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THE IMPACT OF RELIABILITY ELEMENTS ON PERFORMANCE INDICATORS OF JORDANIAN COMMERCIAL BANKS

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ABSTRACT

This study aims to examine the reliability of accounting information systems and its impact in improving the performance indicators of Jordanian commercial banks through the adoption and use of (Sys Trust) model. The concept of performance indicators (according to this study) includes: financial, operational, and stock performance and management of market value. The study has drawn upon qualified questionnaire sent to all the Jordanian commercial banks listed in Amman Stock Exchange to obtain the data with a response rate over 75%. A number of illustrative hypotheses have been tested statistically to examine the readiness of and the relation between accounting information systems' reliability and quality of performance. The results have indicated high level about the readiness of (SysTrust) principles in accounting information systems environment of the Jordanian Commercial Banks ;(availability (78%), security (77%), confidentiality and privacy (70%), and Processing integrity (57%)). In addition, an independent sample R2 test confirmed a positive relation between applications of (SysTrust Model) and parameters of banking performance matrix (Net profit margin and Return on assets). While the statistical tests have shown negative relation in regard to banking performance parameters (Market value-added, Return on investment, Earnings per share, and Price-earnings ratio).

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KEYWORDS: AIS Availability, AIS Security, AIS Confidentiality and Privacy, AIS Processing Integrity, AIS Market Value-Added, Return on Investment, Net Profit Margin, Return on Assets, Earnings Per Share, Price-Earnings Ratio

INTRODUCTION

Perhaps one of the most common business facts is that the Accounting Information System (AIS) has always formed one of the most important tools for measuring and reporting the activities and the profitability of the business organizations . These systems has a long history in such fields. Most of the beginnings of accounting goes back to the old civilizations era which adopted clay boards in the field of measuring and reporting the details of the daily bargains and deals. As it is important to clarify the stages of the transformation of designing and discovering the mechanism of the AIS, it is possible to say that the discovery of the double entry System (DES) has formed the real beginning of designing the logical AIS that is characterized of being distinguished and unique. However, most opinions consider using information technology for processing the accounting data is the real beginning of designing the contemporary AIS. The real importance of adopting and use of information technology in the structure of AIS comes from the fact that it redesigned the internal AIS financial control in the direction of promising larger operational efficiency, it aligned the company's functions to meet the needs of e-business, as well as it resulted in an

objective and trustful performance. However, this heavy reliance of today's businesses on the use of information technology makes the reliability of their AIS very critical.

In one hand, it derives their traditional accounting control concepts and tools obsolete and on the other hand, it elevates the level of risks associated with AIS and the risk associated with their functional performance of business (Zhao et al., 2004). To meet these risks and control concerns and to provide assurance regarding the reliability of a firm's AIS, the American Institute of Certified Public Accountants (AICPA) and the Canadian Institute of Chartered Accountants (CICA) were ones of the first organizations that prospected this significant fact. They formed common researching committees worked continuously to redesign the concepts and the principles of the traditional AIS control in a way to reconstruct it on technological bases taking into consideration the new identity of AIS. After great efforts, they succeeded to issue a type of assurance service called (Sys Trust) as provisional work guidance provides the possibility of testing and checking the levels of AIS reliability (Bailey, 2000). The claimed benefits for firms to use Sys Trust include reducing risk and enhancing the confidence of a broad audience (management, board of directors, customers, business partners) regarding the reliability of information systems in general and AIS in particular (AICPA/CICA, 2006; Bedard et al., 2005; Pugliese and Halse, 2000), affecting the intention of potential users (e.g. customers, business partners) to adopt and use its online application and enabling companies depend on information technology for their daily functioning maintaining their competitive position, and making key business decisions (Greenberg et al., 2012).

Notwithstanding the benefits of Sys Trust and the efforts of professional bodies (AICPA/CICA) to promote the service and to encourage the application of contemporary assurance service among firms, to date, the actual demand for the Sys Trust service has been limited and less effort is made to incorporate up-to-date assurance service process among firms (Sutton, 2006). Moreover, research in this area has also been limited (Greenberg et al., 2012). As a result, there has been a call for research to examine the issues within different contexts (Greenberg et al., 2012; Bedard et al., 2005; Sutton, 2006; Sutton and Hampton, 2003). In response to the call, the present study is taking a significant step to examine the suitability of Sys Trust in a new context. First, it examines the readiness of AIS reliability within a financial service domain and second it is exploring the effect of the reliability of AIS on the performance of banking industry, which considers one of the basic aspects in Jordan.

The remainder of this study is organized as follows. The next section describes the Literature Review and the theoretical model for the study. Hypotheses are then developed followed by a description of Data and Methodology. Subsequently, the results are presented, and the Concluding Comments and implications of the findings are discussed.

LITERATURE REVIEW

Sys Trust Service

The AICPA and CICA established the Sys Trust service in 1999 in expectation of increased need for reliable systems that results from the heavy reliance on information technology. Sys Trust is a type of assurance service performed by a certified CPA or CA to independently test an organization's system and to offer assurance on the system's reliability. In an examination engagement, there is an opinion as to whether controls over a defined system were operating effectively to meet the criteria for systems reliability. The intent is to enable those stakeholders who use or rely on the system including the company itself, its partners and customers, to gain trust and confidence in the system (AICPA/CICA, 2006; Bedard et al., 2005; Pugliese and Halse, 2000; Greenberg et al., 2012). According to the Trust Services Principles, Criteria and Illustrations (AICPA/CICA, 2006), the reliability framework in the Sys Trust includes five principles: security, availability, confidentiality and privacy, and processing integrity. These principles are used individually or in combination in order to provide the relevant parties of the work of AIS (management,

customers, suppliers, and business partners) and in levels to ensure that the system actually works objectively and mechanically to ensure less risky levels. Each principle of the above four principles consists of a management of one aspect of operating and work of the AIS aspects work both in terms of the definition of concepts or in terms of clarify operational policies to be adopted to optimize the operation of the above four principles. The importance of availability of reliability of AIS standards has become an established fact in applications of control and auditing in the United States, Canada, and some Western Europe countries. It has become imperative for the AISs operating in those countries to own strong information in light of the standards of (SysTrust). Such companies usually granted a certificate known as (SysTrust) which are often valid for a period of three years, subject to renewable after the actual assessment once again. The below sections include the definition and clarification of the operational requirements related to each standard within the business model system (SysTrust).

Availability of AIS

AIS availability is the ability of the final user 's to use the system within the system timings necessary for the implementation of the business organization work requirements. The concept of using system involves the ability of implementing data processing course activities; entry, storage, processing, and report with the greatest levels of efficiency (Romney and Steinbart, 2015). According to this description, the AIS availability considers, in reality, a function of two factors: failure of hardware and software and natural disasters which requires the AIS administrators taking adequate control measures to limit the effects of the AIS malfunction whether through the use of scheduling of operations or through the adoption of efficient maintenance systems in its two types the periodic and the emergent. In addition, the developing of recovery plans from natural disasters and hostilities plans (Disaster Recovery Plan) is important in this regard, too, especially such disasters and businesses have recently become more frequent and more destructive . It is noted that the availability of AIS is subject to the policies and plans of the administration in regard to the use and operation of the system.

AIS Security

AIS security is defined as the degree of protection entitled by the regime against the illegal access of both types (physical and logical). A good level of security considers an important tool for reducing risks and threats resulting from un ethical use of data (such as destruction, modification, and data leakage). Good AIS security level is considered a tool of reducing the risks associated with illegal physical use such as theft and deliberated destruction for some components of system (FFIEC, 2003). AIS management should , in order to strengthen the security system, design security technological infrastructure on one hand and adoption policies and procedures separation systems , especially with regard to the functions of processing data and data acquisition, use of control systems of physical and logical access, enhancement the protection of personal computers procedures, and using hardware and software system for protecting of business networks and implementation of e - commerce and business work requirements (Kalakota and Whinston, 1999; Zhao et al., 2004).

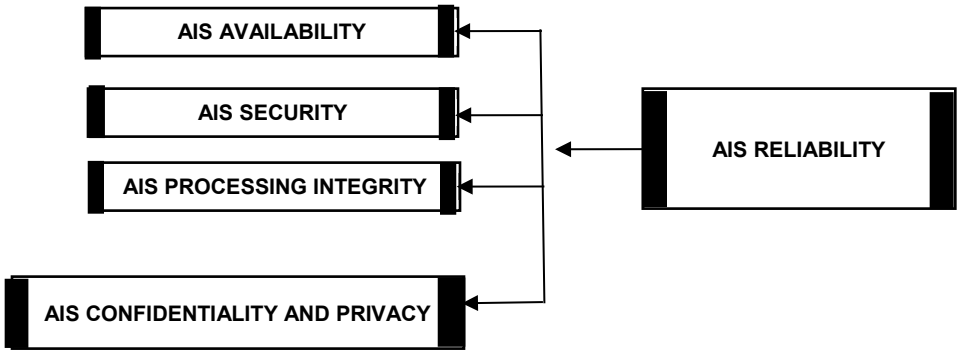
AIS Confidentiality and Privacy

AIS confidentiality and privacy is known as a set of procedures that contribute to maintaining the confidentiality and privacy of information of company and its customers whether it is at the stage of being collected, processed, classified or stored (Romney and Steinbart, 2015). There is a must to put policies and procedures that would keep the secrecy and privacy of information and its documentation, and identifying the responsible of the maintenance of the system , and the mechanism to be used, in addition to the assessment of these mechanisms periodically.

AIS Processing Integrity

It is known as the degree of being complete, accurate, temporary, and the legitimacy of data processing operations in AIS . Generally, AIS safety is described high if it is able for carrying out a series of planned processing operations within the timings tables on one hand , while ensuring that no access or illegal use of the resources of the processing operations on the other hand (AICPA & CICA, 2006). In order to ensure high safety operations, AIS administrators should adopt applications control system (Application Controls) which involves physical and logical tools to prevent, identify, and correct mistakes that may take place during the implementation of the data processing activities course. The applications include the control of sources of data entry tools and operations system as in the means of control data sources (Source Data Controls), verification tests of inputs (Input Validation Routines), An immediate injection of data and control (On -line Data Entry Controls). In addition to the means of control storage operations and data processing (Data Processing and Storage Controls), (Outputs Controls), and (Data Transmission Controls). Fiqure 1 presents the SysTrust for verifying AIS Reliability which includes AIS availability, AIS security, AIS processing integrity, and AIS confidentiality and privacy.

Figure 1: SysTrust Model for Verifying AIS Reliability



This figure shows the SysTrust for verifying AIS Reliability which includes AIS availability, AIS security, AIS processing integrity, and AIS confidentiality and privacy. Source: AICPA & CICA, 2006

Previous Studies

The adoption and use of information technology introduced a fertile field of study and research especially regarding regulatory, human, and financial effects resulting from such use. In addition, the breadth size of these effects has led many professional and academic organizations of adoption research projects for developing models work on framing the variables that has to do with the levels of use of information technology and what makes it evidence of the use and measurement environmental inequalities ranges in the employment of the means of information technology. In this regard it should be noted that the study of (COSO, 1992) that has redefined the concept of internal control on one hand and development a guide to assessing the internal control systems on the other hand. It is possible to say that the model (COSO) for internal control components summarized in: (Control Environment), (Control Activities), (Risk Assessment), (Communication Systems), (Monitoring). A (COSO) study includes five well known professional academic organizations and takes more than three years and concludes that the fact that the use of information technology expanded greatly from the concept of internal control where it is no longer an accounting pure concept but became so broad that became the important technological, administrative, and human variables . The adoption and use of information technology greatly increased the levels of risk surrounding the work of the internal control systems, which urged the need for efficient management of the variables of the internal control systems, including technological, managerial and human variables.

It also should be noted that the study of the control and audit committee study of the information systems (ISACF, 2001) , which worked on the development and framing the regulatory objectives related to the use of information technology (COBIT). The ISACF study includes three control groups: (Business Objectives), (IT Resources) and (IT Process). The most important characteristic of the study of ISACF is the collecting more than thirty-six control standard in one frame including works to provide tight regulatory guide that can be used to assess the adequacy of AIS security and control systems based on the use of information technology. Evaluating of AIS reliability and the effectiveness of its control procedures urged both (AICPA & CICA, 2006) to develop a series of control principles could be reliable to assess the objectivity of business organizations Web sites. It included the principles of privacy, security, safety of operations, transactions, availability, confidentiality, and disclosure.

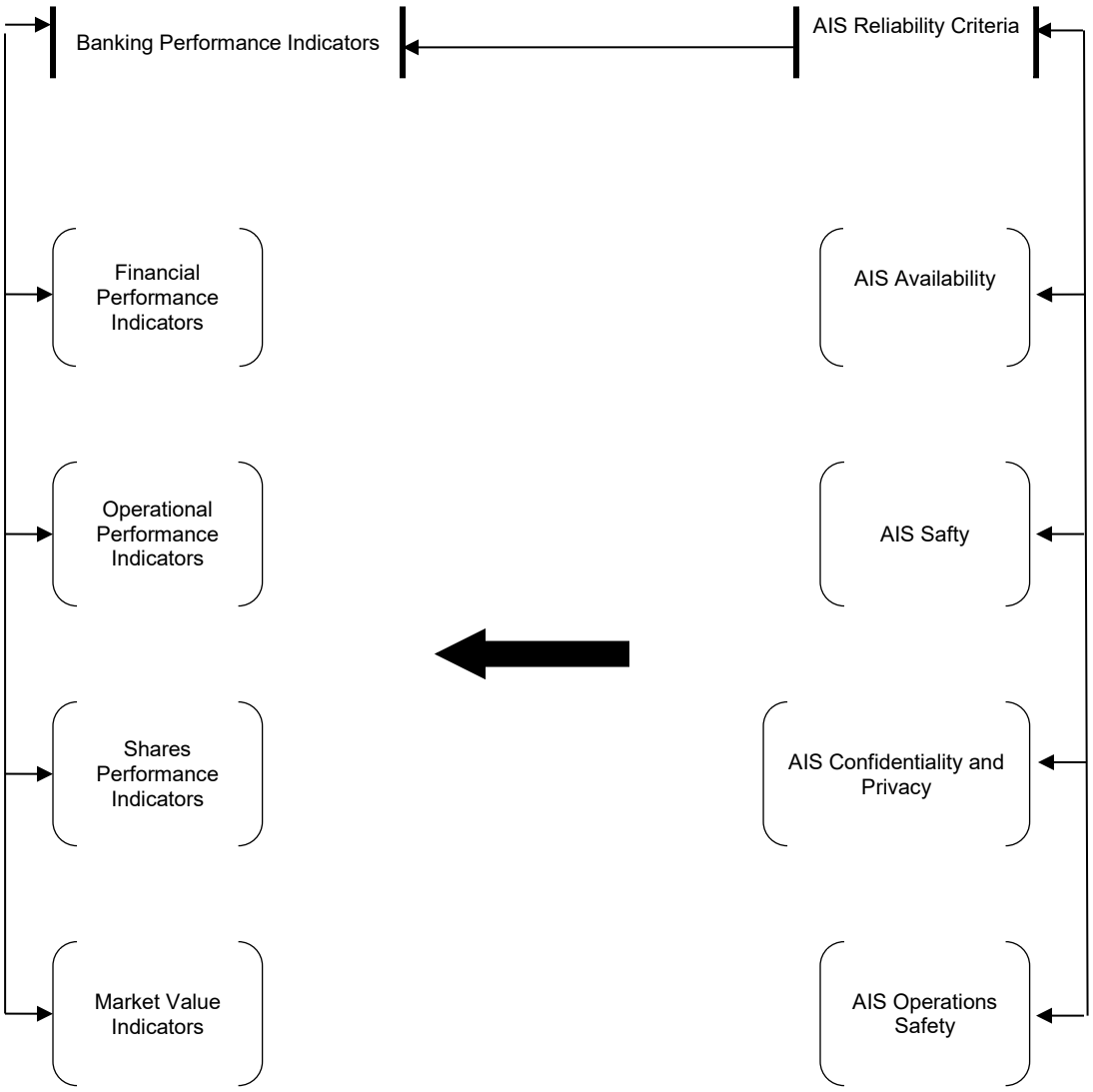
The Boritz and Hunton (2002) paper primarily addresses Information system reliability. The paper represents an important area of research and provides a valuable starting point for additional research. The paper indicates that careful thought went into designing the questionnaire and the research design in general. A variety of statistical tests was performed on the data to test for possible biases in the subsequent questionnaire responses. Casolaro and Gobbi (2004) study has represented one of the worth mentioning study in this aspect. The study aims at studying the wide effect of using IT on three operational variables: cost, productivity and profitability. The importance of their study comes from the fact that it implemented in the Italian banking industry by taking a sample of six hundred banks. It concludes that there is a statistical effect for expanding in the use of IT especially in minimizing baking cost, maximizing banking services extents and fostering the levels of baking profits.

Raupeliene and Stabingis (2003) aim to study the methods of evaluating the efficiency of computers- based AIS. They develop a model to evaluate the efficiency of computerized AIS by framing a group of social, economical and commercial criteria. It considers as an attempt to find parameters that can be used for measuring the effect of IT on AIS efficiency. It concludes that the efficiency of computers- based AIS has different statistical levels that can be expressed by quality and quantity measures. The accuracy of these measurements depends on the maturity level of AIS environment application from one hand and the degree of the development of the technological infrastructure form another hand. The excellence and uniqueness of this study compared to the previous studies and the individual attempts of measuring close criteria to study subject on the local level comes from the fact that the (Sys Trust) provides a comprehensive measuring frames distinguished by containing all the measuring parameters of computerized AIS operations from one side. In addition, the sample of this study includes all Jordanian commercial banking that can really express the Jordanian banking performance from another side.

The Model of Study

As we mentioned before; what distinguishes the current study is being based on adopting (Sys Trust) including the operational criteria considers effective variables in determining the AIS performance levels. According to the concepts of this operational relationship, the model of this study was constructed to contain AIS reliability criteria, which represented by AIS availability, AIS security, AIS confidentiality and privacy, AIS processing integrity and AIS as independent variables consider parameters that possess effects possibility in the targeted measured of reliability level. While banking performance matrix indicators represented in the financial performance levels, operational performance, shares performance and the level of the market value are classified as dependent variables. Figure 2 presents a hieratical shape for the independents and dependent variables that forms the model of study.

Figure 2: Theoretical Model of Study



The Hypotheses of Study

In the light of the theoretical model of study in Figure 2, and the problem of study mentioned above; we can summarize the most prominent hypotheses in two groups: the first group includes hypotheses verifying the availability of the operating requirements of the standards according to the model (SysTrust) in AIS work environment in the Jordanian commercial banks and at the level of each standard operation. The second group includes hypotheses verifying AIS impact of reliability on the banking performance indicators matrix that constitute the sample study. The first group: AIS level of reliability in Jordanian commercial banks:

H_{01} AIS does not provide standard of readiness requirements in Jordanian commercial banks.

H_{02} AIS does not provide the requirements of security in Jordanian commercial banks.

H_{03} AIS does not provide the standard of confidentiality and privacy in Jordanian commercial banks.

H_{04} AIS does not provide the standard of processing integrity requirements in Jordanian commercial banks.

The second group: the AIS impact of reliability in the Jordanian commercial banks on the banking performance matrix indicators:

H_{05_1} There is no effect of AIS reliability on value market added.

H_{05_2} There is no effect of AIS reliability on returns on investment.

H_{06} There is no effect of AIS reliability on operational performance levels.

H_{06_2} There is no effect of AIS reliability on net profit margin.

H_{07} There is no effect of AIS reliability on operational return on assets.

H_{08} There is no effect of AIS reliability on stock performance (EPS).

H_{08} There is no effect of AIS reliability on market value level (price-earnings ratio).

DATA AND METHODOLOGY

The objective of this study is to extend of Sys Trust within Jordanian Commercial Banks dominate. The study contains two kinds of measurement: a) Measuring and checking the availability of the reliability standards pointed out in the theoretical frame of the study as the independent variables. b) Measuring the performance indicators of Jordanian Commercial Banks as the dependent variables. To measure the readiness of the reliability standards, a questionnaire was prepared especially for this purpose that contained many questions to determine the extent of availability and optimality of (SysTrust) principles and criteria. The survey questions were selected from the AICPA Trust Services Principles, Criteria, and Illustrations for Security, Availability, Processing Integrity, Confidentiality, and Privacy guide and were modified to the practice of commercial banks context. Accordingly, the quantitative data for the study were gathered through a survey questionnaire from both the IT specialists and business managers within each bank. The survey questionnaire comprised 63 items 4-dimensions. The questionnaire consisted of three sections, which starts with a brief description of the meaning of the main concepts, and it gives the instructions on how to answer each section of the questionnaire. The second section contained basic demographic characteristics including gender, age, measures for assessing the level of SysTrust experience, etc. In the third section, the survey participants were asked to respond to questions on the four constructs of the model: Security, Availability, Processing Integrity, Confidentiality and Privacy.

For each construct, a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5), was used. The questionnaire also explores the prominent obstacles that face the achievement of reliability requirements as well as the operational problems that might come up as a result. The survey was originally written in English. However, as the survey has to be conducted in a non-English-speaking country, it was translated into Arabic. Translation of all terms has been completed at most accurate way possible so as to allow researcher to use comparatively the results of this survey with results obtained from other similar SysTrust surveys. To ensure the reliability and validity of the translated questionnaire and to provide greater objectivity of the results of study, researchers tended to verify the statistical validity of questionnaire through implementing of Validity and Reliability as shown below

Validity of Instrument

This test aims at checking the ability of questionnaire to describe and represent the variables that intended to be checked as well as to implement what this test contains. The judges' opinions and the verification of the internal content were used as tools that achieve objectivity. The well designing of questionnaire considers the comprehensive content and excludes repetition and double standards. Researchers offered and distributed the questionnaire to a number of academics, specialists and professionals to check the simplicity and easiness of understanding as well as the good research variables representing. In fact, the questionnaire has been approved and accepted by academic and professionals. Researchers tested the validity of the internal consistency of the questionnaire by the creation of Pearson correlation coefficient between each item and the general rate of the department that included that item. The results showed positive indicators regarding the validity of questionnaire and its ability to record study variables.

Reliability of Instrument

This test designed to verify access to the same data if it repeated the questionnaire more than once. We use (Cronbach Alpha) for verifying the level of reliability of instrument. Test results showed that the value of Alpha was about 84%, the value exceeds the accepted cut-off value of 0.70, as suggested by (Nunnally, 1978). This indicates that each individual item is internally consistent and highly reliable (Vaus, 2002). The study also adopted a series of steps to transform gathered data from interval scale to ratio scale to facilitate comparing reliability levels with performance level. A relative weight was given to each standard of reliability standards. These weights had been determined according to the judges and the requirements of each standard (see Table 1). Table 1 presents the AIS reliability standards, their relative weights and number of questions for the different dimensions of each standard of reliability

Table 1: (SysTrust) Principles

AIS Reliability Standard	Weighted-Average	No. of Questions
AIS Availability	%24	
AIS Security	30%	19
AIS Confidentiality and Privacy	13%	8
AIS Processing Integrity	33%	21
Total	100%	63

This table shows the AIS reliability standards, their relative weights and number of questions for the different dimensions of each standard of reliability

In addition, determining what is known as mid-point class through identifying ranges of classes to facilitate verification of the availability ratio of four reliability standards operations has been taken into consideration. It is worth mentioning here that the calculation of checking the achievement of each standard done by multiplying the value of the class in the weight of standard. Table 2 presents Interval weights for reliability levels, their classes and their classes' values

Table 2: Interval Weights for Reliability Levels

Very High	**High**	**Intermediate**	**Low**	**Very Low**	
81-100	61-80	41-60	21-40	1-20	Class
90.5	70.5	50.5	30.5	10.5	Class value

This table shows the Interval weights for reliability levels, their classes and their classes' values

Participants and Data Collection

The target population of this study is all Commercial Banks listed in Amman stock exchange as of January 1st 2006. The population size of 13 banks was selected and both the IT specialists and business managers

within each bank were used to gather data. The data collection was conducted using questionnaires that were self-administered by hand and mailed to the selected study population. The survey questionnaire comprised 63 items 4-dimensions. The response rate was 76.92 percent (a total of 10 questionnaires out of 13 after the follow-up activities were returned for statistical analysis). To measure the performance indicators of Jordanian Commercial Banks, as the dependent variables, we use annual reports for banks in 2006 to get the data (www.abj.org.jo), which reflects in a way the affection of what is known as AIS reliability perfection. For study purposes, banking performance matrix takes the conceptual map and the identification formula stated below (Mays and Shank, 2001).

Financial Performance

Market value added (MVA): it defines as the difference between the market value of shares and the capital provided by stockholders. The importance of (MAV), as a financial indicator, comes from its ability to clarify the increase in the market value of stock and the effect of this increase in maximizing the market value of business organization. Return on Investment (ROI): it defines as the total of profits coming from the use of valuable assets. Mostly, it uses as an indicator for measuring the efficiency of business organization.

Operational Performance

Net profit margin (NPM): it define as the remaining amount of each dinars of income (as a percentage) after the payment of all costs, including interest and taxes. Operating return on assets (ROA) : total profits remaining after subtracting the operational expenses only. The operational return reflects the efficiency of business organization management in creating and achieving profits from the operational resources that characterized by highly degree of periodical and frequency.

Share Performance

Earnings per share (EPS): This ratio is very important to investors because it provides an important indicator of the success of the business in achieving profitability.

Market Value

Market value reflects a part of the goodwill of the business on one hand and the success and operating policies on the other hand. This ratio provides a signal to investors and owners about the future of investment. Price-Earning ratio (P/E): This ratio represents the return required by investors in the financial markets to employ their money in shares of the business organization.

Testing Normal Distribution of Data

Kolmogorov-Smirnov (K-S) statistic is used for testing whether the data is normally distributed. Most statistical tests require normally distributed of data. For decision rule in this type of testing is based on the hypothesis of accepting the normal distribution of the data if the value of significance is more than 5% and taking null hypothesis if the significance value is less than 5% (Sekaran, 2005). In addition, we use this test for checking the problem of Autocorrelation. The problem of Autocorrelation that would affect the validity of the model. Table 3 shows the test of normal distribution for independent and dependent variables.

Table 3: Normal Distribution Test

Variables		Kolmogorov-Smirnov		Ratio of Skewness to Standard Error		
		K-S Coefficient	Sig	Skewness	Standard Error	Ratio
Independent Variables						
AIS Availability		0.195	0.194	-0.088	0.616	-0.143
AIS Security		0.183	0.200	-0.846	0.616	-1.373
AIS Confidentiality and Privacy		0.189	0.200	0.663	0.616	1.075
AIS Processing Integrity		0.283	0.006**	-1.968	0.616	-3.194
Financial Performance	MVA	0.451	0.000***	3.453	0.616	5.603
	ROI	0.406	0.000***	3.307	0.616	5.365
Operational Performance	NPM	0.291	0.004***	1.867	0.616	3.029
	ROA	0.172	0.200	1.200	0.616	1.947
Shares Performance	EPS	0.222	0.078*	0.894	0.616	1.450
Market Value	P/E	0.384	0.000***	2.896	0.616	4.701

*This table shows normal distribution test for the study variables based on Kolmogorov-Smirnov coefficient test. In addition, it shows the ratio of Skewness to Standard Error for all variables used in the study. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

The Ratio of Skewness to Standard Error

We use the above ratio as another way for testing normality distribution of data, where the data is normally distributed if the ratio is in the range of (-2 to 2). Table 3 shows that the value of Sig. for some of the assumptions is greater than 5%, indicating that the data is normally distributed. The ratio of skewness to standard error for these hypotheses within the range of (-2 to 2) which confirms the property that the current study data has normally distributed which is consistent with the results that have been reached in the test of (Kolmogorov-Smirnov), with the exception of the data of the following variables: the safety of AIS operations , the level of financial performance, the level of operating performance and the level of market value. We convert the variables that have no normal distribution in their data to the natural logarithm (LN) to overcome the problem of non-normality.

Testing the Suitability of the Study Model

As we mentioned earlier, this study aims to measure the impact of the availability of the reliability of AIS on banking matrix performance which is expressed in six functional indicators: financial performance (MVA & ROI), operating performance (NPM & ROA), performance shares (EPS), and market value (P / E). In order to facilitate the implementation of measurement processes the current research is based on the adoption of the quantitative measurement of each functional index methodology and through mathematical models as below:

$$\left|\begin{array}{l} MVA = \alpha \mp \beta_1\chi_1 \mp \beta_2\chi_2 \mp \beta_3\chi_3 \mp \beta_4\chi_4 + \ell_i \\ ROI = \alpha \mp \beta_1\chi_1 \mp \beta_2\chi_2 \mp \beta_3\chi_3 \mp \beta_4\chi_4 + \ell_i \\ NPM = \alpha \mp \beta_1\chi_1 \mp \beta_2\chi_2 \mp \beta_3\chi_3 \mp \beta_4\chi_4 + \ell_i \\ ROA = \alpha \mp \beta_1\chi_1 \mp \beta_2\chi_2 \mp \beta_3\chi_3 \mp \beta_4\chi_4 + \ell_i \\ EPS = \alpha \mp \beta_1\chi_1 \mp \beta_2\chi_2 \mp \beta_3\chi_3 \mp \beta_4\chi_4 + \ell_i \\ P/E = \alpha \mp \beta_1\chi_1 \mp \beta_2\chi_2 \mp \beta_3\chi_3 \mp \beta_4\chi_4 + \ell_i \end{array}\right| \quad (1)$$

Where: α constant, $\beta_{1\ldots4}$ coefficients . $\chi_{1\cdots4}$: the availability of AIS, security of AIS, confidentiality and privacy of AIS, processing integrity of AIS respectively, ℓ_i Random error.

Testing the Problem of Multicollinearity

We use Collinearity Diagnostics measure through the calculation of (Tolerance) for each independent variable and then finding the variance inflation factor (VIF) to achieve the objectivity of the measurement process and to assure the total independency of each independent variable and the exclusion of those variables that are suffering from the problem of (Multicollinearity). This is a model to measure the impact of the correlation between the independent variables. The value of (VIF) of 5 or more is an evidence to the existence of the Multicollinearity problem (Sekaran, 2005). As can be seen from Table 4, the VIF for all independent variables is less than 5 which is an evidence against the problem of Multicollinearity.

Testing the Problem of Autocorrelation

We use Durbin-Watson test for checking the Autocorrelation problem. Durbin-Watson test has a range of (0-4) where 0 indicating a strong negative correlation between errors while 4 implying a strong negative correlation between errors. The ideal value of Durbin-Watson is between 1.5 and 2.5, indicating no correlation between errors. As can be seen from Table 4, the Durbin-Watson value for all independent variables is between (1.5-2.5) which is an evidence against the existence the problem of Autocorrelation between errors (Sekaran, 2005). Table 4 presents the tests of Multicollinearity and Autocorrelation problems.

Table 4: Testing the Suitability of the Study Model

Independent Variable			**Dependent Variable**		
	Tolerance	VIF			Statictic D-W
AIS Availability	0.765	1.307	Financial performance level	MVA	1.569
AIS Security	0.608	1.645		ROI	1.511
AIS Confidentiality and Privacy	0.638	1.567	Operational performance level	NPM	2.452
AIS Processing Integrity	0.866	1.155		ROA	1.748
			Shares performance level	EPS	2.475
			Market value level	P|E	1.624

This table shows Durbin-Watson test for checking the Autocorrelation problem between the study dependent and independent variables. It also shows the tolerance and variance inflation factor (VIF) for all independent variables for checking the Multicollinearity problem.

Demographic Statistics of Respondents

In order to achieve integration in the methodology of this study, we use questionnaire, as an essential tool, for measuring the reliability of the application of AIS standards levels. One questionnaire was distributed to each targeted banks, specifically to the head of IT department. Table (5) presents the general and personal details of the study sample.

Table 5: Personal and General Features of Sample

Specifications		**Statistical Analysis**	
		Frequency	**Ratio**
Specialization	IT	11	85%
	Administrative & financial Sciences	1	8%
	others	1	8%
	Total	13	100%
Qualification	High studies	3	23%
	BA	9	69%
	Diploma	1	8%
	Total	13	100%
Position	Branch manager	1	8%
	Head of department	12	92%
	employee	0	0%
	Total	13	100%
Experience	Less than 3 years	3	23%
	3-5 years	7	54%
	5-10 years	1	8%
	More than 10 years	2	15%
	Total	13	100%

This table shows the general and personal features of the study respondents in terms of their Specialization, Qualification, Position, and Experience.

Table (5) shows that 85% of respondents are information-technology specialists, followed by 8% from financial and administrative sciences, 8% from various other disciplines. According to such a demographic, study sample is comprehensive on one hand and the ability of respondents to deal with the subject of study on the other hand. We also note the vast majority (69%) are bachelor's holders, while the graduate studies holders accounted for 23%. Regarding to the position of the respondents, it found that 92% are heads of departments of the middle-management of the banks. Followed by 8% of branch managers. This sample represents an advantage for the current study because the heads of departments and heads of departments of the middle-management have a lot of experience to deal with the work of the reliability of the AIS details. We also note that 23% of the sample has an experience less than three years while 54% has an experience ranging from three to five years. 8% has an experience exceeds five years and less than ten. 20% has an experience exceeds twenty years.

Summary Statistics

Table 6 presents the maximum value, minimum value, average, and standard deviations for all performance indicators that used in the study.

Table 6: Summary Statistics of Performance Indicators

Performance Indicators		**Average**	**Standard Deviation**	**Maximum**	**Minimum**
Financial performance level	MVA	989,967,002	2,524,508,704	9,281,170,000	30,906,156
	ROI%	50.50	80.10	310.8	-11.04
Operational performance level	NPM%	50.66	19.82	104.5	29.06
	ROA%	294.4	186.7	791.3	99.36
Shares performance level	EPS	0.521	0.278	1.137	0.210
Market value level	P/E	19.74	11.53	55.67	9.167

This table shows the maximum value, minimum value, average and standard deviations for all performance indicators that used in the study.

Table (6) shows the market value added (MVA) has an average of 989,967,002 JD with a standard deviation of 2,524,508,704 JD, implying a high variation among banks regarding their market value added. The return on investment (ROI) has a mean of 50.5% with a standard deviation of 0.80. Net profit margin (NPM) has a mean of 50.66% with a standard deviation of 19.82. The return on assets (ROA) has a mean of 294.4 with a standard deviation of 186.7, indicating a high variety among banks with respect to their

return on assets. The mean of earnings per share (EPS) is 0.521 with a standard deviation of 0.278. Finally, price-earnings ratio (P/E) has a mean of 19.74 with a standard deviation of 11.53

RESULTS AND DISCUSSIONS

The previous tests have demonstrated the validity of the process of study models. The positive results in terms of possessing the normal distribution on one hand and testing the appropriate regression models and their ability to interpret the relationship between the dependent and independent variables on the other hand. It should be noted that the current study includs two types of tests: the first is designed to verify the existence of the reliability of AIS in the Jordanian commercial banks. The second type of tests aims to test and verify the impact of the independent variables (the availability of reliable AIS standards) on the dependent variables (banking performance matrix).

Analysis of the Availability of Reliable AIS Standards

Having the data of the current study of normality distribution led to the availability of the possibility of adopting what is known as a series of (Parametric Tests), specifically (One Sample T-Test) in order to verify the acceptability of the assumptions related to the availability of reliable AIS standards.

Table (7) presents the results of testing the null hypothesis which states that the work of Jordanian commercial banks environment does not have the reliability of AIS standards with a test function exceeds 65% ($H_o: \mu < 65\%$) against the alternative hypothesis which states that the work of Jordanian commercial banks environment does have the reliability of AIS standards with a test function ($H_1 : \mu \geq 65\%$).

Table 7: One Sample T-Test Results for AIS Reliability Criteria

	AIS Reliability Criteria	Average	Standard Deviation	T. Test	Sig
H_1	AIS Availability	77.85%	11.54%	24.12	0.000***
H_2	AIS Security	76.54%	14.41%	18.99	0.000***
H_3	AIS Confidentiality and Privacy	69.92%	14.41%	23.69	0.000***
H_4	AIS Processing Integrity	57.00%	16.19%	12.54	0.000***

*This table shows the average, standard deviation, t-test, and the significance of AIS availability, AIS security, AIS confidentiality, and AIS processing integrity. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively. Note that the value of t tabulated at 5% significant level and a degree of freedom of 12 is1.782*

H_{01} AIS in Jordanian banks does not provide the requirements of availability standard.

As we note from Table (7) that the average of availability the requirements of achieving the AIS availability standard in Jordanian commercial banks is 77.85% with a standard deviation of 11.54%. Because the sample size is small and the variation in the population is un-known, we can use a T-Distribution as a mathematical way for determining the acceptance or rejection the alternative and null hypotheses. Accordingly,

$$T = \frac{\overline{x} - \mu}{S/\sqrt{n}} \qquad (2)$$

We accept alternative hypothesis when the average of achieving the AIS availability standard in Jordanian banks exceeds 65% (Sekaran, 2005). After doing the requirements of analysis and testing, we find that the T calculated of 24.12is greater than the T tabulated of 1.782 at a significant level of 5% and 12 degrees of freedom. P-value is another way for accepting or rejecting the null hypothesis, when the P-value is less than 5% (the significance level), we reject null hypothesis and accept alternative hypothesis and vice versa. We can see the P-value of 0.000 is too much less than 5% which is an evidence against the null hypothesis.

H_{02} AIS in Jordanian banks does not provide the requirements of security standard.

Table (7) shows that the average of availability the requirements of achieving the AIS security standard in Jordanian banks is 76.54% with a standard deviation of 14.41%. After doing the requirements of analysis and testing, we find that the T calculated of 18.99 is greater than the T tabulated of 1.782 at a significant level of 5% and 12 degrees of freedom. P-value is another way for accepting or rejecting the null hypothesis, when the P-value is less than 5% (the significance level), we reject null hypothesis and accept alternative hypothesis and vice versa. We can see the P-value of 0.000 is too much less than 5% which is an evidence against the null hypothesis.

H_{03} AIS in Jordanian banks does not provide the requirements of confidentiality and privacy standard.

Table (7) also reveals that the average of availability the requirements of achieving the AIS confidentiality and privacy standard in Jordanian banks is 69.92% with a standard deviation of 14.41%. After doing the requirements of analysis and testing, we find that the T calculated of 23.69 is greater than the T tabulated of 1.782 at a significant level of 5% and 12 degrees of freedom. P-value is another way for accepting or rejecting the null hypothesis, when the P-value is less than 5% (the significance level), we reject null hypothesis and accept alternative hypothesis and vice versa. We can see the P-value of 0.000 is too much less than 5% which is an evidence against the null hypothesis.

H_{04} AIS in Jordanian banks does not provide the requirements of Processing Integrity standard

Finally, Table (7) demonstrates that the average of availability the requirements of achieving the AIS Processing Integrity standard in Jordanian banks is 57% with a standard deviation of 16.19%. After doing the requirements of analysis and testing, we find that the T calculated of 12.54 is greater than the T tabulated of 1.782 at a significant level of 5% and 12 degrees of freedom. P-value is another way for accepting or rejecting the null hypothesis, when the P-value is less than 5% (the significance level), we reject null hypothesis and accept alternative hypothesis and vice versa. We can see the P-value of 0.000 is too much less than 5% which is an evidence against the null hypothesis. Based on the results of statistical tests and the set of the facts above, it can be said that the Jordanian commercial banks possess the requirements of reliability of AIS according to the (SysTrust)'s model with its four standards: the availability of AIS, security of AIS, Confidentiality and Privacy of AIS and Processing Integrity of AIS.

Analysis of Banking Performance Indicators

First, we analyze the impact of the reliability of the AIS on the level of market value added As we mentioned earlier, the fifth null hypothesis states that there is no effect of AIS reliability on market value added. We use the below model for accepting or rejecting that.

$$\left[MVA = \alpha \mp \beta_1 \chi_1 \mp \beta_2 \chi_2 \mp \beta_3 \chi_3 \mp \beta_4 \chi_4 + \ell\right] \quad (3)$$

MVA:market value added, α :constant, $\beta_{1\ldots4}$: the coefficients of independent variables, $\chi_1, \chi_2, \chi_3, \chi_4$: availability of AIS, security of AIS, confidentiality and privacy of AIS, processing integrity of AIS respectively, ℓ :Random Errro

The null hypothesis $\left[H_0 : \beta_1 \mp \beta_2 \mp \beta_3 \mp \beta_4 = 0\right]$

Alternative hypothesis $\left[H_a : \beta_1 \mp \beta_2 \mp \beta_3 \mp \beta_4 \succ 0\right]$

It should be noted that only the alternative hypothesis was tested from one side (the right side) against the null hypothesis which states that there is no impact of the reliability of AIS on the market value added. Coefficient of Determination (R2) is used to identify the variation in the dependent variable that can be explained by the variation in independent variables (Vaus, 2002). Table 8 presents the regression results of the effect of AIS reliability (independent variables) on the market value added (dependent variable).

Table 8: The Results of Regression of the Effect of AIS Reliability on Market Value Added

Dependent Variable	**Independent Variables**			
		β	**T**	**Sig.**
MVA	AIS Availability	128,920,178.652	1.600	0.110
	AIS Security	31,016,822.833	0.482	0.642
	AIS Confidentiality	-63,708,914.307	-0.742	0.479
	AIS Processing Integrity	41,473,209.227	0.865	0.412
R	**R^2**	**F**	**Sig.**	**α**
0.59%	0.34%	1.052	0.4388a	-9,329,202,571

*This table shows the correlation coefficient (R), the coefficient of determination (R^2), the F-calculated, the overall significance(Sig.), the coefficient for each independent variable (β), the t-calculated for each independent variable, and the significance for each independent variable (Sig.). ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

Table (8) shows that 0.34% of the variability in the market value added (MVA) is explained by independent variables. It also shows that the value of F calculated of 1.052 is less than the F tabulated of 5.32, implying that statistically insignificant effect of the standards of reliability of AIS on the market value added. We also note that $[P - Value = Pr.(F \leq 1.052) = 04388^{a}$ is greater than 5% which confirms the acceptance of the null hypothesis. The correlation coefficient (R) of 0.59% indicating a very week strong positive correlation between the independent variables (reliability of AIS) and the dependent variable (market value added). We also note that all independent variables are statistically insignificant.

Second: Analyzing the effect of AIS reliability on the return on investment. We use the model below to examine the effect of AIS reliability on the return on investment.

$$\left[ROI = \alpha \mp \beta_1 \chi_1 \mp \beta_2 \chi_2 \mp \beta_3 \chi_3 \mp \beta_4 \chi_4 + \ell\right] \quad (4)$$

ROI ; return on investment, α : constant, $\beta_{1...4}$: the coefficients of independent variables.

χ_1, χ_2, χ_3, χ_4: AIS availability, AIS security, confidentiality and privacy of AIS, processing

Table 9 presents the regression results of the effect of AIS reliability (independent variables) on return on investment (dependent variable).

Table (9) shows that 45.4% of the variability in the return on investment (ROI) is explained by independent variables. It also shows that the value of F calculated of 6.664 is greater than the F tabulated of 5.32, implying that statistically significant effect of the standards of reliability of AIS on the return on investment. We also note that $[P - Value = Pr.(F \leq 6.664) = 0.0408^{a}$ is less than 5% which confirms the rejecting of the null hypothesis. That means the return of investments for Jordanian commercial banks is affected by the standards of reliability of AIS. The correlation coefficient (R) of 67.4% indicating a strong positive correlation between the independent variables (reliability of AIS) and the dependent variable (return on investment). We also note that all independent variables are statistically significant.

Table 9: The Results of Regression of the Effect of AIS Reliability on Return on Investment

Dependent Variables	**Independent Variables**			
		β	**T**	**Sig.**
ROI	AIS Availability	1.944	2.455	0.021*
	AIS Security	3.467	1.862	0.040*
	AIS Confidentiality	3.901	2.363	0.006***
	AIS Processing Integrity	1.804	3.579	0.009***
R	**R^2**	**F**	**Sig**	**α**
67.40%	45.40%	6.664	0.0408*	260

*This table shows the correlation coefficient (R), the coefficient of determination (R^2), the F-calculated, the overall significance(Sig.), the coefficient for each independent variable (β), the t-calculated for each independent variable, and the significance for each independent variable (Sig.). ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

Third: Analyzing the effect of AIS reliability on net profit margin (NPM). We use the below model to examine the effect of AIS reliability on net profit margin.

$$\left[NPM = \alpha \mp \beta_1 \chi_1 \mp \beta_2 \chi_2 \mp \beta_3 \chi_3 \mp \beta_4 \chi_4 + \ell\right] \quad (5)$$

α constant value, $\beta_{1...4}$: coefficients of independent variables, χ_1, χ_2, χ_3, χ_4: the availability of AIS, security of AIS, confidentiality and privacy of AIS, processing integrity of AIS respectively. ℓ Random error. Table 10 presents the regression results of the effect of AIS reliability (independent variables) on net profit margin (dependent variable).

Table 10: The Results of Regression of the Effect of AIS Reliability on Net Profit Margin

Dependent Variable	Independent Variables				
		β	**T**	**Sig.**	
	AIS Availability	1.226	2.525	0.036**	
NPM	AIS Security	1.361	1.870	0.042**	
	AIS Confidentiality	0.347	1.997	0.047**	
	AISProcessing Integrity	0.014	2.043	0.007***	
	R	**R^2**	**F**	**Sig**	**α**
	71.50%	51.20%	8.600	0.003***	142

*This table shows the correlation coefficient (R), the coefficient of determination (R^2), the F-calculated, the overall significance(Sig.), the coefficient for each independent variable (β), the t-calculated for each independent variable, and the significance for each independent variable (Sig.). ***, ** and * indicate* significance at the 1, 5 and 10 percent levels respectively.

Table (10) shows that 51.20% of the variability in net profit margin (NPM) is explained by independent variables. It also shows that the value of F calculated of 8.600 is greater than the F tabulated of 5.32, implying that statistically significant effect of the standards of the reliability of AIS on net profit margin. We also note that $[P - Value = Pr.(F \leq 8.600) = 0.003^a$ is less than 5% which confirms the rejecting of the null hypothesis. That means the net profit margin for Jordanian commercial banks is affected by the standards of reliability of AIS. The correlation coefficient (R) of 71.50% indicating a strong positive correlation between the independent variables (reliability of AIS) and the dependent variable (net profit margin). We also note that all independent variables are statistically significant.

Fourth: Analyzing the effect of AIS reliability on return on assets (ROA). We use the below model to examine the effect of AIS reliability on return on assets.

$$\left[ROA = \alpha \mp \beta_1 \chi_1 \mp \beta_2 \chi_2 \mp \beta_3 \chi_3 \mp \beta_4 \chi_4 + \ell\right] \quad (6)$$

α constant value, $\beta_{1...4}$: coefficients of independent variables, χ_1, χ_2, χ_3, χ_4 :the availability of AIS, security of AIS, confidentiality and privacy of AIS, processing integrity of AIS respectively. ℓ Random error.

Table 11 presents the regression results of the effect of AIS reliability (independent variables) on return on assets (dependent variable).

Table 11: The Results of Regression of the Effect of AIS Reliability on Return on Assets

Dependent Variable	**Independent variables**				
		β	**T**	**Sig.**	
	AIS availability	1.944	2.465	0.001***	
ROA	AIS security	3.467	5.852	0.030**	
	AIS confidentiality	3.901	4.123	0.036**	
	AIS processing integrity	1.804	3.809	0.019**	
	R	**R^2**	**F**	**Sig**	**α**
	70.40%	49.56%	12.864	0.010***	260

*This table shows the correlation coefficient (R), the coefficient of determination (R^2), the F-calculated, the overall significance(Sig.), the coefficient for each independent variable (β), the t-calculated for each independent variable, and the significance for each independent variable (Sig.). ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

Table (11) shows that 49.56% of the variability in return on assets (ROA) is explained by independent variables. It also shows that the value of F calculated of 12.864 is greater than the F tabulated of 5.32, implying that statistically significant effect of the standards of the reliability of AIS on return on assets. We also note that $[P - Value = Pr.(F \leq 1286) = 0.010^{a}$ is less than 5% which confirms the rejecting of the null hypothesis. That means the return on assets for Jordanian commercial banks is affected by the standards of reliability of AIS. The correlation coefficient (R) of 70.40% indicating a strong positive correlation between the independent variables (reliability of AIS) and the dependent variable (return on assests). We also note that all independent variables are statistically significant.

Fifth: Analyzing the impact of AIS reliability on earnings per share (EPS). The below model is used to examine the effect of the reliability of AIS on earnings per share.

$$\left[EPS = \alpha \mp \beta_1\chi_1 \mp \beta_2\chi_2 \mp \beta_3\chi_3 \mp \beta_4\chi_4 + \ell\right] \quad (7)$$

EPS : earnings per share, α constant value, $\beta_{1...4}$: coefficients of independent variables, χ_1, χ_2, χ_3, χ_4 :the availability of AIS, security of AIS, confidentiality and privacy of AIS, processing integrity of AIS respectively. ℓ Random error. Table 12 presents the regression results of the effect of AIS reliability (independent variables) on earnings per share (dependent variable).

Table 12: Regression Results of the Effect of AIS Reliability on Earnings Per Share

Dependent Variable	**Independent Variables**				
		β	**T**	**Sig.**	
	AIS availability	0.001	0.126	0.903	
EPS	AIS security	0.009	1.148	0.284	
	AIS confidentiality	-0.011	-1.058	0.321	
	AIS processing integrity	0.000	0.058	0.955	
	R	**R^2**	**F**	**Sig**	**α**
	41.50%	17.20%	0.416	0.793[a]	0.50

*This table shows the correlation coefficient (R), the coefficient of determination (R^2), the F-calculated, the overall significance(Sig.), the coefficient for each independent variable (β), the t-calculated for each independent variable, and the significance for each independent variable (Sig.). ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

Table (12) shows that 17.20% of the variability in the earnings per share is explained by the independent variables. It also shows that the value of F calculated of 0.416 is less than the F tabulated of 5.32, implying that statistically insignificant effect of the standards of reliability of AIS on the earnings per share. We also note that $[P - Value = Pr.(F \leq 0.416) = 0.793^a$ is greater than 5% which confirms the acceptanceof the null hypothesis. The correlation coefficient (R) of 41.50% indicating a positive correlation between the independent variables (reliability of AIS) and the dependent variable (earnings per share). We also note that all independent variables are statistically insignificant.

Sixth : Analyze the impact of AIS reliability on price-earnings ratio (P / E). The below model is used to examine the effect of AIS reliability on price-earnings ratio.

$$\left[P/E = \alpha \mp \beta_1 \chi_1 \mp \beta_2 \chi_2 \mp \beta_3 \chi_3 \mp \beta_4 \chi_4 + \ell\right] \quad (8)$$

P/E : price-earnings ratio, α : constant, $\beta_{1...4}$: coefficients of independent variables, χ_1, χ_2, χ_3, χ_4 :the availability of AIS, security of AIS, confidentiality and privacy of AIS, processing integrity of AIS respectively. ℓ Random error. Table 13 presents the regression results of the effect of AIS reliability (independent variables) on price-earnings ratio (dependent variable).

Table 13: Regression Results of the Effect of AIS Reliability on Price-Earnings Ratio

Dependent Variable	Independent Variables				
		β	**T**	**Sig.**	
P/E	AIS availability	0.619	1.972	0.040**	
	AIS security	0.127	0.439	0.672	
	AIS confidentiality	0.212	3.550	0.036**	
	AIS processing integrity	0.194	1.830	0.044**	
	R	**R^2**	**F**	**Sig**	**α**
	60.80%	37.00%	7.174	0.793a	0.50

*This table shows the correlation coefficient (R), the coefficient of determination (R^2), the F-calculated, the overall significance(Sig.), the coefficient for each independent variable (β), the t-calculated for each independent variable, and the significance for each independent variable (Sig.). ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

Table (13) shows that 37% of the variability in price-earnings ratio (P/E) is explained by independent variables. It also shows that the value of F calculated of 7.174 is greater than the F tabulated of 5.32, implying that statistically significant effect of the standards of the reliability of AIS on price-earnings ratio. However, we note that $[P - Value = Pr.(F \leq 7.174) = 0.793^a$ is greater than 5% whichfail to reject the null hypothesis. The correlation coefficient (R) of 60.80% indicating a strong positive correlation between the independent variables (reliability of AIS) and the dependent variable (price-earnings ratio). We also note that all independent variables are statistically significant except AIS security.

CONCLUDING COMMENTS

The analysis process of the gathered data has taken two stages: the first stage was focused on measuring the critical availability of (SysTrust) principles and criteria in the Jordanian commercial banks. In contrast, the second stage of analysis has checked the impact of availability of (SysTrust) principles and criteria on parameters of banking performance matrix (MVA, ROI, NPM, ROA, EPS, and P/E). As for the first stage, mean values, standard deviation and T-test have been calculated to determine whether availability, security, confidentiality and privacy, and processing integrity of AIS is placed in the infrastructure of commercial Jordanian banks. The result of one-sample T-test shows that (SysTrust) principles and criteria are highly available in AIS infrastructure of the commercial Jordanian banks.

In the second stage of analysis, the results of the statistical tests have shown varied level of impact of (SysTrust) on parameters of banking performance matrix. It has been empirically proved that availability of (SysTrust) has reliable impact on profit engine and managing assets of AIS on the Jordanian Commercial Banks. The possible explanation for this difference can be assigned to the operational necessities of these banks. Redesigning AIS based on (SysTrust) criteria and principles has clearly improved the transactional engine of the sample banks in terms of integration, security, and integrity. It has been found that 51.2% of the improvement in profit rates is resulted from the style of new process and procedures. The picture was less clear about the causal link between (SysTrust) and other parameters of the banking performance matrix. Part of the reason beyond such result lays in the fact that investment in the Jordanian commercial banks needs more exploitation far from the operational aspects. Also, integrating banking customer base needs more mature technological applications which unfortunately missed on sample banks such as phone and mobile banking applications.

Recommendations and Future Research

The research presented in this paper provides an important contribution to the assurance services domain. The AICPA, CICA, and many practitioners have made significant investments in an attempt to expand the assurance services that practitioners provide. Through the application of SysTrust model and with data obtained from 10 Jordanian commercial banks and with statistical testing of these data, the present paper highlights two important matters. First, the IT infrastructure of the Jordanian commercial banks by its status qualification is mature enough to provide the operational requirements for (SysTrust) principles and criteria. Such result matches the conclusion of (Casolaro & Gobbi, 2004). Second, the IT management of these commercial banks needs to be enhanced for more mature and innovative use of IT in banking applications. By investigating the AIS design, this paper has discovered that Jordanian banking environment has acceptable rate of existence for (SysTrust) principles and criteria such as availability, security, confidentiality and privacy, and processing integrity. Due to operational focus in building and designing AIS, the impact of (SysTrust) principles and criteria on parameters of banking performance matrix is still unclear. The findings from this paper indicate the urgent need to exploit IT infrastructure for more adoption, adaptation, and integration with banking investment applications. A challenge of AIS design is not to apply (SysTrust) principles and criteria, but how to develop new ways to integrate these principles and criteria with parameters of banking performance matrix. In addition, there is a need to deepen the understanding of the reliability of AIS standards among the Jordanian banking institutions employees through the preparation and implementation of specialized training programs or through flyers and brochures.

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