development and shall benefit from information technology in order to provide audit services.

Recommendations

Based on the results, the study has reached a set of recommendations as follows:

- Auditors' awareness of the concept and fields of competitiveness in information and communication technology environment shall be necessarily enhanced;
- Auditors' awareness of the importance and role of competitiveness in audit process in information and communication technology environment shall necessarily be enhanced;
- Methods of providing audit services and using the electronic techniques shall necessarily be developed due to the huge development of using information technology and electronic systems in business organizations and electronic through electronic applications and websites;
- Paying attention to develop the professional performance of the auditor in a manner that is compatible with the use of information and communication technology becomes a necessity;
- Continuous training programs including cognitive and practical skills of information and communication technology shall be developed; and
- Workshops of information and communication technology and its impact on audit process shall be conducted for the auditors.

References

- Edris, Wael Mohammad Sobhi & Al-Ghalbi, Taher Mohsen Mansour (2011), ' Strategic Management, Concepts, Processes', Amman: Wael Publishing & Distribution House;
- Aql, Mufleh (2006), 'Banking Perspectives ', Amman: Arab Society Library For Publishing and distribution.
- Negm, Khalil (1998), 'Competitive Advantage In Business Field', AlExandria Book Center.
- Al-Smadi, Hisham Mohammad, Al-Smadi, Ali Saleh, 2007 ' Factors Affecting A Change of Auditing', Scientific Journal of Commerce, Faculty of Commerce, Tanta University , First Volume, First Issue , , P.P 193-219.
- Babiker, Bashir, Bakri Ajeeb (2018), 'Role of Industrial Specialization of Auditor In Supporting Competitive Advantage', Journal of Accounting Thought, Ain Shams University.
- Jerboa Youssef, (2001), Basics of Theoretical Framework of Auditing', Without Publishing House.
- Khadash, Hossam El-Din, Siyam Walid, (2003), 'The Extent To Which The Auditors Accept The Use of Information Technology In Auditing, A field study on Major Audit Offices In Jordan', Dirasat Journal: Administrative Sciences, Volume 30, Issue 2, P. 289.
- Okab, Reem. (2013). Electronic Audit Role in Achieving Competitive Advantages and Support the Strategy of the External Audit in Auditing Offices in the Hashemite Kingdom of Jordan. International Business Research; Vol. 6, No. 6; p.p. 181-195.
- Al- Beraidi, A., and Rickards, T. Creative Team Climate in an International Accounting Office: An Exploratory Study In Saudi Arabic, Managerial Auditing Journal, Vol. 18, No.1, 2003, pp. 7- 18.
- okab al-kasswna, Reem(2012)The Impact of Information Technology on External Audit Fees - A Field Study in the Hashemite Kingdom of Jordan European Journal of Business and Management Vol 4, No 14
- Aronmwan, EJ, and Okafor, CA (2015), Auditee characteristics and audit fees: An analysis of Nigerian quoted companies, Journal of Social and Management Sciences, 10(2): pp. 68-79.
- Carcello, J. V. and C. Li (2013). Costs and benefits of requiring an engagement partner signature: Recent experience in the United Kingdom. The Accounting Review, 88 (5), pp. 1511-1546.
- Castro, W. B., Peleias, I. R., Silva, C. P. (2015) Determinants of Audit Fees: A Study in the Companies Listed on the BM & FBOVESPA, Brazil. Vol. (1808 No.(69)), pp. 1-16.
- Gerakos, J., and Syverson, C. (2015)5 Competition in the Audit Market: Policy Implications, JEL Classification L48, M41, 2015, pp. 1-68.

- Golubov, A., Petmezas, D., Sougiannis, T., Travlos, N. G and Association, A. (2013). Due diligence on the bidder and the certification effect. http://www.efmaefm.org/efma%20annual%20meetings/2013.Reading/papers/EFMA2013_0400_fullpaper.pdf, pp. 1
- Guo, Q. (2014), Client Mergers, Audit Free Pricing and Audit Opinion. A Dissertation Submitted in Partial Fulfillment of the Requirements of the Degree of Doctor of Philosophy in Accounting at the Mannheim University.
- Hassan, Y. M. and Nasser, K. (2013). Determinants of Audit Fees: Evidence from an Emerging Economy Internationa