


IMPORTANCE OF ELECTRONIC ACCOUNTING INFORMATION SYSTEMS IN IMPROVING FINANCIAL INFORMATION SECURITY IN JORDANIAN ELECTRONIC PAYMENT AND MONEY TRANSFER COMPANIES

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 14 April 2023</p> <p>Accepted 13 July 2023</p>	<p>Purpose: The study aimed to assess the level of effectiveness of electronic accounting information systems in enhancing the security and control of financial information in Jordanian payment and electronic transfer companies and its ability to provide reliability. And analyzing the ability of the system used in the payment and financial transfer companies to meet the operational requirements imposed by the regulators of the sector.</p>
<p>Keywords:</p> <p>Electronic Accounting; Information Security; Electronic Payment.</p> <div data-bbox="172 958 480 1205">  </div>	<p>Theoretical framework: The theoretical framework dealt with the topics of the study from the security threats of electronic accounting information systems (Jacob, 2012: 67) and the risks of accounting information systems that are related to electronic payment systems, especially information security (Al-Maghribi, 2017). Accounting in reducing the risks of transactions, and the obstacles facing accounting systems in the face of the risks and threats of electronic systems</p> <p>Design/Methodology/Approach: The researcher used the inductive approach by referring to the literature related to the subjects of the study and the deductive approach in the field study by distributing a questionnaire to the electronic payment companies in Jordan. 96 questionnaires were retrieved. Using the spss program to analyze the data and reach the results</p>
	<p>Findings: The study Fined that there are factors that help to penetrate the accounting information systems in the Jordanian electronic payment and financial transfer companies. Network communication. Electronic accounting information in enhancing the security of financial information and control over it, and there are (obstacles) in providing security requirements and information control, in electronic payment and financial transfer companies related to the rapid development of electronic financial systems and electronic payment methods and their development.</p> <p>Research, practical & social implications: This study is considered one of the important and modern topics because electronic payment processes are considered one of the modern concepts with which many risks are associated. This study sheds light on these risks and threats and the ability of the strong accounting system to confront these threats and risks..</p> <p>Originality/Value: The results indicate the importance of the topic and the importance of conducting a study on the risks of electronic payment systems, the threats facing the use of electronic payment methods and the obstacles facing accounting information systems in one of the newly established economic sectors in Jordan, which is the electronic payment companies.</p>
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IMPORTÂNCIA DOS SISTEMAS DE INFORMAÇÕES CONTÁBEIS ELETRÔNICAS PARA MELHORAR A SEGURANÇA DAS INFORMAÇÕES FINANCEIRAS NAS EMPRESAS JORDANIANAS DE PAGAMENTO ELETRÔNICO E TRANSFERÊNCIA DE DINHEIRO

RESUMO

Objetivo: O estudo teve como objetivo avaliar o nível de eficácia dos sistemas de informações contábeis eletrônicas no aprimoramento da segurança e do controle das informações financeiras nas empresas jordanianas de pagamentos e transferências eletrônicas e sua capacidade de fornecer confiabilidade. E analisar a capacidade do sistema usado nas empresas de pagamento e transferência financeira de atender às exigências operacionais impostas pelos reguladores do setor.

Estrutura teórica: O referencial teórico tratou dos tópicos do estudo a partir das ameaças à segurança dos sistemas de informações contábeis eletrônicas (Jacob, 2012: 67) e dos riscos dos sistemas de informações contábeis que estão relacionados aos sistemas de pagamento eletrônico, especialmente a segurança da informação (Al-Maghribi, 2017). A contabilidade na redução dos riscos das transações e os obstáculos que os sistemas de contabilidade enfrentam diante dos riscos e ameaças dos sistemas eletrônicos.

Projeto/Metodologia/Abordagem: O pesquisador usou a abordagem indutiva ao consultar a literatura relacionada aos assuntos do estudo e a abordagem dedutiva no estudo de campo ao distribuir um questionário para as empresas de pagamento eletrônico na Jordânia. Foram recuperados 96 questionários. Usamos o programa spss para analisar os dados e chegar aos resultados.

Conclusões: O estudo concluiu que há fatores que ajudam a penetrar os sistemas de informações contábeis nas empresas de pagamento eletrônico e transferência financeira da Jordânia. Comunicação em rede. As informações contábeis eletrônicas aumentam a segurança das informações financeiras e o controle sobre elas, e há (obstáculos) no fornecimento de requisitos de segurança e controle de informações em empresas de pagamento eletrônico e transferência financeira relacionados ao rápido desenvolvimento de sistemas financeiros eletrônicos e métodos de pagamento eletrônico e seu desenvolvimento.

Implicações sociais, práticas e de pesquisa: Este estudo é considerado um dos tópicos importantes e modernos porque os processos de pagamento eletrônico são considerados um dos conceitos modernos aos quais muitos riscos estão associados. Este estudo lança luz sobre esses riscos e ameaças e sobre a capacidade do sistema contábil sólido de enfrentar essas ameaças e riscos.

Originalidade/Valor: Os resultados indicam a importância do tópico e a importância de realizar um estudo sobre os riscos dos sistemas de pagamento eletrônico, as ameaças enfrentadas pelo uso de métodos de pagamento eletrônico e os obstáculos enfrentados pelos sistemas de informações contábeis em um dos setores econômicos recém-criados na Jordânia, que são as empresas de pagamento eletrônico.

Palavras-chave: Contabilidade Eletrônica, Segurança da Informação, Pagamento Eletrônico.

IMPORTANCIA DE LOS SISTEMAS ELECTRÓNICOS DE INFORMACIÓN CONTABLE PARA MEJORAR LA SEGURIDAD DE LA INFORMACIÓN FINANCIERA EN LAS EMPRESAS JORDANAS DE PAGO ELECTRÓNICO Y TRANSFERENCIA DE DINERO

RESUMEN

Objetivo: El estudio tenía por objeto evaluar el grado de eficacia de los sistemas electrónicos de información contable para mejorar la seguridad y el control de la información financiera en las empresas jordanas de pagos electrónicos y transferencia de dinero y su capacidad para ofrecer fiabilidad. Y analizar la capacidad del sistema utilizado en las empresas de pagos y transferencias financieras para cumplir los requisitos operativos impuestos por los reguladores del sector.

Marco teórico: El marco teórico abordó los temas del estudio a partir de las amenazas a la seguridad de los sistemas de información contable electrónicos (Jacob, 2012: 67) y los riesgos de los sistemas de información contable que están relacionados con los sistemas de pago electrónicos, especialmente la seguridad de la información (Al-Maghribi, 2017). La contabilidad en la reducción de los riesgos de las transacciones y los obstáculos a los que se enfrentan los sistemas contables frente a los riesgos y amenazas de los sistemas electrónicos.

Diseño/Metodología/Enfoque: El investigador utilizó el enfoque inductivo mediante la consulta de la literatura relacionada con los temas del estudio y el enfoque deductivo en el estudio de campo mediante la distribución de un cuestionario a las empresas de pago electrónico en Jordania. Se recuperaron 96 cuestionarios. Se utilizó el programa spss para analizar los datos y llegar a los resultados.

Conclusiones: El estudio concluyó que existen factores que contribuyen a la penetración de los sistemas de información contable en las empresas de pagos electrónicos y transferencias financieras de Jordania. Comunicación en red. La información contable electrónica aumenta la seguridad de la información financiera y el

control sobre la misma, y existen (obstáculos) a la hora de proporcionar los requisitos de seguridad y control de la información en las empresas de pago electrónico y transferencia financiera relacionados con el rápido desarrollo de los sistemas financieros electrónicos y los métodos de pago electrónico y su desarrollo.

Implicaciones sociales, prácticas y de investigación: Este estudio se considera uno de los temas importantes y modernos porque los procesos de pago electrónico se consideran uno de los conceptos modernos con los que se asocian muchos riesgos. Este estudio arroja luz sobre estos riesgos y amenazas y sobre la capacidad del sistema de contabilidad sólida para hacer frente a estas amenazas y riesgos.

Originalidad/Valor: Los resultados indican la importancia del tema y la conveniencia de realizar un estudio sobre los riesgos de los sistemas de pago electrónico, las amenazas a las que se enfrenta el uso de métodos de pago electrónico y los obstáculos a los que se enfrentan los sistemas de información contable en uno de los sectores económicos de reciente creación en Jordania, como son las empresas de pago electrónico.

Palabras clave: Contabilidad Electrónica, Seguridad de la Información, Pago Electrónico.

INTRODUCTION

Electronic accounting information systems in general and money transfer companies in particular are among the systems which face various threats and risks affecting the achievement of the goals of these systems because they rely on information and communication systems; the technological development and widely widespread use of these systems have created various risks and problems which affect the information security whether these risks are intentional or unintentional. Greater attention is, therefore, paid to the availability of means and methods of financial security and documentation in the light of electronic accounting systems in order to control their process and ensure their proper continuity in a manner required for which they are designed. (Qader, 2015, 66)

When accounting information systems of a company are designed, risk factors have to be viewed through risk assessment; this assessment process identifies that company success faces risks which may arise from the external or internal sources of the company; and these risks have to be identified, analyzed and acted upon because they affect the achievement of company's goals.

Despite the determinants and risks arising from a use of information technology in accounting information system, it remains an imperative necessity at present time and it cannot be dispensed with in any accounting information system in general and in money transfer companies, in particular, due to many advantages it offers and the extent to which it meets the needs of its users. And this depends on an ability of accounting system to display and convey the information through the reports it issues.

E-payment and transfer services in Jordan continuously develop since Jordan strives to maximize its potentials to achieve this goal and create a virtual digital reality in which digital commerce can be smoothly and freely performed within a framework of trust and security, able

to overcome all obstacles. And e-payment in Jordan is highly linked to the ground and services provided in order to enhance and activate it. So that, Jordanian government has sought to make Jordan in an advanced Arab and global position; and it has organized this digital system to ensure a better reality of work.

Digital exchanges arising from e-commerce transactions have significantly increased in Jordan, especially as the coronavirus pandemic outbreak in 2020 which has had a bigger positive impact on this type of commerce; and a value of these exchanges has been expected to be doubled 3 times in 2022 (Central Bank Bulletins).

Thus, this study contributes to the assessment of electronic accounting information system which is used in Jordanian e-payment and money transfer companies. In addition, it identifies methods, data and steps which can be used in order to respond effectively to information security risks, thereby identifying the risks. Furthermore, they can be used to maintain security and control procedures of inputs and outputs of electronic accounting information system as well as the extent to which they identify the strategies required for processing the data in a timely manner and informing effectively the users about the security and control elements of the system.

Accounting information system in Jordanian e-payment and transfer companies are exposed to various risks and threats; this system is also considered a major challenge to these company because it contains an important information for the unit, so that an effective accounting information system, constantly evaluated, shall be provided in order to make sure that it provides effectively a reliable information. To certain extent, we find that the e-accounting information system followed will not assessed. And if it is conducted, the approved assessment indicators tend to be specific and do not pay sufficient attention to important dimensions which affect the capacity of the information users of decision- making. Thus, this study answers the following questions:

- 1. Do e-accounting information systems used in Jordanian e-payment and money transfer companies have the requirements of security and control over the financial information?**
- 2. Are e-accounting information systems used in Jordanian e-payment and money transfer companies ready and able for developing and updating in line with the development of methods and means of e-payment?**
- 3. Do inputs and outputs of e-accounting information systems used in Jordanian e-payment and money transfer enjoy confidentiality and privacy?**

The importance of study stems from the importance and modernization of the subject it addresses, as well as the current accounting environment and sector touched upon by the study, namely the companies, whether Jordanian exchange companies or banks, practicing e-payment and money transfer services; furthermore, this study assesses generally the enhancement of level of security and control over e-accounting information system followed in the companies; and it identifies the extent of the effectiveness of e-accounting information system used in e-payment and money transfer companies in order to convey a credible information in which trust is available to multiple parts, thereby making correct decisions on the one hand and upgrading the applied accounting information system on the other hand.

To achieve the purposes of study and answer its questions, this study tests the following hypotheses:

1. First Hypothesis: There are factors which helps to hack e-accounting information systems in Jordanian e- payment and money transfer companies.
2. Second hypothesis: e-accounting information systems in Jordanian e-payment and money transfer companies face information security –related risks.
3. Third Hypothesis: E-accounting information systems contribute to an enhancement of security and control of financial information in Jordanian e-payment and money transfer; this hypothesis includes the following sub-hypotheses:
 - E- accounting information systems in Jordanian e-payment and money transfer companies have a set of control policies and procedures which make the system secure and highly effective.
 - E-accounting information systems in Jordanian e-payment and money transfer companies meet the operational requirements and achieve an effective control over the financial data .

Fourth Hypothesis: E-accounting information systems face challenges (obstacles) of providing the requirements of security and control of financial information in Jordanian e-payment and money transfer companies.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Raad Abdel-Amir (2023) studied the positive impact of electronic data interchange on the accounting system, taking into account several steps that were achieved due to the ability to carry out many business-related tasks efficiently and quickly without any human error. Existing studies on the role of electronic data interchange (EDI) in accounting systems indicate

that it is the exchange mechanism that has guided the exchange of business information driven in a standard format by eliminating handwritten or manual tasks to electronic, digital, and universally trusted systems. The study findings indicated that management of European companies in assessing completion among the banking sector members using E.D.I must be adopted due to several advantages such as increased efficiency as seen in their accounting systems. study(Ebubedike, A. H., Mohammed & Teck, T.) (2022)aimed to investigate the relationship between the adoption of digital payments in Kuala Lumpur and the reliability of the system in Kuala Lumpur, Malaysia. Another objective of this study is to investigate the relationship between social influence and adoption of mobile payment in Kuala Lumpur. In Kuala Lumpur, study the relationship between expected effort and mobile payment adoption. Determining the relationship between performance expectations and mobile payment adoption in Kuala Lumpur. The study finds the inability to collect information from all Malaysians is the primary justification for using a random sample. Acceptance of mobile payment is closely related to effort expectancy, trustworthiness, and performance, which indicates that these factors influence adoption. Because the vast majority of people consider a fast and reliable mobile payment system to be essential. Ahmad, Razkia (2021) study aimed to assess the effectiveness of accounting information system in enhancing financial information security and control. In addition, the study touched upon the role of e-accounting information system in enhancing financial information security and in Bardabar Money Exchange, so that the effectiveness and reliability of accounting information system could be assessed. The study relied on Bardabar Money Exchange located in Erbil governorate; it contained 54 respondents of employees of this company and its branches in Erbil governorate; analytical descriptive approach was used for measuring its requirements; and a questionnaire was designed and used as a main tool of data collection; a statistical program (SPSS.26) was used for analyzing the data collected. Most importantly, statistical results of the study showed that Bardabar Money Exchange has an integrated system of information security, where a calculated value of Chi square and a probability value at a macro level have amounted (0.296)and (0.138), respectively. In addition, the study found that Bardabar Money Exchange has an integrated system of information control, where a calculated value of Chi square and a probability value at a macro level have amounted (25.444)and (0.000), respectively. Most importantly, the study proposed that Bardabar Money Exchange has to take into account all alternative programs related to subjects of money and financial work and choose the best programs in order to provide company customer with a high level of quality of financial services.

Al-Mutairi and Lubis (2021)' study, and exploratory study in Kuwait, was to determine the effectiveness of e-accounting information as well as the procedures for preventing the risks which Islamic banks may expose to Islamic bank and how to reduce these risks. Furthermore, the study aimed to illustrate the methods of measuring these risks, and e-accounting information systems in internal banks plus impact of effectiveness of auditing. In addition, the study identified e-accounting information system and examined the important conditions of accounting information system. The study used extrapolation and analysis approaches in order to obtain satisfactory results; the study also relied on some modern and contemporary researches. Finally, the study showed that there is a correlation between accounting information system and Islamic banks; it also illustrated the role of accounting information system in reducing the banking supply risks in the Islamic banks. Al-khasawneh and other (2019)'s study was to illustrate the impact of the development of information and communication technology (ICT) infrastructure, including physical and human resources, software, database, networks and communications, on the effectiveness of accounting information systems. For purposes of study, the researcher used a descriptive research approach; in addition, a questionnaire was designed and distributed to employees occupying different administrative and accounting position in the bank. Finally, the study found that the developments of ICT infrastructure, including physical and human resources, software, database, networks and communications, affect significantly the accounting information systems' effectiveness and security. Khalifa Hisham & Luz Ibrahim, 2017 (7)'s study was to identify the reality and impact between electronic accounting information system and internal report quality in the institution. The study also provided practical proposals which may improve the quality of internal reports in the institution if they are applied through its e-accounting information system. Most importantly, the study found that decision- making process is highly based on the data and information provided by the internal reports in the company. In addition, the study showed that the internal reports have been designed on the basis of sound principles allowing to obtain credible and appropriate information for making decisions; the study also found that using computer in accounting data processing is considered an important step of effective production and consumption of accounting information in the institution; finally, the study found that applying modern technological tools becomes necessary in surrounding unstable environment in order to use fully the functions it provides in terms of efficiency and speed of data processing and submit the required results in a short time without detecting the errors which may be made by a human.

Al-Magrebi (2017)'s study aimed at examining the role of governance of information security in reducing the risks which may face the Egyptian companies in in information security field; the study was also to illustrate the impact of applying the latest versions of control systems (COBIT 2013 standard) on accounting information systems. For achieving these purposes, the two researchers conducted a field study, using a sample of companies and banks working in smart villages in the Arab Republic of Egypt; and a survey list was distributed to test a set of hypotheses which have been expressed as follows: to which extent the Egyptian organizations apply information security governance, and to which extent the governance standards of the information security affect basically the reduction of e-accounting information systems. This study found that e-accounting information systems face many risks, the most important of which are external risks. One of the main reasons of these risks is a lack of information security policies and plans within these companies; in addition, a large number of research samples has failed to achieve information security goals and principles; and information security has not been integrated in their future strategies. Finally, they study found that the independent application of the standards of information security governance affects significantly the reduction of standard which is the standard of risks of e-accounting information systems (COBIT). At the end of the study, the two researchers suggested that a global guide shall necessarily be provided in order to educate Egyptian organizations on the role and importance of information security management through the Directors Center of Ministry of Investment, in addition, standards, principles and rule of information security governance shall be illustrated and included in the Supplement to the Directory of corporate Governance Rules and Principles; and financial Supervisory Authority has been established.

Al-Magrebi (2017)

Al-Mousui (2016)'s study was to assess the effectiveness of e-accounting information system in enhancing financial information security and control in Al Taif Exchange Company, so that the effectiveness of accounting information system has been assessed; the study also aimed at identifying the policies required for data processing and reporting in a timely manner to the authorized users; in addition, the study aimed to identify the procedures and actions which may be used for maintaining the confidentiality and privacy of e-accounting information system inputs and outputs of Al Taif Exchange company. In this study, survey method and interviews with the employees were conducted in order to identify the services, Al-Taif Exchange company provides and problems which Al-Taif Exchange Company face and address according to resources and references of e-accounting information system security. Finally, the study

came up with a set of conclusions; most importantly, a purchase process of accounting information system has been based on a choice of one chance and a choice of several alternatives has not been available. In addition, certain procedures for restoring backups of stored data are available when accidents occur; furthermore, storage is kept on a hard disk, and placed only inside information systems division ; and duration of data and copy retention is not determined, thereby providing an opportunity for unauthorized employees to access such data (Al-Mousui (2016).

Olayemi & Francis (2016)'s study aimed to find out why the use of accounting information system increases the level of management performance. The study also was to identify the problems facing the organization and management in decision making in educational institutions in Nigeria, in addition to coordination, control, profit maximization, optimal benefits and optimal use of resources. For achieving the purposes of study, the researchers used descriptive analysis approaches as well as questionnaire which distributed to a sample of study composed of 140 respondents. And information was collected to figure out the relationship between accounting information system and the strategic decision –making process; the questionnaire was analyzed by using appropriate statistical data, standard deviation, contrast test and Pearson coefficient methods. Finally, the study concluded that applying accounting information system affects significantly and positively strategic and administrative decision making process in the organization. (Olayemi & Francis, 2016).

Theoretical Framework

Information security science examines the theories and strategies which aim at protecting the information against the risks threatening them as well as the activities assaulting them. Technically, information security is defined as a set of means, tools and procedures which must be provided for protecting the information against internal and external errors. Legally, information security is defined as a subject of studies and measures to protect the confidentiality and integrity of the content, as well as an availability of information and combating the activities assaulting them or exploit its systems in committing a crime (Qader, 2015: 65).

It is also defined as technical policies, procedures and measurements taken to prevent unintentional access, theft or a tamper with the records. (Sultan, 2000, 396) (12). Furthermore, it is defined as the policies and practices which must be within the organization in order to trade e-business movements through the networks with a reasonable and assured degree of security.

And this security applies to all activities, movements, and electronic storage as well as business companies, customer and organizers in addition to trustees and any anyone else who can be exposed to penetration risks (Moscove, 2001, 13). For the purposes of study, it is a science which examines the theories, strategies and laws concerned with ensuring that information security is protected against the risks which may threaten it; in addition, it is a science which apply the methods, means and procedures required for providing this protection, facing and overcoming the risks as well as enacting deterrent laws which prevent the occurrence of these risks in the future and punish their perpetrators. Accordingly, applying information security in various scientific, practical and legal aspects increases significantly the level of trust of accounting information system.

E- Accounting Information Systems Security Threats : E-accounting information systems in the organizations face many security threats; the threat may refer to an intentional hostile event or unintentional event resulting in damages to accounting information system or the facility. The impact of threat means the financial losses which may occur as a results of threat. In addition, probability concept refers to the strength of the potential of occurrence of threat. (Zulev, 2009, 51))14).

The risks and crimes threatening accounting information systems in the light of information technology environment and affecting accounting information systems' security and integrity are represented in cybercrime arising as a result of the use of information technology; cybercrimes means that information technology is directly or indirectly used in illegal activities and conducts such as theft or data misrepresentation, thereby causing damage to the employees or the management of facility and the users of information. As a result, the company will be negatively affected. Furthermore, these crimes may be committed by the employees of the facility whether the current or former employees in order to achieve their own interests; or they can be committed by individuals outside the facility, who have the ability to hack the information system of the facility. Hacking may occur due to a desire to hack the information system confidentiality; or some hackers may hack information system in order to disrupt or change the contents of system or misrepresent its data for purposes of entertainment; or hacking may occur because of the viruses which cause devastating damages to the computer and its software; viruses are the most serious threats which information security and integrity face, due to their multiple types and an emergence of new types of viruses every day with their rapid spread via the internet.

The risks and threats of e-accounting information system security can be classified and tabulated based on different perspectives; based on their resources, risks can be classified into internal and external risks; so that the employees of unsecured facilities have an access to the system and the data; then, they can distort or modify the data; in addition, they are more aware of the weaknesses and shortcomings of the controls applied in the facility (Abu Musa 2004:4)

One of the threats facing e-payment companies is network threats because these companies depend on the network in order to perform their works; the most important threats and the weaknesses can be shown as follows: (Amer, 2011, 35) :

1. Threats and Security Gaps: they include technological weaknesses, setting weaknesses as well as weaknesses of protection policies; these three types of weaknesses are important sources which can be exploited by the hackers in order to violate the privacy of the network and weaknesses of the protection; then, they can hack the defensive procedures of their victims' networks.
2. Protection Weaknesses: network protocols include various weaknesses which can be exploited. In order to complete the communication process via the network, specific services shall be provided and enabled; the model network consists of protocols and office operating systems and network devices used for routing the data via the network and each of network's components which contain vulnerable exploitable points.
3. Major Network Threats: Network threats can be restricted to two groups as follows:
 - Unorganized Threats : they include mainly unexpected individuals using easy hacking tools which are available on internet and many sites such as password and closed text-cracking techniques; although unorganized threats may occur when easy piracy tools are activated, they remain a source harming highly the abused network; and level of damages which network exposes to may increase seriously if hackers are skilful and use strong hacking tools.
 - Organized threats: they come from highly impulsive hackers motivated by a technical competition; and they know operation system gaps; furthermore, they understand software texts and codes, thereby exploiting them.
 - External Threats: these threats are caused by the individuals or organizations working outside the facility and they are not authorized to access to facility's compute

network. Those individuals or organizations performs usually their work by entering the network via internet.

- **Internal Threats:** these threats may occur when someone is authorized to access to organization network either by pre-registered account or by physical access to sites of network hardware and equipment. (Amer, 2011: 36)

Factors that help in hacking the accounting information systems e-accounting information systems are less secure than manual information systems because electronic accounting information systems save the data in electronic files, so that many individuals can access these files. Therefore, electronic accounting information systems may be exposed to many threatening risks due to a set of various factors as follows: (Sultan, 2000, 393) (19):

1. Electronic accounting information systems process a large amount of processes. Therefore, it is difficult to make hard copies of them;
2. Errors resulting from the change of electronic accounting information system are not easily detected; and modification processes disappear and cannot be identified; in addition procedures cannot be reviewed since they are invisible;
3. Electronic systems may be misused by the experts unaffiliated to the organization if they are called upon to develop the systems.
4. Risks exposed by electronic accounting information systems may destroy all records of the organization; they are extremely dangerous to electric systems; and they are less dangerous to manual systems;
5. Controlling the electronic system is weak due to the user's direct access to the systems;
6. Technological development of communication makes the access to information systems from anywhere easy, thereby allowing unauthorized access or misusing of information systems; and
7. Many applications are available in multiple sites belonging to the same database, thereby resulting in the possibility of penetrating the system by the virus.

Accordingly, organization and company's managements must protect their data in all their forms, whether paper or non-paper. Furthermore, the electronic accounting information system are more vulnerable to the danger than other systems. Therefore, the management must place restrictions on the users which limit the possibility of manipulating or tampering with the data either by parties inside the organization or outside the organization.

FIELD STUDY

Methodology of Study

The study has relied on an inductive approach in order to touch upon the available relevant references and literature; in addition, the study has used the extractive approach to examine the actual reality of the role of electronic accounting information system in enhancing financial information security as well as the methods of security and control used in e-payment and money transfer companies in Jordan.

Population and Sample of Study

10 companies provide e-payment services as a main part of their business and 3 companies provide e-payment and money transfer services through their activity; the questionnaire, a study tool, has been distributed to an entire study population including the department of information technology and control (and audit, if available); 100 questionnaires have been retrieved; and 4 questionnaires have been excluded because they are not valid for statistical analysis.

Statistical Analysis

Fifth Likert Scale has been used to correct the study tools, each paragraph of the questionnaire has been given one point out of five points (strongly agree, agree, neutral, disagree, strongly disagree) and they have been numerically represented as 1, 2, 3, 4, 5, respectively. In addition, the following measure has been adopted for the purposes of analyzing the results:

- From 1.00 to 2.33 Low
- From 2.34 to 3.67 Medium
- From 3.68 to 5.00 High
- Reliability of Study Instrument

For ensuring the reliability of study instrument, internal consistency of Cronbach's Alpha has been calculated as shown in table 1.

Table 1. Internal Consistency Coefficient (Cronbach's Alpha)

Fields	Internal Consistency
There are factors which help to hacking the e- accounting information systems in Jordanian e-payment and money transfer companies.	0.83
E-accounting information systems in Jordanian e-payment and money transfer companies face threats related to information security.	0.81

E-accounting information systems contribute the enhancement of financial information security and control in Jordanian e-payment and money transfer companies.	0.78
E-accounting information systems face various challenges (obstacles) in providing the requirements of financial information security and control in Jordanian e-payment and money transfer companies.	0.84
Total	0.86

Table 1 shows that values of internal consistency coefficient (Cronbach Alfa) for all dimensions of paragraphs of study instrument (the questionnaire) have ranged from (0.78 to 0.86); accordingly, consistency will be considered weak if the values of coefficient are below 0.60 have assumed that a minimum level of consistency coefficient is (0.70); and consistency is considered good whenever the values of coefficient are (0.80) and more. Thus, the values stated in the previous table are considered an indicator of consistency of study instrument and its paragraphs as well as its reliability for conducting the statistical analysis.

Study Hypotheses Testing

In the section of study, the hypotheses of study are tested as follows:

First Hypothesis Testing

There are factors which helps to hack e- accounting information systems in Jordanian e- payment and money transfer companies.

For verifying a validity of sub-hypothesis, arithmetic means and standard deviations for responses of respondents of sample study related to factors which helps to hack e- accounting information systems in Jordanian e- payment and money transfer companies have been extracted as stated in table 2.

Table 2. Arithmetic means and Standard Deviations Related to factors which helps to hack e- accounting information systems in Jordanian e- payment and money transfer companies, arranged in descending order according arithmetic means

No.	Paragraphs	Arithmetic Mean	Standard Deviation	Relative Importance
There are factors which helps to hack e- accounting information systems in Jordanian e- payment and money transfer companies				
1	Data processing path disappears, and software and operation systems are changed and modified	4.35	.795	High
2	E- systems may be misused by experts unaffiliated to the organization if they are called upon to develop systems .	3.90	1.110	High
3	Risks which E-Systems may expose to may destroy all records of organization; they are extremely dangerous to E-Systems.	3.86	.936	High
4	Technological development of telecommunication makes the process of connecting to information systems easy; thereby allowing unauthorized access from anywhere.	3.69	.862	High

5	e-accounting information systems process a huge amount of operations and processes; therefore, it is difficult to create hard copies of them.	3.42	.962	Medium
6	e-accounting information system's control is weak due to the user's direct access to the information system.	3.84	.534	High
7	Technological development of telecommunication allows unauthorized access or misusing of information systems; and Many applications are available in multiple sites belonging to the same database, thereby resulting in the possibility of penetrating the system by the virus. Consequently, database of information system may be destroyed or altered.	3.86	.936	High
		3.84	.876	High

Table 2 shows that a relative importance of factors which helps to hack e-accounting information systems in Jordanian e-payment and money transfer companies has been high; overall arithmetic means and standard deviation have reached (3.8), respectively. As it is shown in table 2, the ranking of the paragraphs has been as follows: The paragraph, 'Data processing path disappears, and software and operation systems are changed and modified', has ranked first, with arithmetic mean and standards deviation that have reached (4.35) and (.795), respectively; and its relative importance has been high. The paragraph, 'e-accounting information systems process a huge amount of operations and processes; therefore, it is difficult to create hard copies of them.' has occupied the last position, with arithmetic mean and standards deviation that have reached (3.52) and (.962), respectively; and its relative importance has been high.

To verify the validity of the hypothesis, arithmetic means and standard deviations have been extracted, then compared with standard arithmetic mean (3) using one-sample T -test as shown in table 3.

Table 3. Arithmetic means, Standards Deviations and One Sample T-test In Comparison With Standard Arithmetic Mean (3)

	Arithmetic Mean	Standard Deviation	T- Value	Degrees of Freedom	Statistical Significance
factors which helps to hack e- accounting	3.84	.534	15.468	95	.000

Table 3 shows that there are statistically significant differences at ($0.05 = \alpha$) between the performance and standard deviation where t-value has reached (15.468) and the statistical significance has been 0.000. thus, this result is acceptable. This hypothesis, therefore, can be accepted.

Second Hypothesis Testing

Second hypothesis: E-accounting information systems in Jordanian e-payment and money transfer companies face information security –related risks.

For verifying the validity of sub-hypothesis, arithmetic means and standard deviations for responses of respondents of sample study related to the risks which face e- accounting information systems in Jordanian e- payment and money transfer companies and relate to information security have been extracted as stated in table 4.

Table 4. Arithmetic means and Standard Deviations Related to the risks which face e- accounting information systems in Jordanian e- payment and money transfer companies and relate to information security , arranged in descending order according arithmetic means

No.	Paragraphs	Arithmetic Mean	Standard Deviation	Relative Importance
	Jordanian e- payment and money transfer companies face risks and threats which relate to information security			
1	Information and data theft is considered one of risks and threats which relate to accounting information systems.	4.25	.795	High
2	Information and data distortion is considered one of risks and threats which relate to accounting information systems.	3.90	1.110	High
3	The confidentiality of information system is hacked and accessed by some hackers.	3.86	.936	High
4	Disrupting or changing the contents of systems and distorting their data for the purposes of entertainment are the risks or threats which face the accounting information systems.	3.69	.862	High
5	Viruses are threats and risks which damage devastatingly the computer and its software	3.52	.962	Medium
6	There are threats and risks relating to the security gaps: Technological weakness; Weaknesses of setting; and Weaknesses of protection policies	3.84	.534	High
7	There are threats and weaknesses of protection relating to complete the communication via network.	3.86	.936	High
		3.85	62.9	High

Table 4 shows that the relative importance of the risks which face e- accounting information systems in Jordanian e- payment and money transfer companies and relate to information security has been high; overall arithmetic means and standard deviation have reached (3.84) and (.534), respectively. As it is shown in table 2, the ranking of the paragraphs has been as follows:

The paragraph, 'Information and data theft is considered one of risks and threats, which relate to accounting information systems.' , has ranked first, with arithmetic mean and standards deviation that have reached (4.25) and (.795), respectively; and its relative importance has been high. The paragraph, 'Viruses are threats and risks which damage devastatingly the computer and its software.' has occupied the last position, with arithmetic mean and standards

deviation that have reached (3.52) and (.962), respectively; and its relative importance has been high.

To verify the validity of the hypothesis, arithmetic means and standard deviations have been extracted, then compared with standard arithmetic mean (3) using one-sample T -test as shown in table 5.

Table 5. Arithmetic means, Standards Deviations and One Sample T-test In Comparison With Standard Arithmetic Mean (3)

the risks which face e- accounting	Arithmetic Mean	T- Value	Degrees of Freedom	Statistical Significance
	3.85	14.468	95	.000

Table 5 shows that there are statistically significant differences at ($0.05 = \alpha$) between the performance and standard mean where t-value has reached (14.468) and the statistical significance has been 0.000. Thus, this result is acceptable. This hypothesis, therefore, can be accepted.

Third Hypothesis Testing

Third Hypothesis: E-accounting information systems contribute to an enhancement of security and control of financial information in Jordanian e-payment and money transfer; this hypothesis includes the following sub-hypotheses:

- E- accounting information systems in Jordanian e-payment and money transfer companies have a set of control policies and procedures which make the system secure and highly effective.
- E-accounting information systems in Jordanian e-payment and money transfer companies meet the operational requirements and achieve an effective control over the financial data .

For verifying the validity of main hypothesis, arithmetic means and standard deviations for responses of respondents of sample study of two axes of the hypothesis have been extracted as stated in table 6.

Table 6. Arithmetic means and Standard Deviations Of Third Main Hypothesis

No.	Paragraphs	Arithmetic Mean	Standard Deviation	Rank	Relative Importance
1	E- accounting information systems in Jordanian e-payment and money transfer companies have a set of control policies and procedures which make the system secure and highly effective	3.89	.537	1	High

2	E-accounting information systems in Jordanian e-payment and money transfer companies meet the operational requirements and achieve an effective control over the financial data	3.71	.548	2	High
	Total	3.82	.518		High

Table 6 shows that the relative importance of providing a set of control policies and procedures which make e-accounting information systems secure and highly effective in Jordanian e-payment and money transfer companies has been high; overall arithmetic means and standard deviation have reached (3.82) and (.518), respectively. As it is shown in table 6, the ranking of the paragraphs has been as follows:

The paragraph, ‘ E- accounting information systems in Jordanian e-payment and money transfer companies have a set of control policies and procedures which make the system secure and highly effective ’, has ranked first, with arithmetic mean and standards deviation that have reached (3.89) and (.537), respectively; and its relative importance has been high. The paragraph, ‘E-accounting information systems in Jordanian e-payment and money transfer companies meet the operational requirements and achieve an effective control over the financial data ’ has occupied the last position, with arithmetic mean and standards deviation that have reached (3.71) and (.548), respectively; and its relative importance has been high.

To verify the validity of the hypothesis, arithmetic means and standard deviations have been extracted, then compared with standard arithmetic mean (3) using one-sample T -test as shown in table 7.

Table 7. Arithmetic means, Standards Deviations and One Sample T-test In Comparison With Standard Arithmetic Mean (3) related to the third main hypothesis

	Arithmetic Mean	Standard Deviation	T- Value	Degrees of Freedom	Statistical Significance
Policies and Procedures	3.89	.537	16.217	95	.000
Operational Requirements	3.71	.548	12.615	95	.000
Total	3.82	.518	15.516	95	.000

Table 7 shows that there are statistically significant differences at ($0.05 = \alpha$) between the performance and standard mean of the policies and procedures where t-value has reached (16.217) and the statistical significance has been 0.000. It also indicates that there are statistically significant differences at ($0.05 = \alpha$) between the performance and standard mean of the operational requirements where t-value has reached (12.615) and the statistical significance has been 0.000. Accordingly, this result is acceptable. In addition, the table stated

above shows that there are statistically significant differences at ($0.05 = \alpha$) between the performance and standard mean of the procedures and controls of information security where t-value has reached (16.217) and the statistical significance has been 0.000. Thus, this result is acceptable.

The details of arithmetic means of sub-hypotheses are as follows:

First Sub-Hypothesis

E- accounting information systems in Jordanian e-payment and money transfer companies have a set of control policies and procedures which make the system secure and highly effective.

For verifying the validity of sub-hypothesis, arithmetic means and standard deviations for responses of respondents of sample study of the control policies and procedures which make e-accounting information system secure and highly effective in Jordanian e-payment and money transfer companies have been extracted as stated in table 8.

Table 8. Arithmetic means and Standard Deviations Related to the control policies and procedures which make e-accounting information system secure and highly effective in Jordanian e-payment and money transfer companies arranged in descending order according arithmetic means

No.	Paragraphs	Arithmetic Mean	Standard Deviation	Relative Importance
E- accounting information systems in Jordanian e-payment and money transfer companies have a set of control policies and procedures which make the system secure and highly effective.				
4	There is an internal control system which protects the process of transferring the electronic documents in the company.	4.17	.691	High
1	The company has an integrated system of information system	4.14	.776	High
16	Specialities are supervised and distributed to the employees of computer center.	4.11	1.045	High
6	There is a policy preventing the involvement of company employees in the password.	4.07	.849	High
3	There is control procedures protecting the electronic signature in the company.	4.03	.864	High
5	A good internal audit department shall be available in order to control and audit the accounts and express an impartial technical opinion on the extent of validity of financial information and reports issued in the light of non-paper immediate accounting information systems.	3.99	.801	High
9	There are policies and procedures which organize continuous development and updating processes of the electronic programs.	3.97	.888	High
15	There are policies and procedures which enable the company to develop a plan of protection against the risks of information technology and reduce their impacts.	3.96	.917	High
2	The company has policies and procedures of encryption system for the data and information.	3.89	1.014	High

13	There are policies and procedures of saving the backups in a secure place outside the electronic computer room.	3.88	.874	High
11	There are policies and procedures verifying that passwords are not detected and are confidentially kept (for example, they are not written or displayed on the computer screen).	3.85	.995	High
14	There are policies and procedures limiting the types of data and classifying them into categories according to their relevance and sensitivity, thereby determine the level of protection which must be provided for each category.	3.85	.995	High
7	There are policies and procedures correcting the defect while the system is applied by the user.	3.83	.890	High
8	There are policies and procedures for selecting employees charged with applying the system, and identifying the scientific qualifications and practical experience required for applying the electronic system.	3.82	.821	High
12	There are policies and procedures verifying that access mechanisms are invalidated for those who no longer work for the company or those who have been transferred to other departments or branches.	3.82	.883	High
19	Passwords are identified and changed periodically; and they are cancelled for the persons who have left the job in the company.	3.74	1.098	High
10	There are policies and procedures aiming to increase employees' competence through enrolling them into a training course on e-accounting information system.	3.70	1.007	High
18	Training courses on information technology system and security associated to it are held for programmers, users and operators.	3.70	.964	High
17	The company analyses the risks, which the electronic systems impose to, and eliminates or reduces them.	3.63	1.117	Medium
	Total	3.89	.537	High

Table 8 shows that the relative importance of control policies and procedures which make e-accounting information systems secure and highly effective in Jordanian e-payment and money transfer company has been high; overall arithmetic means and standard deviation have reached (3.89) and (.537), respectively. As it is shown in table 8, the ranking of the paragraphs has been as follows:

The paragraph, ‘ There is an internal control system which protects the process of transferring the electronic documents in the company.’, has ranked first, with arithmetic mean and standards deviation that have reached (4.17) and (.691), respectively; and its relative importance has been high. The paragraph, ‘The company analyses the risks, which the electronic systems impose to, and eliminates or reduces them. ’ has occupied the last position, with arithmetic mean and standards deviation that have reached (3.63) and (1.117), respectively; and its relative importance has been high.

Second Sub-Hypothesis

E-accounting information systems in Jordanian e-payment and money transfer companies meet the operational requirements and achieve an effective control over the financial data.

For verifying the validity of sub-hypothesis, arithmetic means and standard deviations for responses of respondents of sample study of e-accounting information systems in Jordanian e-payment and money transfer companies which meet the operational requirements and achieve an effective control over the financial data have been extracted as stated in table 9.

Table 9. Arithmetic means and Standard Deviations Related to e-accounting information systems in Jordanian e-payment and money transfer companies which meet the operational requirements and achieve an effective control over the financial data arranged in descending order according arithmetic means

No.	Paragraphs	Arithmetic Mean	Standard Deviation	Relative Importance
26	There is a security control over the access to physical components of the computer.	3.88	.954	High
29	Recruitment policies ensure that employees' backgrounds shall viewed in order to reduce the possibility of employing dishonest individuals.	3.82	.918	High
23	There is security control over the users of programs.	3.78	.965	High
30	There is a documentation demonstrating that the users of the systems have been trained well.	3.77	1.071	High
31	Different tasks are distributed to the employees from time to time in order not to rely on one person to perform a particular task, so that, it becomes difficult to find an alternative	3.75	1.046	High
32	Compulsory leaves are given to the employees in order to reduce the possibility of fraud and embezzlement and know their performance during their absence.	3.74	.885	High
28	Employees allowed to access to critical and sensitive data are restricted in the company.	3.73	.900	High
25	There is a security control related to abuses of the natural access of the computer.	3.68	.888	High
24	There is a security control over the separation of tasks and duties	3.65	.894	Medium
22	There is a security control over the outputs	3.63	.886	Medium
21	There is a security control over the data	3.57	1.054	Medium
27	There is a security control over the data and programs saved outside operation device.	3.48	1.095	Medium
	Operational Requirements	3.71	.548	High

Table 9 shows that the relative importance of information security and cybersecurity system used to meet the occupation requirements and achieve the effective control in Jordanian e-payment and money transfer company has been high; overall arithmetic means and standard deviation have reached (3.71) and (.548), respectively. As it is shown in table 9, the ranking of the paragraphs has been as follows:

The paragraph, ' there is a security control over the access to physical components of the computer.' has ranked first, with arithmetic mean and standards deviation that have reached

(3.88) and (.954), respectively; and its relative importance has been high. The paragraph, ‘there is a security control over the data and programs saved outside operation device.’ has occupied the last position, with arithmetic mean and standards deviation that have reached (3.48) and (1.095), respectively; and its relative importance has been high.

Fourth Hypothesis Testing

Fourth Hypothesis: E-accounting information systems face challenges (obstacles) of providing the requirements of security and control of financial information in Jordanian e-payment and money transfer companies.

For verifying the validity of sub-hypothesis, arithmetic means and standard deviations for responses of respondents of sample study related to the challenges which face e- accounting information systems in providing the requirements of security and control of information in Jordanian e- payment and money transfer companies have been extracted as stated in table 10.

Table 10. Arithmetic means and Standard Deviations Related to the challenges which face e- accounting information systems in providing the requirements of security and control of information in Jordanian e- payment and money transfer companies, arranged in descending order according arithmetic means

No.	Paragraphs	Arithmetic Mean	Standard Deviation	Relative Importance
35	There is no interest to hold training courses on the risks related to the security of accounting information system.	4.25	.795	High
36	The management does not interest in providing the appropriate control procedures.	3.90	1.110	High
	The prices and costs of the means of protection of information security system and its programs are high.	3.86	.936	High
34	the development of the methods of hacking, data theft and spying is continuous	3.69	.862	High
37	The development of the methods of fraud and electronic threats is continuous and accelerated.	3.52	.962	Medium
	the challenges which face e- accounting information systems in providing the requirements of security and control of information in Jordanian e- payment and money transfer companies	3.84	.534	High

Table 10 shows that the relative importance of the challenges which face e- accounting information systems in providing the requirements of security and control of information in Jordanian e- payment and money transfer companies has been high; overall arithmetic means and standard deviation have reached (3.84) and (.534), respectively. As it is shown in table 10, the ranking of the paragraphs has been as follows:

The paragraph, ‘ there is no interest to hold training courses on the risks related to the security of accounting information system. ’ has ranked first, with arithmetic mean and standards deviation that have reached (4.25) and (.795), respectively; and its relative importance has been high. The paragraph, ‘ the development of the methods of fraud and electronic threats is continuous and accelerated. . ’ has occupied the last position, with arithmetic mean and standards deviation that have reached (3.52) and (.962), respectively; and its relative importance has been high.

To verify the validity of the hypothesis, arithmetic means and standard deviations have been extracted, then compared with standard arithmetic mean (3) using one-sample T -test as shown in **table 11**.

Table 11. Arithmetic means, Standards Deviations and One Sample T-test In Comparison With Standard Arithmetic Mean (3)

	Arithmetic Mean	Standard Deviation	T- Value	Degrees of Freedom	Statistical Significance
the challenges which face e- accounting information systems in providing the requirements of security and control of information in Jordanian e- payment and money transfer companies	3.84	.534	15.468	95	.000

Table 11 shows that there are statistically significant differences at ($0.05 = \alpha$) between the performance and standard mean where t-value has reached (15.468) and the statistical significance has been 0.000. Thus, this result is acceptable. This hypothesis, therefore, can be accepted.

RESULTS AND RECOMMENDATIONS

The study has found the following:

- There are factors that help to hack the e-accounting information systems in Jordanian e-payment and money transfer companies; hacking process includes a disappearance of document; a possibility of hacking by the individual involved in the systems, damages resulting from the viruses, and access abuse and software modification without leaving a trace;
- E-accounting information systems in Jordanian e-payment and money transfer companies face threats which relate to information security; these threats may include threats of hacking from unauthorized persons (hackers), internal and external threats, protection threats and communication threats through networks;

- E-accounting information systems contributes to the enhancement of security and control of financial information in Jordanian e-payment and money transfer companies; e-accounting information systems used in Jordanian e-payment and money transfer companies have a set of control policies and procedures which make the systems secure and highly efficient; these policies and procedures are related to passwords, protection and modification instructions of software as well as instructions of granting privileges. In addition, the study found that e-accounting information systems in Jordanian e-payment and money transfer companies meet the operational requirements and achieve an efficient control over the financial information; and
- E-accounting information systems face challenges (obstacles) in providing the security and control requirements of financial information in Jordanian e-payment and money transfer companies; these challenges are related to the rapid development of electronic financial systems and electronic payment methods; so that, providing a flexibility becomes necessary in payment companies in order to be able to modify and update their financial systems in a manner that is compatible with modern environment and the development of hacking methods; and developing control system becomes necessary in a parallel with the development of accounting system and its high cost.

RECOMMENDATIONS

E-payment services available in Jordan witness a constant development ; and Jordan seeks to maximize its possibilities of developing these services and creating a virtual digital reality in which a digital trade can smoothly and freely be conducted in a framework of trust and security, overcoming all obstacles. Furthermore, digital exchanges arising from e-commerce have significantly increased in Jordan, especially in the light of 2020 Coronavirus pandemic outbreak. Here, it is expected that the value of these exchanges may double 3 times in 2025; therefore, electronic payment services provided in Jordan must possess accounting and control systems which help to implement and complete quickly and accurately these services; and the users of e-payment companies shall ensure that no hacking of these services occur. Accordingly, the study has recommended the following:

- E-payment companies shall necessarily interest in accounting systems which shall be developed and updated in line with the development of the methods and means of e-payment.

- E-payment companies shall necessarily interest in providing appropriate controls according to the threats and risks which the accounting systems of e-payment services face; and e-payment companies shall necessarily interest in an increase of trust of the users of electronic systems.
- Holding training courses for workers on electronic payment services and their users, introducing them to the most important developments and risks, and how to deal with them, and not to fall into any of these risks.
- Develop a strategic and emergency plan to face the risks associated with electronic payment systems and information security.
- Electronic payment companies are among the newly operating companies in Jordan, which must be studied in accounting and regulatory issues. From here, we ask researchers to move towards writing in this sector.

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