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The Mediating Role of Corporate Governance on the Relationship between Accounting Information System and Risk Management: The Case of the Jordanian Industrial Shareholding Companies

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Abstract

The primary aim of this study is to examine the mediating effect of corporate governance on the relationship between accounting information system (AIS) and risk management. The population of the study comprised of the entire Jordanian Industrial Shareholding Companies numbering 54. The study objectives were achieved by developing a questionnaire and distributing copies to the employees of the companies accounting departments. Data gathered was analyzed using SPSS 25.0 tool to test the relationships between AIS, corporate governance and risk management. Based on the findings, corporate governance fully mediated the relationship between AIS and risk management in the context of the Jordanian Industrial Shareholding Companies.

Keyword: accounting information system (AIS), corporate governance, risk management, Jordanian industrial sector.

I. INTRODUCTION

1.1. Background of the Study

In an organization, the accounting information system (AIS) should encapsulate monitoring and controlling mechanisms for data throughout the system process up until the submission of reports that contain accurate information for the system users (Hossin & Ayedh, 2016). In this regard, accountants have a key role in developing and evaluating the control and safety standards of AIS, in collaboration with system designers, to ensure that they are appropriate and sufficient, and fitted the right technology for IS effects (Kukutia et al., 2019). In addition, data control and safety means, although equipped with data automation, speed and accuracy, issues of specific controls may result in the manipulation of data, which would lead to inaccurate outputs. AIS is an integrated system of different sub-systems of the processing of a trade or of accounting information for every transaction processing system. This indicates that AIS can also be deemed as an integration of different processing transaction cycles, with each conducted through a processing trade system or sub-AIS system with different components including software, software, brain ware, procedures, databases and communication networks (Meiryani, 2018).

In the present times, the monetary crisis has led into a multiple-faceted crisis that involves the economy and thrown many companies into bankruptcy owing to weak corporate governance implementation (Lestari et al., 2018). Thus, every companies faces internal and external risks, with business risk covering the ability of the company to survive in the market in light of financial situation, reputation and overall product/service quality (Tularam & Attili, 2012), and this urges companies to conduct a risk assessment.

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A risk assessment identifies the events, conditions and risks that can have a considerable impact on the business operations efficiency. According to (Morris, 2011), internal control is among the many factors that can mitigate the agency problem, while (Jokipii, 2010) described risk as a factor that is ever-changing and it can cause changes in the operating environment, IS and technology. This is why risk management is significant to organizations and there is that are influenced by such assessment (Susanto & Meiryani, 2018). More specifically, operational risk management is significant to the development of IS (Farr & Bailey, 2019) and in reducing and preventing risks that is inherent in the IS implementation (Hopkin, 2018). In other words, operational risk management assesses uncertainty in IS implementation (Yang et al., 2017).

Failure to assess risk could lead to failure of the AIS (Montagna & Kok, 2016) and according to (Hopkin, 2018), risk assessment is an effective operational influence on IS success. Meanwhile, (Willumsen et al., 2019) stated that risk analysis in the IS development could mitigate risk of IS implementation and similarly, (Star et al., 2016) explained that risk management can be categorized into three, which are operational risks identification, financial risks identification, and risk management. These encapsulate the risk of failure of internal processes, human resources error risk, risk of IS failure, risk of loss stemming from external events, and risk of loss brought about by the breach of applicable laws and regulations (Star et al., 2016).

Moreover, operational risk system refers to the risk related to IS use like the risk of incomplete data (data corruption, risk of data input (errors in data entry), risk of insufficient data control, risk of programming (errors in programming), risks in technology black box, risk of services (breaches in services, risk of system security viruses and hacking, risk of system mismatch, risk of using new untried technology (Susanto & Meiryani, 2018).

Notably, corporate governance is interrelated with accounting based on the transparency and accountability principles (Hussain et al., 2018), the AIS effectiveness is geared towards supporting governance mechanisms, and the efficient capital markets functioning, where AIs provides continuous information from the firms to their stakeholders. Such information flow is the basis upon which the stakeholders' decisions are based on; for instance, periodical financial reports are the main investors' tools that make their purchasing, holding, or selling or decisions related to shares possible. Such reports assist in provided accurate, relevant, comparable, verifiable timely and comprehensive information (Uyar et al., 2017).

However, in literature, research dedicated to the relationship between AIS, risk management and the role of corporate governance in Jordanian industrial firms are still rare, and one has yet to be conducted on the effect of AIS on risk management in the same context. Studies of similar caliber largely ignored the potential implications of determinant factors that could potentially influence risk management and as such, this study measures the factors affecting risk management including AIS and corporate governance. The remaining sections are organized as follows; Section 2 presents the overview of industrial sector in Jordan. Section 3 presents the theoretical framework and literature review of the study, and Section 4 contains the study methodology. Section 5, which contains the data analysis of the data gathered, follows this and lastly, Section 6 contains the study conclusion.

1.2. Jordanian Industrial Sector

The Jordanian industrial sector constitutes about 25 percent of the gross domestic product and attracts more than 70 percent of foreign investment coming to Jordan. The industrial sector includes 18,000 industrial establishments in various regions of the Kingdom, providing 250,000 job opportunities, the majority of which are for Jordanian employment, and it accounts for 95 percent of national exports to Arab and foreign markets. Jordanian industrial sector is the economic sector in terms of benefit and has trained labor and connections with other sectors and most of the raw materials are imported.

The industrial sector establishments are divided into the engineering industries, information technology, wood, furniture, construction, food, mining, leather, knitting, medicinal, pharmaceutical, chemical, plastic, rubber, printing and packaging. 43 percent of Jordanian industrial exports go to eight Arab countries, led by Iraq at 16 percent; Saudi Arabia is 13.7 percent, and then respectively the United Arab Emirates, Syria, Kuwait, Qatar, Lebanon and Egypt. The most important industrial products exported to the countries of the world are food products at 18.7 percent, clothing 17.6 percent, chemical products 11.3 percent, and medicines 8.2 percent. Among the most important industrial products exported to foreign markets are fertilizers at a rate of 5.9%, paper and cardboard 2.6%, plastic 2.2%, potash 6.5% and phosphate 8.2%.

Jordan exports chemical products, machinery, equipment and food products to Arab countries, knits and chemical products for Europe, phosphates, chemical products for Asia and knits for North American countries. The most important advantages of the business and investment environment in Jordan are security, political stability, strategic location, free and targeted economy, macroeconomic stability, trained and qualified employment, and advanced infrastructure. It is noteworthy that Jordan's exports grew during the past year by 7.5 percent, reaching about 5,164 billion dinars, compared to 4,840 billion dinars for the year 2013.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Accounting Information System (AIS) and Risk Management

Throughout the past decades, risk management has been focused on by top management, particularly in multinational firms owing to its ability to create high level of awareness about risks that the firm may face. AIS adoption assists in determining liquidity risks that may expose the bank to bankruptcy and the potential solutions to the issue, as well as information required to assist the decision-makers, particularly concerning liquidity. This necessitates the determination of the fundamental information nuances with the most significant of which are reliability and convenience. In Ali et al. (2013), the role of accounting information in liquidity risk management effectiveness was examined, and the findings showed a significant effect of relevance and reliability of accounting information on risk management effectiveness.

2.2. Accounting Information System (AIS) and Corporate Governance

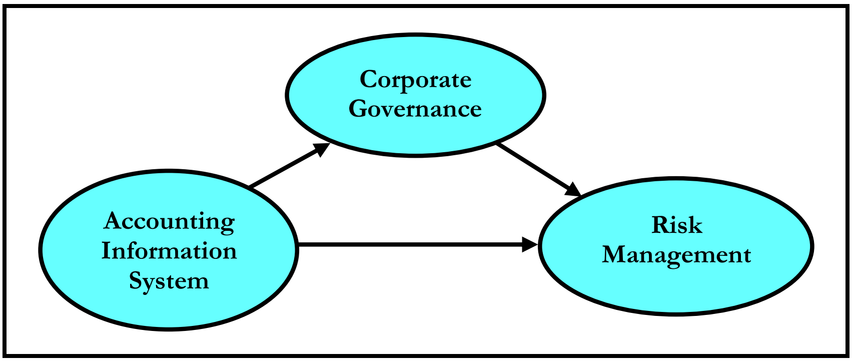
Corporate governance refers to a set of rules governing the shareholders, management, creditors, government, employees and stakeholders (internal and external) relationships, and other rules that relate to the rights and obligations, which in essence, means that corporate governance is a system regulating and controlling the entire company (Rahmawati & Handayani, 2017).

The main objective behind corporate governance is to develop benefit for the stakeholders of the firm. Literature is rife with studies that were conducted to examine the relationship between AIS and corporate governance. To begin with, (Kothari, 2019) contended that standards of accounting are relevant in using accounting information in corporate governance, while (Alsalim et al., 2018) revealed that accounting information is susceptible to the effects of governance rules and mechanisms and its application increases the trust on the accounting information like the ones included in the financial statements that are meant for interested parties.

2.3. Corporate Governance and Risk Management

Risk management is a significant topic among businesses all over the globe and for good and effective corporate governance, different parties, particularly internal stakeholders, are critical about risk management. In fact, a major internal mechanism that is created for good governance practices include the Board of Directors (BOD) and other sub-committees, with the inclusion of risk management committee. In Asif (2018), the relationship between corporate governance and operational risk management was examined, while (Honey et al., 2019) found effective corporate governance to have a key role in risk management. Furthermore, corporate governance mainsprings, specifically board size and gender diversity was found by (Honey et al., 2019) to positively and significantly influence risk disclosure.

Figure 1
Research Model



Literature reviewed above leads this study to develop the following hypotheses for testing:

H$_1$: accounting information system has a positive effect on risk management.
H$_2$: accounting information system has a positive effect on corporate governance.
H$_3$: corporate governance has a positive effect on risk management.
H$_4$: corporate governance has a mediating effect on the relationship between accounting information system and risk management.

III. RESEARCH METHODOLOGY

3.1. Research Design

Survey approach is adopted in this study where a survey is a system that gathers information from or about people in order to provide a description, comparison or explanation of their knowledge, attitudes and behavior (Alsalim et al., 2018). In this type of study, researchers provide an insight into the phenomenon and explains the relationship between the variables, test the hypotheses, and generates assumptions, after which problem is resolved meaningfully with implications.

3.2. Sample

The study population comprised of 54 industrial firms in Jordan (El-dalabeeh, 2019), with all the firms sampled using non-probability convenience sampling – where the sample is determined through the willingness of the firms to be participate (Ulum & Juanda, 2017). Questionnaires were distributed to the firms in a span of 3-4 months, at the end of which, 43 companies completed and returned the questionnaire copies, indicating that the number of samples was 43. The questionnaire copies were distributed to 219 employees and it has items that gather information concerning the study variables namely, accounting information systems, risk management and corporate governance.

3.3. Measurements

In the questionnaire instrument, the items were adopted from prior studies and measured using a 5-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree). Items were reworded to ensure content validity and more specifically, the accounting information system scales were adopted from (Ali et al., 2013; Uyar et al., 2017), the corporate governance scales were adopted from (Hussain et al., 2018; Honey et al., 2019), and the risk management scales were adopted from (Ali et al., 2013; Yang et al., 2017).

3.4. Data Analysis

The formulated hypotheses were tested using simple linear and multiple regression analysis to determine the influence of AIS on risk management and to test the corporate governance role as a mediating variable on the AIS-risk management relationship.

IV. RESULTS AND DISCUSSIONS

4.1. Respondent's Demographic Profile

Majority of the respondents were male (64.7%), while the rest were female (35.3%), and majority of them fell in the age group of 25-45 years. In addition, a considerable majority (70%) had bachelor degrees, and most had worked for the company for 6-15 years.

4.2. Reliability and Validity of the Measurements

Cronbach's alpha was conducted to confirm the internal consistency of each construct and the results obtained indicated support for acceptable internal consistency. More specifically, values of accounting information system, corporate governance and risk management all exceeded 0.70 (from 0.786 to 0.869), and thus they were acceptable. Moreover, owing to the obtained high KMO dimensions (> 0.5), sampling adequacy was also established (Obeid et al., 2017; Ulum & Juanda, 2017; and Al Shbail et al., 2018). Regressions model was carried out to test the mediating influence of corporate governance on the AIS-risk management relationship.

Insert Table 1 here.

4.3. Hypotheses Testing

The relationship result between AIS and risk management is displayed in Table 2, and from the table, a significant relationship is supported, with positive results of standardized estimates (2.577, $p > 0.05$), indicating a positive relationship between the two. This indicates support for hypothesis H_1.

Table 1
Instrument Reliability and Structural Validity

Construct	Factor Loading		KMO	Cronbach's Alpha
Accounting Information System	A1	0.314	0.725	0.786
	A2	0.715		
	A3	0.825		
	A4	0.724		
Corporate Governance	CG1	0.872	0.738	0.830
	CG2	0.838		
	CG3	0.833		
	CG4	0.715		
Risk Management	RM1	0.895	0.778	0.869
	RM2	0.922		
	RM3	0.776		
	RM4	0.829		

Table 2
Influence of AIS (Accounting Information System) on Risk Management

Relationships	Coefficients	Std. Error	t	P	Decision
AIS → RM	2.577	0.314	8.204	0.000	Supported

From the results, a positive AIS-corporate governance is also supported (0.366, $p > 0.05$) and thus, hypothesis H_2 is accepted (refer to Table 3).

Table 3
Influence of AIS (Accounting Information System) on Corporate Governance

Relationships	Coefficients	Std. Error	t	P	Decision
AIS → CG	0.366	0.71	5.115	0.000	Supported

Moving on to the relationship between corporate governance and risk management, the results were significant and in the positive direction (0.134, $p > 0.05$), indicating support for hypothesis H_3 (refer to Table 4).

Table 4
Influence of Corporate Governance on Risk Management

Relationships	Coefficients	Std. Error	t	P	Decision
CG → RM	0.134	0.040	3.350	0.001	Supported

The above presented results are aligned with past studies (Ali et al., 2013; Uyar et al., 2017), which means AIS has a positive influence over risk management and corporate governance.

4.4. Mediating Analysis

Further analysis was carried out using multiple linear regression analysis to test the mediating role of corporate governance on the relationship between AIS and risk management. The assumption is such that the relationship nature changes with the changes in the corporate governance, as the mediating variable. The mediating effect was established by integrated the interaction effect in the model and testing whether it is more significant in explaining risk management. The first step involved the inclusion of the three variables (AIS, corporate governance and risk management; refer to Table 5), and with the inclusion of the corporate governance (mediating variable), AIS statistical significant was lowered at 95% confidence interval and beta value of (0.115, $p= 0.086$) ($p > 0.05$). This is indicative of the fact that corporate governance fully mediating the AIS-risk management relationship, and as such, hypothesis H_4 is supported.

Table 5
Influence of Corporate Governance on Risk Management

Relationships	Coefficients	Std. Error	t	P	Decision
AIS → RM	0.115	0.067	1.722	0.086	AIS → RM
CG → RM	1.516	0.292	5.197	0.000	CG → RM

V. CONCLUSION AND LIMITATIONS

5.1. Conclusion

The study's primary aim is to determine the mediating influence of corporate governance on the AIS-risk management relationship and the results obtained supported the above assumption and proposed hypothesis. In particular, based on the results, AIS positively affected risk management, indicating that AIS tools assists management of firms to mitigate risks faced by the firms. The study also provided strong evidence of the positive effect of AIS on corporate governance and of corporate governance on risk management.

It is a pioneering study to report the full mediating influence of corporate governance on the AIS-risk management relationship in the context of industrial public shareholding firms in Jordan.

5.2. Limitations and Future Directions

The findings of this study urge future in-depth studies to be conducted to confirm or refute them, contributing to the understanding of the three constructs interrelationships. AIS has been heralded as an emerging concept in the field of accounting literature along with other related concepts and they have played an increasingly valuable role in the performance of organizations and impacted the firms' long-term competitiveness.

The results highlight further highlight the significance of AIS as a contributing system towards mitigating and managing risks as aligned with the assumptions held by academic and research circles. This indicates implications for management, specifically concerning the significant influence of AIS on risk management, where the need arises to understand the different factors affecting and contributing to AIS, and its effect on the latter. This is particularly dire as new and emerging accounting mechanisms emerge regularly to achieve competitive advantage, leading to enhanced competitiveness in the industrial sector, and risks threatening the sector firms with reduced profitability. The factors clarification and understanding could lead to management's facilitation of advanced and effective accounting plans to mitigate such risks. The proposed model underlines the need for managers to focus more on efficiently adopting resources, while supporting their AIS to ward off the possibility of risks.

Future studies also urged to delve into examining a divergent sample as sample characteristics like gender; knowledge, qualifications and the like may affect the relationship of AIS and risk management.

This study is empirical in nature and focused on the industrial shareholding firms in Jordan and as such, the findings must confirmed in other service industries contexts. The number of samples was relatively small and chosen using convenience sampling, calling for a cautious generalization. A large-sized sample would support the results and increase such generalization. Despite the steps adopted to mitigate the multicollinearity effects among the constructs, some effects may have remained and thus, future studies could ensure the absence of multicollinearity between the predictor, criterion and mediator variables for a more clarified interpretation of relationships. In addition, clearer measurements (items) development of the constructs, particularly of risk management, is required, as better measurements obtained would lead to better understanding of the constructs' relationships.

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