

THE IMPACT OF ACCOUNTING INFORMATION SYSTEM ON THE ISLAMIC BANKS OF JORDAN: AN EMPIRICAL STUDY

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Abstract

The aim of this paper is to evaluate the impact of Accounting Information System in the Jordanian Islamic banks. The most important results that banks rely on accounting systems, by connecting all the banking services of banks each department separately and linking between all departments at the same time, dependence on accounting information systems to satisfy the clients through the implementation of banking clients as quickly and with minimal effort. In order to realize the research objectives, a questionnaire was designed and distributed to the financial managers, accountants, interior auditors and heads of accounting departments in Islamic banks of Jordan. A total of 42 questionnaires were distributed and 35 were received back which equals to (83.33%) which is considered good and acceptable. The results were analysed by using SPSS and other statistical methods. The results showed that the Accounting Information System (AISs) are most common in the Jordanian Islamic banks and it helps in providing appropriate information about available substances at the right time. Finally some conclusions and suggestions for further research are discussed.

Keywords: Accounting Information System, Islamic banks, Services, Jordan

1. Introduction

Over the last ten years the world has witnessed wide economic and technological changes that affected the world economy including accounting. Such changes resulted in the overlapping of various scientific fields, and knowledge and the interconnection of their objectives and purposes in a manner that serves different economic businesses and entities. Accounting was not in isolation from these developments. The broad use of Accounting information technology in the profession of accounting has placed it before a challenge that required a search for sufficient means to effectively cope with

the new changes and to find new methods to improve the quality of local accounting services and to keep its level competitive with the imported accounting services.

Whereas information technology has caused rapid and significant changes in the contemporary business environment, the banking sector is required to be more responsive to such changes because competition is very aggressive between banking sector elements, whether at the local or the international level. Thus, the banking sector should broadly expand in developing its information systems of various forms, particularly its accounting information systems. It will help to keep in line with the large developments and to realize the optimum benefit from the several and diversified advantages, services, facilities and potential provided by technology to develop and improve services rendered by banks to their clients and upgrade its local and foreign competitiveness.

Accounting information systems in the Islamic banks, under the technological development, represent the pillar to provide the necessary information for the decision - making process and the related results can be used for control purposes and performance appraisal. This information is considered an essential requirement for decision makers in Islamic banks provided that they are featured with characteristics that make them appropriate for decision - making. No doubt that these systems are affected by environmental variables surrounding banks, whether at local or international level. Thus, they should be developed to be able to provide reliable information that ensures the necessary parameters of security, self-assurance and objectivity. They should also attribute the required characteristics to maintain their efficiency.

Accordingly, this research has been prepared to evaluate the impact of accounting information systems in the Jordanian Islamic banks, under the current technological development, by evaluating some standards such as quality, flexibility, simplicity, and reliability. This research aims at raising the efficiency of these systems and making them more capable of providing the appropriate information to the decision-making process in a world of increasing competitiveness and expansive use of accounting information systems in current modern means of information technology .

The structure of the paper is as follows. First the main approached definitions of the main concepts are introduced, and then the previous literature is discussed followed by the objectives of the study. In the next section main hypothesis are formulated with providing statistical information about the sample. Finally the main results and directions for further research are highlighted.

2. Literature Review

Loudon, (2004, P.8) defines information system as a correlated group of components that collect, receive, process, save, and distribute information to support decision-making and control in an organization. Furthermore, it helps managers and workers to examine problems and create new products.

Information technology is known as the electronic means to collect, process, store, and disseminate information (Duncombe and Heeks, 1999). It is considered one of the modern issues that begin to reflect the importance of using technologically processed information to serve several aspects in the society (Avolio et al.2001). These technologies led to reducing the overall costs of Islamic operations (Jones, 2001). It has become inevitable to distinguish between entities using information technology in their productive and service activities and those still using manual systems (Kanunias, 2001). Efficient accounting systems should be featured with several characteristics, the most important of which are: system simplicity, reliability, and flexibility (Greenstein and Vasarhelyi, 2002).

The Jordanian legislator has realized that the transformation of the banking sector from manual information systems into computerized information systems has become an urgent necessity for this sectors promotion and introduction into the era of information technology, Article (92) of the Jordanian Banks Law considered electronic data in banking cases, as one of the confirmation methods offered that banks keep a mini-copy (microfilm or other) instead of original books, records, and statements and have the original proof. In addition, paragraph (d) of the same Article exempted banks using computer or other modern technology devices in organizing their financial operations from books organization provided for in the effective Trade Law.

Raupelien and Stabingis, (2003) have discussed forms and techniques of evaluating the effectiveness of computerized accounting information systems and their potential of utilization, and developed a complex model to evaluate the effectiveness of these systems in terms of the technological, economic and social aspects. The study has concluded that, characteristics of computerized accounting information systems have a different significance, and can be expressed by quantitative and qualitative measurements, and the success of their use is subject to the correct selection of the system components, including devices, programs, databases, and highly qualified workers. Besides, the study results specified that the effectiveness of computer-based accounting information systems can be represented in the successful use of these systems in a manner that satisfies the users requirements.

Al-Hantawi, (2001) has indicated that the most important characteristics that qualify accounting information systems as effective and

efficient are the accuracy and speed of processing financial data into accounting information, therefore providing management with the necessary accounting information on time; providing management with the necessary information to perform functions of planning, control, evaluation, speed and accuracy in retrieving stored overall and descriptive information when it is needed; adequate flexibility; general acceptance of workers ; simplicity, and to be associated with other information systems in the entity.

One of the studies conducted on the Jordanian environment is that carried out by Radaideh (1998). This study has shown that accounting information systems are highly affected by the mechanical processing of data used by the Jordanian Customs Department that mechanical processing technique conforms to a large extent to the requirements of the international auditing standards related to the study of accounting systems and the analysis of the mechanical processing environment. As well, the study shows that the outputs of the used accounting information systems considerably fulfil the requirements and the needs of decisions makers.

Yaseen& Saleh, (1999) point out that the evaluation of computer-based information systems used in the Jordanian Islamic banks is useful in upgrading their uses and expand their influence in order to realize the strategic competitive advantage that is definite for a bank. They emphasize that computerized systems are considered the technological and organizational basis for more advanced and smart information systems widely integrated with substantive needs of the managements of Islamic banks. One such important requirement is to maximize the efficiency of intellectual capital through connecting the best brains of individuals with the most developed information technology.

Joudeh, (2000) emphasizes that there are many reasons behind Jordanian Islamic banks developing their accounting information systems and increasing their investments in the field of electronic communications technology. They should develop themselves to enter e-commerce methods via the Internet. The most significant reasons are: reduction of banking operations service cost, coping with local and international competition, and the fulfilment of clients' needs and the improvement of customs services.

Al-Helo, (2000) has studied the possibility for Islamic banks to continue operating or competing in Jordan while not effectively using computer and communications technology in performing their various activities. He also demonstrated the reality of information and communication systems used in Jordanian banks and concluded that banks cannot continue operating and rendering services to their clients without the effective use of information and communication systems.

Yatim's study (2009) discussed the economic rationale and justification for profit distribution practices in Islamic financial institutions in Malaysia in his study. The arrangement on the pool of funds mobilized and analysis on funds employed were investigated in order to form the basis in the upholding of shariah dictates in the practices of distribution of profit by the practitioners of shariah-compliant financial institutions. The frameworks recognized in this study include the principle of true and fair view financial information, the principle of justice to mankind and the adoption of fund accounting approach in accounting practices for profit distribution. There appear indications of unjustifiable practices in the course of distribution of profit by the practitioners in this sector of economy. As such, this study provides a guide aimed at ensuring the upholding the principle of on-going concern of the shariah-compliant financial institutions businesses.

Finally, Khalid, (2004) emphasizes in his study which aims at evaluating the performance of computer-based accounting systems in terms of their technical and behavioral (human) dimensions in the Jordanian shareholding industrial companies, that these systems are highly effective in achieving their objectives, flexible as amendments and improvements can be made to them in order to adapt to the surrounding environment and users needs, internally integrated (among their different functions) and with other systems, and characterized with a set of control rules and procedures that support their accuracy and make them more reliable.

This study is different from previous studies in that it addresses accounting systems, particularly in the sector of Jordanian Islamic banks, as its accounting information outputs represent the engine that drives the potential development in the quality of banking services and have prominent influence on decision making process at the level of management and investors or banking services requesters. Besides, the use of information technology, especially in the field of e-commerce, has added different and large challenges before banks in general and on their accounting system in particular. Thus it is necessary to conduct field studies to identify the existence extent of computerized systems featured with the characteristics required in accounting information systems capable of facing competition challenges and responding to rapid changes.

3. Objectives of Study

Accounting information systems are considered the backbone of information systems in the banks, as they provide accounting information that summarizes the events and operations that occurred in the bank and provide rational and reasonable results necessary for effective decision making.

This study aims at efficiently identifying impact of the accounting information systems in the Jordanian Islamic banks, Therefore, a set of standards that reflect the effective performance of accounting information systems represented in quality, flexibility, simplicity, and reliability has been studied.

The selection of Islamic banks sector as the population of this study is based on the importance of accounting information systems therein, the significance of these systems, their efficiency and their accuracy in attracting clients and promoting confidence in the bank, as well as the necessity of quick responsiveness of these banks for technological developments and environmental changes due to world competition. The main objectives are as:

4. The Study Hypotheses

Based on the results concluded in earlier studies and upon the theoretical framework of this study, the hypotheses of the study can be recruited as follows:

Hypothesis 1: The employees of the Islamic banks of Jordan do not use accounting information system.

Hypothesis 2: E-commerce does not influence the outcome of accounting information systems in Islamic banks in Jordan.

Hypothesis 3: Accounting information systems in the Jordanian Islamic banks under technological development are not featured with the four characteristics together (quality, flexibility, simplicity, reliability) at a high degree.

5. The Research Methodology

The researchers followed the illustrative analytic methodology and obtained the necessary data from the following sources: the primary sources and the secondary sources.

5.1 The Primary Sources

A questionnaire was prepared and distributed among financial managers, accountants and heads of accounting departments in Islamic banks of Jordan who have financial and accountancy experience and constituted the research sample. Data was collected and analyzed by using the SPSS statistical package for the social sciences to test the correctness of the research's assumption.

5.2 The Secondary Sources

This was obtained through reviewing scientific researches, university books and dissertations, reports, magazines and articles in order to build the theoretical framework for the research and fulfil its objectives.

5.3 The study equipment:

The study relied on a questionnaire that has been designed by going back to the theoretical aspect and other previous studies about impact of the accounting information systems in the Jordanian Islamic banks; this questionnaire is divided into two parts:

5.3.1 The first part:

The aim of this part is to learn the demographic features of the individuals who answered the questionnaire and included the following features (age, gender, career, qualifications, specialty and experience).

5.3.2 The second part:

It consists of 47 articles distributed to 6 major groups, in order to measure the fields, the hypotheses of the study deal with.

5.4 The statistical means used in the study:

They have relied on the statistical bundle (SPSS) to analyze data, they have also trusted on the standard deviation and the arithmetic mean, to analyze the answers of the individuals who took the questionnaire, as well as relying on the test (T) to examine the hypotheses of the study. Credibility factor (alpha-kronbakh) has been used to measure the credibility of the answers in the questionnaire.

5.5 The tested sample:

The study has included the three Jordanian Islamic banks, which are: Islamic bank, the Arab Islamic, Islamic bank of Dubai, the sample of the study included the employees of the accounting departments, the chiefs of the accounting departments, the interior auditors, financial chiefs who deal with accounting information systems in banks. 42 questionnaires have been distributed and 35 of the ones distributed were returned which equals a percentage of (83.33%) which is considered to be an acceptable, good percentage.

5.6 The study sample features:

The questionnaire has been distributed to the employees of the accounting departments, the auditors and the financial chiefs in the Jordanian Islamic banks being the most capable ones to answer the questionnaire.

First: The study sample according to the age:

Looking at Table 1, you can notice that 40% of the tested sample are between the age category of 31 to 40 years which means that banks use to hire individuals with moderate ages so that to take advantage of them for a long time and equip them with skill and highly experienced with the passage of time.

Table 1.Age Variability

Variable	Group of variable	Frequency	Percentage
Age Categories	20 to 30	6	17.14
	31 to 40	14	40
	41 to 50	8	22.86
	More than 50	7	20
Total		35	100

Second: The study sample according to the gender:

In Table 2, you can notice that the percentage of the males in the study was about 63% and the percentage of the females was about 37 which indicates that banks adapt more males than females in banking activities.

Table 2. Sex Variability

Gender	Frequency	Percentage
Male	22	62.86
Female	13	37.14
Total	35	100

Third: The study sample according to the occupational level:

Looking at Table 3, you can notice that the percentage of the financial managers is 8.57% the percentage of the heads of the accounting department is 17.15% As for the accountants the percentage is 51.43% and the interior auditor percentage is 8.57%

Table 3. Job Variability

Job level	Frequency	Percentage
Accountants	18	51.43
Financial auditor	3	8.57
Financial manager	3	8.57
Assistant Financial manager	5	14.28
The head of the accounting department	6	17.15
Total	35	100

Forth: The study sample according to qualification:

In Table 4, we notice that the percentage of those who have a Bachelor degree is around 65.71% .Master degree percentage is around 11.43%,14.28% are diploma holders and the percentage of those who have Phd degree is 8.58%.

Table 4. Qualification Variability

Qualification	Frequency	Percentage
Diploma	5	14.28
Bachelor	23	65.71
Master degree	4	11.43
Phd	3	8.58
Total	35	100

Fifth: The study sample according to the specialty:

Table 5 shows the variable specialization, the percentage (38.12%) are those who have specialization in accounting, they come primarily and then Management by (34.29%), Banking and Finance specialization comes in third place by (14.28%), and ranked fourth amounting to a rate (8.57%) devoted to the economics. As for the other disciplines, it is limited to the following disciplines: Computer science, management information systems, programming and systems analysis in addition to the specialty of international relations and strategic studies, and this suggests that banks with qualified staff and functional with different disciplines and focuses on modern systems, and related disciplines and computer systems.

Table 5. Specialization Variability

Speciality	Frequency	Percentage
Management	12	34.29
Accounting	13	38.12
Economocs	3	8.57
Banking and Finance	5	14.28
Others	2	5.74
Total	35	100

Sixth: The tested sample according to their experiences: Looking at Table 6 most of the individuals of the sample have an experience between (4 to 8 years) with a percentage of around 40%. And from 9 to 12 years it is 22.86 %, occupies second place. More than 12 years there are 7 persons which is about 20% while less than 4 years (17.14%) comes last.

Table 6. Experience Variability

Years of experience	Frequency	Percentage
Less than 4 years	6	17.14
4 to 8 years	14	40
9 to 12 years	8	22.86
More than 12 years	7	20
Total	35	100

6. Analysis and Findings

To measure the impact of the application of accounting information systems on the Islamic banks operating in Jordan, it was used a series of statements correspond to the dimensions that will be answered by this study and verify the impact of accounting information systems on the banks and what are the means used by the information systems to achieve its objectives.

6.1 Hypothesis Testing:

Hypothesis 1: Upto what extent the employees of the Islamic banks of Jordan use accounting information system.

Table No. 3 outlines the results of the statistical analysis of accounting information systems related questions. It is clear that all factors through which the quality of computerized accounting information systems has been measured are available at a degree ranging between high and very high, except for the factor measured in the sixth question related to presenting information derived from accounting information systems in an attractive and appropriate manner, as the mean for the answers of the study sample individuals to such factor amounted to 3.987. With reference to table No. 3, it is clear that the mean of all statements that measure the computerized accounting information systems with quality- was high, as it amounted to (4.253) with a standard deviation of (0.764), which clearly indicates that employees use accounting information systems in the Jordanian Islamic banks and the sample individuals generally agree on the quality of such information.

Table.7 Study results of First Hypothesis

No.		Mean	Standard Deviation	Degree of factor (characteristic) realization
1-	The employees of the Islamic banks of Jordan do not use accounting information system. Accuracy of information obtained from computer-based accounting information systems	4.210	0.742	High
2-	Adequacy of information obtained for decision - making purposes	4.511	0.527	Very high
3-	Presentation of information in an attractive and appropriate manner	3.987	0.754	Moderate
4-	Ability of computerized accounting information systems to provide the management with its needs for information	4.537	0.868	Very high
5-	Characterizing information obtained from computerized accounting information systems with what contributes to rationalizing decisions	4.507	1.002	Very high
6-	Contribution of information obtained from	4.016	0.910	High

	computerized accounting information systems to improving the banks performance			
7-	Contribution of information obtained from computerized accounting information systems to performance of a required function in a bank in an efficient manner	4.002	0.826	High
All statements together		4.253	0.764	High

For the purposes of testing the hypothesis, T-test has been used. Table No. 8 shows the results of testing the first hypothesis:

Table 8.T-test of First Hypothesis

Variable	T-Tabulated	T-Calculated	Significance *	
Impact	1.67	5.37	0.000	41

It is clear from Table No. (8) that T- calculated is higher than T- tabulated at a confidence level of 95% ($\alpha = 0.05$), and the significance level is less than 0.05. As the decision base indicates the acceptance of null hypothesis if the value of T- calculated is less than T- tabulated and the reject of null hypothesis if the value of T- calculated is higher than T- tabulated, then null hypothesis is rejected and alternative hypothesis is accepted, i.e. the employees use accounting information systems in the Jordanian Islamic banks under the technological development and are characterized with high degree of quality.

Hypothesis 2: E-commerce does not influence the outcome of accounting informational systems in Islamic banks in Jordan.

Table 9.Study results of Second Hypothesis

No.	Statement	Mean	Standard Deviation	Degree of factor (characteristic) realization
8-	Using e- commerce facilitates obtaining accounting data	3.657	1.012	Moderate
9-	Using e- commerce completely provides the needed accounting	4.125	0.915	High
10-	Using e- commerce provides the needed data in the appropriate time	4.219	0.852	High
11-	Using e- commerce decreases the cost of obtaining the accounting data	4.31	0.754	High
12-	Using e- commerce provides accounting data that is valid for the accounting measure	3.547	0.762	Moderate
13-	Using e- commerce provides data that reflects reality	3.985	0.578	Moderate
14-	Using e- commerce fastens the operation of processing financial data	4.012	1.031	High
15-	Using e- commerce processes the financial	3.898	0.887	Moderate

	data accurately			
16-	Using e- commerce decreases the mistakes in processing financial data	3.89	0.744	Moderate
17-	Using e- commerce decreases the cost of Exchanging financial data	4.102	0.72	High
18-	Using e- commerce fastens the process of restoring stored information	4.13	0.855	High
19-	Using e- commerce provides totally accurate information	3.873	0.732	Moderate
All statements together		3.979	0.925	Moderate

It is evident from Table No. (5) that the factors that are available in e-commerce based accounting information systems are at a high degree, as the mean of the answers of study sample individuals for each factor ranges above 4, while the other factors are available at a moderate degree as the mean of the answers of study sample individuals for each is more than (3) and less than (4). This means e-commerce affects the outputs of the accounting information systems in the Jordanian Islamic banks.

For purposes of testing the hypothesis, T-test has been used. The following table demonstrates the results of testing the second hypothesis:

Table 10. T-test of Second Hypothesis

Variable	T- Tabulated	T- Calculated	Significance *	
e- commerce	1.67	6.96	0.000	41

* Significance level does not absolutely equal zero, it is rather a value very close to zero.

However, computer indicates three decimal digits.

It is clear from Table No. (10) that T- calculated is higher than T- tabulated at a confidence level of 95% ($\alpha = 0.05$), and significance level is less than 0.05. As the decision base indicates the acceptance of null hypothesis if the value of T- calculated is less than T- tabulated and the reject of null hypothesis if the value of T- calculated is higher than T- tabulated, then the null hypothesis is rejected and the alternative hypothesis is accepted, i.e. E-commerce affects the outputs of the accounting information systems in the Jordanian Islamic banks.

Hypothesis 3: Accounting information systems in the Jordanian Islamic banks under technological development are not featured with the four characteristics together (quality, flexibility, simplicity, reliability) at a high degree.

Table No. (11) Indicates the results of statistical analysis of questions related to the four characteristics together. The highest influence has been for the quality characteristic whereas the lowest influence has been for the simplicity characteristic with a mean of (3.691). The mean for the influence of all four characteristics has amounted to (4.004) with a standard deviation of (0.839) which is a relatively lower variance. This means that sample

individuals agree that computerized accounting information systems are featured with all the four characteristics at a high degree.

Table 11. Study results of Third Hypothesis

No.	Statement	Mean	Standard Deviation	Degree of factor (characteristic) realization
20-	Easy understanding of outputs of computerized accounting information systems	3.967	0.924	Moderate
21-	Presenting useful information of accounting information systems outputs in logical consequence	4.211	0.652	High
22-	Contribution of understanding of outputs of computer-based accounting information systems to facilitate decision making	3.732	1.012	Moderate
22-	Providing a wide set of basic reports	3.878	0.850	Moderate
23-	Ability of used accounting system to provide the possibility of using various currencies in all operations	3.756	0.752	Moderate
24-	Determining the extent of the applied system suitability to the work tasks and qualifications of bank employees	3.632	0.855	Moderate
25-	Neutrality and non-bias of computerized accounting information systems and their outputs	4.326	0.783	High
26-	Non inclusion of false or incorrect data in computerized accounting information systems	3.984	0.828	Moderate
27-	Reliability of outputs of computerized accounting information systems for decision makers	4.215	1.003	High
28-	Ability of computerized accounting information systems to provide the necessary protection for their components	3.957	1.124	Moderate
29-	Information confidentiality through providing a special system for multiple users.	3.845	0.735	High
30-	Adaptability of computerized accounting information systems to the diversity of bank activities	4.31	0.754	High
31-	Possibility of accounting information systems contribution to the most advanced banking activities	3.547	0.762	Moderate
32-	Ability of accounting information systems to complement other information systems in the bank	3.985	0.578	Moderate
33-	Capability of accounting information systems to embrace more users and cover more activities	4.012	1.031	High
34-	Flexibility of accounting system ability to adapt to modern legislation and laws	3.898	0.887	Moderate
35-	Flexibility of accounting system ability to adapt to accounting standards and their amendments	3.89	0.744	Moderate
All statements together		4.04382	0.83965	Moderate

It is evident from Table No. (12) that T- calculated is higher than T- tabulated at a confidence level of 95% ($\alpha = 0.05$), and significance level is less than 0.05, thus the null hypothesis is rejected and an alternative hypothesis is accepted, i.e. accounting information systems in Islamic banks

of Jordan are featured with all required four characteristics at a high degree (quality, flexibility, simplicity, reliability).

Table 12.T-test of Third Hypothesis

Variable	T- Tabulated	T- Calculated	Significance	Degrees of freedom
All characteristics	1.67	7.37	0.000	41

7. Suggestions and Recommendations

Based on the results concluded in this study, the following points are recommended:

1. Islamic banks must develop accounting information systems continuously, in order to keep up with the development, so it would adopt with the technological and technical demands of our generation
2. Islamic banks should follow up with everything new and moderns, in order to meet the client's needs and desires.
3. Islamic banks should keep up with new information regarding accounting sciences and keep up with the international standards in the accounting field, so it would work in a consolidated and acceptable system, in order to keep up with the scientific development in this field.
4. Islamic banks must continue developing a monitoring system in the accounting information system in the field of e-commerce, to limit the hacking attempts which are getting stronger by time.
5. Although the research has proved that accounting information systems in the Jordanian Islamic banks are featured with quality, flexibility, simplicity, and reliability, some elements constituting the characteristics of these information systems have obtained low rates in comparison to other elements. This means that more consideration needs to be dedicated to developing accounting information systems through the establishment of units responsible for managing information systems including accounting information systems, their development and security maintenance.
6. Further research should be conducted on the possibility to design accounting information systems suitable to providing new types of banking services proposed to fulfill the requirements of national economy, Jordanian society, and banks sector in order to be able to cope with competition under globalization and intensity of world competition.

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