

The Impact of Internal Audit on Enterprise Risk Management Effectiveness in Jordanian Public-listed Companies

Taha Ahmad Jaber, Sabarina Mohammed Shah, Jalila Johari,
Mazlina Mustapha

School of Business and Economics, Universiti Putra Malaysia, Serdang, Malaysia
Corresponding author Email: Tahajaber207@gmail.com

To Link this Article: <http://dx.doi.org/10.6007/IJARAFMS/v14-i1/19508> DOI:10.6007/IJARAFMS/v14-i1/19508

Published Online: 03 January 2024

Abstract

The study aims to investigate the level of the internal audit role in enterprise risk management and its impact on enterprise risk management effectiveness in Jordanian public-listed companies. Additionally, it aims to explore the impact of internal auditors' objectivity on enterprise risk management effectiveness and its potential moderating role in the relationship. The study employs a quantitative methodology through a cross-sectional survey. 119 questionnaires from 119 Jordanian public-listed companies were finally utilized for analysis using SPSS and SmartPLS software. The study results indicate that internal auditors are moderately involved in enterprise risk management roles, with participation rates of 60.71% in core roles, 53.14% in legitimate roles, and 24.57% in prohibited roles. Moreover, the results show that the internal audit role in enterprise risk management and internal auditors' objectivity significantly positively impact enterprise risk management effectiveness. The results also reveal that internal auditors' objectivity does not moderate the relationship between internal audit role in enterprise risk management and enterprise risk management effectiveness. These results enhance knowledge and offer insights for practitioners and policymakers on the importance of the internal audit role in enterprise risk management and emphasize the crucial role of maintaining internal auditors' objectivity in enhancing overall enterprise risk management effectiveness.

Keywords: Internal Audit Role, Internal Auditors' Objectivity, Enterprise Risk Management Effectiveness, Jordan, Public-Listed Companies

Introduction

Companies face significant challenges in today's unpredictable and dynamic business environment, characterized by volatility, uncertainty, complexity, and ambiguity. To deal with these risks effectively, a shift from traditional risk management (RM) to enterprise risk management (ERM) is crucial (Pangestuti et al., 2023). Traditional RM has proven inadequate

in handling the inherent risks of the current business landscape (McShane, 2018). ERM offers a systematic, comprehensive, strategic method of identifying, assessing, prioritizing, and managing risks and maximizing opportunities across the company (Hamzah et al., 2022). However, several companies globally, particularly public-listed companies (PLCs) in Jordan, struggle with achieving effective ERM. Jordanian PLCs encounter issues that impede the effectiveness of ERM, preventing them from fully leveraging its advantages. These issues include ERM still being in its early stages, the perception of ERM as a crisis-oriented approach rather than an integrated part of daily company processes, the absence of an ERM compliance system, and a shortage of professional risk managers and staff (Al-Nimer et al., 2021; Altanashat et al., 2019).

Achieving ERM effectiveness is typically not a simple process and requires collaboration from all internal parties within the company (Javaid and Aslam, 2021; Praise and Rapina, 2022). Internal Audit (IA) plays a pivotal role in this process. As defined by the Institute of Internal Auditors (IIA) in 1999, IA is responsible for evaluating and improving the effectiveness of RM within the company (McShane, 2018). The Committee of Sponsoring Organizations of the Treadway Commission (COSO) ERM 2004 framework emphasizes the crucial support role of internal auditors in achieving ERM effectiveness (COSO, 2004). The IIA further emphasizes that internal auditors can play dual roles in ERM—assurance and consulting—which are considered equally vital for the company (IIA, 2004, 2009; Kifflee et al., 2023). Additionally, previous research emphasized IA's champion and leadership role in ERM (Abdurrahman et al., 2020; Praise and Rapina, 2022). This role is supported by internal auditors and their departments maintaining appropriate characteristics and capabilities, such as knowledge, skills, management support, and others, alongside the lack of professional risk managers and staff, which empowers internal auditors and legitimizes their active participation in enhancing ERM effectiveness (Al-Okdeh, 2023; Čular et al., 2020; Kifflee et al., 2023).

Nevertheless, the involvement of internal auditors in ERM roles sparks debate about their objectivity. Previous research has indicated that extensive involvement in ERM has a detrimental impact on the objectivity of internal auditors (Čular et al., 2020; Kertali and Tahajuddin, 2018). To safeguard the objectivity of internal auditors, the IIA introduced two position papers in 2004 and 2009, outlining the specific roles internal auditors should and should not play in ERM (IIA, 2004, 2009). The objectivity of internal auditors is critical for maintaining the quality of audit opinions and ensuring the effectiveness of ERM, providing transparent reports and unbiased recommendations, free from management interference and conflicts of interest (Abu-Saleem et al., 2019; Lien and Viet, 2023). Therefore, internal auditors are required to uphold a high level of objectivity and address any issues that may compromise it.

Furthermore, the increase in the IA role in ERM to enhance ERM effectiveness may compromise the objectivity of internal auditors. Conversely, maintaining a high level of objectivity may require decreasing the IA role in ERM, which, in turn, could reduce their contribution to ERM effectiveness. This places internal auditors under a significant challenge. To address this, internal auditors should adopt a strategic approach. They may actively participate in ERM activities while implementing measures to safeguard their objectivity. In essence, the key is finding a harmonious equilibrium between increased ERM involvement to enhance effectiveness and maintain the necessary objectivity. This approach allows internal auditors to contribute meaningfully to ERM while upholding the required integrity and impartiality (De Zwaan et al., 2011; Mardessi and Arab, 2018b).

Despite the increasing importance of IA's role in ERM within modern business environments, a noteworthy research gap persists, especially in the developing countries. Firstly, there is still ambiguity and a lack of knowledge about the appropriate role of IA in ERM among boards of directors, board committees, and risk managers. Secondly, internal auditors still perceive their roles in ERM as objectivity threats and conflicts of interest. Thirdly, there is a scarcity of existing studies delving into the impact of the IA role in ERM on the effectiveness of ERM processes. Fourthly, previous research has overlooked the moderating role of internal auditors' objectivity in the relationship between the IA role in ERM and ERM effectiveness. Accordingly, this study aims to investigate the level of the IA role in ERM and its impact on the effectiveness of ERM. Additionally, it aims to explore the impact of internal auditors' objectivity on ERM effectiveness and its potential moderating role in the relationship in Jordanian PLCs.

This study holds immense importance, particularly in developing countries like Jordan, where the integration between IA and ERM is crucial for organizational resilience and sustainable growth. Specifically, the study's main importance lies firstly in enriching knowledge and breaking the silence surrounding IA role in ERM and its level in the Jordanian PLCs. Secondly, this study addresses the scarcity in the literature concerning IA role in ERM and its impact on ERM effectiveness. Thirdly, this study addresses the scarcity in the literature concerning the moderating role of internal auditors' objectivity on the relationship between IA role in ERM and ERM effectiveness. Fourthly, this study is crucial for PLC practitioners, including boards, audit committees, heads of IA, and auditors. It emphasizes the vital role of IA in enhancing ERM as a valuable internal resource and stresses the importance of preserving internal auditors' objectivity in ERM roles. Fifthly, this study is significant for regulators and policymakers as it emphasizes the importance of integrating IA and ERM. This emphasis may motivate regulators and policymakers to mandate IA and ERM functions and ensure compliance with IIA and COSO standards in Jordanian PLCs.

The remaining sections in this paper are structured as follows: Section 2 literature review and hypotheses development; Section 3 methodology; Section 4 results and discussion; and Section 5 conclusion.

Literature Review and Hypotheses Development

Enterprise Risk Management Effectiveness

ERM has emerged as a critical organizational practice, reflecting a paradigm shift in understanding and managing risks, transitioning from a traditional approach to a holistic one. One of the most acknowledged, cited, and impactful definitions of ERM is proposed by COSO. According to COSO, ERM is described as "a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives," (COSO, 2004: 2). In other words, ERM offers a systematic, comprehensive, strategic method of identifying, assessing, prioritizing, and managing risks and maximizing opportunities across the company (Hamzah et al., 2022).

Recently, companies in developing countries like Jordan have shown growing interest in implementing ERM. This interest is driven by the challenging business environment and ERM's various advantages (Pangestuti et al., 2023). These advantages include protection from unexpected events, reputation damage, and resource losses, as well as improvements in cost, performance, value, and growth (Jaber and Shah, 2023; Pangestuti et al., 2023). Despite the

widespread recognition of these advantages, many companies worldwide still encounter significant issues in ERM implementation, impeding its effectiveness and preventing them from fully leveraging its advantages. These challenges are diverse, encompassing issues related to culture (unsupportive company culture), top management (resistance to change and lack of commitment), resources (insufficient human and financial resources), and risk (defining risk appetite and risk reporting) (Alawattegama, 2022; Spanò and Zagaria, 2022).

ERM effectiveness signifies a company's RM ability to identify, assess, mitigate, and manage risks aligned with strategic objectives (Togok et al., 2014). Achieving ERM effectiveness is typically a complex process that requires allocating various resources and collaboration from all internal parties within the company (Javaid and Aslam, 2021; Praise and Rapina, 2022). Several ERM frameworks, including COSO 2004 and ISO 31000:2009, have been established to help companies implement and achieve effective ERM. These frameworks offer structured guidelines and best practices for companies looking to enhance their RM processes (Mardessi and Arab, 2018a). Nevertheless, the COSO 2004 ERM framework remains prominent, especially in developing countries. This framework comprises eight integral components: internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication, and monitoring (COSO, 2004). Ensuring ERM effectiveness within the company requires having these components in place and ensuring their intricate interconnection. The systematic and formal integration of each component into the organizational fabric, along with regular and on-going review and monitoring, is essential for maintaining continued relevance (COSO, 2004; Javaid and Aslam, 2021; Praise and Rapina, 2022). Additionally, the framework and previous research emphasize the crucial support role of internal auditors in achieving ERM effectiveness (Abdurrahman et al., 2020; COSO, 2004; Praise and Rapina, 2022).

Previous studies in the field of ERM have predominantly centered around three main themes: ERM implementation, ERM impact on companies, and ERM determinants. Nevertheless, research related to ERM determinants, particularly those associated with management characteristics such as IA, has received less attention. Additionally, prior research has primarily focused on assessing IA's role in ERM, often overlooking its broader impact on ERM effectiveness. Furthermore, prior research overlooked the importance of internal auditors' objectivity in the relationship between IA's role in ERM and ERM effectiveness. Lastly, limited research has been conducted on ERM effectiveness, especially in the context of developing countries, creating a notable gap in understanding the nuanced dynamics of effective RM.

Internal Audit's Role in Enterprise Risk Management

COSO and IIA have prominently emphasized the role of IA in ERM. In 2004, COSO highlighted IA's critical importance and responsibilities within its ERM framework. COSO recognized IA as a vital participant, emphasizing its role in supporting the implementation and effectiveness of ERM practices (COSO, 2004). The IIA, in 2004 and 2009, introduced two position papers that emphasized the significance of the IA role in ERM and offered guidance for the effective execution of this role (IIA, 2004, 2009). Furthermore, the IIA's International Professional Practices Framework (IPPF) emphasizes IA's responsibilities in RM, particularly in Standard No. 2120 – Risk Management (IIA, 2017).

IA's role in ERM refers to the involvement of internal auditors in providing assurance and consulting services to enhance the effectiveness of ERM processes within a company (Kertali and Tahajuddin, 2018; Mardessi and Arab, 2018b). In recent years, the internal auditor's role

has expanded, emphasizing active participation in ERM by providing assurance and consulting services (Denhere, 2023; Praise and Rapina, 2022). This signifies a shift from a traditional assurance function to a more proactive and strategic contribution (Praise and Rapina, 2022). This expansion is supported by internal auditors and their departments maintaining appropriate characteristics and capabilities, such as knowledge, skills, management support, and others, alongside the lack of professional risk managers and staff, which empowers internal auditors and legitimizes their active participation in enhancing ERM effectiveness (Al-Okdeh, 2023; Čular et al., 2020; Kifflee et al., 2023).

The IIA position papers from 2004 and 2009 outline specific roles for internal auditors, including core roles (assurance), legitimate roles (consulting and advisory), and roles they should not undertake (prohibited or management responsibilities), as illustrated in Figure 1 (IIA, 2004, 2009). Applying these roles depends on the maturity of a company's ERM practices. In the early stages, internal auditors may focus more on legitimate roles with appropriate safeguards (Florea and Florea, 2016). As ERM advances, internal auditors may transition to and focus more on core roles to ensure ERM effectiveness (Čular et al., 2020). Regarding roles that internal auditors should not undertake, they must avoid them to preserve their objectivity and prevent conflicts with management (De Zwaan et al., 2011; Kertali and Tahajuddin, 2018).

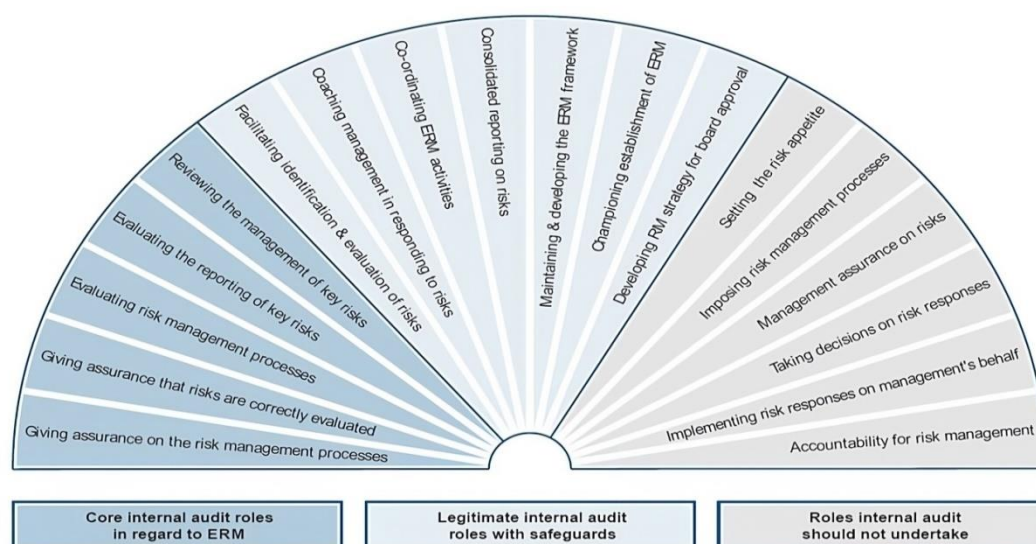


Figure 1: IA's role in ERM, Adopted From (IIA, 2004:4)

Previous research shows a lack of studies on the extent of the IA role in ERM, especially in developing countries. Studies indicate that internal auditors vary in their involvement in ERM, with core roles ranging from moderate to high (Denhere, 2023; Mardessi and Arab, 2018b), legitimate roles from low to moderate (Florea and Florea, 2016; Jassem, 2022), and prohibited roles from low to high (De Zwaan et al., 2011; Florea and Florea, 2016; Mardessi and Arab, 2018b). This suggests a tendency for internal auditors to prioritize core roles over legitimate roles and engage in prohibited roles in ERM. Research also points out ambiguity in internal auditors' responsibilities and alignment with IIA guidance.

Moreover, few studies have investigated the relationship between the IA role in ERM and ERM effectiveness. For instance, Jassem (2022) investigated the impact of IA's role in ERM on ERM effectiveness within Malaysia's transportation sector. The findings indicated that IA core

and legitimate roles contribute to improving ERM effectiveness. Setiawan et al. (2021) highlighted the significance of the IA role in the implementation of ERM in Indonesian State-Owned companies. This involvement included continuous monitoring of the implementation process, evaluating the overall effectiveness, and providing advisory services with recommendations for enhancing RM processes. Similarly, Abdurrahman et al. (2020) discovered that IA significantly contributes to ERM in Malaysian non-financial PLCs. They noted that firms with a stronger IA function are more engaged in adopting and implementing ERM. Additionally, Gathogoh (2014); Odoyo et al. (2014) explored the influence of IA role in ERM on ERM in Kenyan public companies and Co-operative Colleges. Their findings revealed that the IA's roles in ERM, including core and legitimate roles, exerted a robust, positive, and significant impact on ERM implementation and effectiveness.

These studies emphasize the pivotal role of IA in ERM. Specifically, internal auditors contribute significantly through their core and legitimate roles. These contributions enhance the effectiveness of ERM in various ways, including improving and validating risk assessments, optimizing resource allocation, ensuring timely risk mitigation, fostering collaboration among company stakeholders, enhancing IA reporting, providing quality assurance, delivering high-quality recommendations and consultations, and fostering continuous and timely improvement. This collaborative effort ultimately leads to enhanced ERM, improved decision-making, and increased organizational resilience.

According to the above discussion, the following research question and hypothesis are proposed:

RQ1: What is the level of internal audit role in enterprise risk management in Jordanian PLCs?

H1: The role of internal audit in enterprise risk management significantly positively impacts enterprise risk management effectiveness in Jordanian PLCs.

Internal Auditors' Objectivity

Objectivity stands as a foundational principle in auditing, emphasizing an "unbiased mental attitude that allows internal auditors to perform engagements in such a manner that they believe in their work product and that no quality compromises are made" (IIA, 2017:4). The IIA's IPPF standards highlight the significance of internal auditors' objectivity, particularly in Standard No. 1100 (Independence and Objectivity), to meet their audit responsibilities. The standard also emphasizes that threats to the objectivity of internal auditors should be addressed at all levels (IIA, 2017).

Singh et al. (2021) describe achieving objectivity as being free from interference, refraining from assessing operations involving friends or relatives to prevent conflicts of interest, abstaining from non-audit tasks, and upholding integrity in their responsibilities. This commitment to objectivity distinguishes the role of internal auditors within the company, allowing them to provide impartial evaluations, offer a unique perspective, and contribute to improving organizational processes. Lien and Viet (2023) further emphasize the importance of internal auditors' objectivity as a key factor in maintaining the quality of audit opinions. Additionally, Grima et al. (2023) highlight internal auditor objectivity as a major determinant of IA effectiveness. The significance of objectivity is further emphasized in previous research, including Alzeban and Gwilliam (2014); Tahajuddin and Kertali (2018), who suggest that the lack of objectivity poses a barrier to satisfactory IA performance, particularly in developing countries.

Previous research indicates a scarcity of studies investigating the impact of internal auditors' objectivity on ERM effectiveness. Existing studies reveal that internal auditors' objectivity is not only pivotal for their function effectiveness but is also intricately linked to ERM effectiveness. For example, Ojo (2019) found a positive impact of internal auditors' objectivity on RM in the Nigerian public sector. Additionally, Abu-Saleem et al. (2019) reported that internal auditors' objectivity significantly affects ERM in Jordanian industrial PLCs. Similarly, Dabari and Saidin (2016) discovered that internal auditors' objectivity, as a part of IA effectiveness, significantly influences ERM implementation in Nigerian commercial banks. Furthermore, Nabulsi and Haidoura (2018) asserted that when internal auditors ensure unbiased and objective assurance, they can contribute value and enhance ERM in Irish companies. These studies justified their positive findings by highlighting that increased objectivity among internal auditors ensures the credibility of their work in ERM, prevents conflicts of interest between internal auditors and risk managers, and boosts stakeholder confidence in the audit process.

Moreover, previous research overlooked investigating internal auditors' objectivity as a moderator between IA's role in ERM and ERM effectiveness. However, previous research has emphasized the importance of internal auditors' objectivity in adding value, enhancing IA effectiveness, and improving ERM effectiveness. Additionally, the on-going debate about the role of IA in ERM, which has persisted for the last two decades, continues to raise concerns regarding the potential hindrance of internal auditors' objectivity and the emergence of conflicts of interest.

According to Člar et al. (2020), the involvement of internal auditors in consulting roles within ERM leads to a closer relationship with management, potentially compromising their objectivity. They also found that the relationship between audit committee effectiveness and external auditors' reliance on the IA function is mediated by external auditors' perception of the objectivity of internal auditors, from the perspective of certified external auditors in Croatia. De Zwaan et al. (2011) asserted that while IA engagement in ERM can contribute value to the company, there exists a risk that it might compromise the independence and objectivity of IA. Their study also revealed that internal auditors perceive extensive involvement in ERM as likely to impair professional objectivity, as indicated by certified internal auditors from Australia. Similarly, Kertali and Tahajuddin (2018) found that the high involvement of IA in ERM roles has a negative effect on the objectivity of internal auditors, according to Malaysian IIA members. Viljoen and Barac (2015) also stated that the objectivity of internal auditors is compromised when they engage in consulting activities without considering adequate safeguards recommended by the IIA. They also noted that objectivity is further compromised when internal auditors take on prohibited roles that represent management roles in RM. This agreement among scholars reveals that the objectivity of internal auditors represents a key driver of the IA role in ERM.

Furthermore, the increase in the IA role in ERM to enhance ERM effectiveness may compromise the objectivity of internal auditors. Conversely, maintaining a high level of objectivity may require decreasing the IA role in ERM, which, in turn, could reduce their contribution to ERM effectiveness. This places internal auditors under a significant challenge. To address this, internal auditors should adopt a strategic approach. They may actively participate in ERM activities while implementing measures to safeguard their objectivity. In essence, the key is finding a harmonious equilibrium between increased ERM involvement to enhance effectiveness and maintain the necessary objectivity. This approach allows internal auditors to contribute meaningfully to ERM while upholding the required integrity and

impartiality (De Zwaan et al., 2011; Mardessi and Arab, 2018b). However, in a situation where a critical need for RM expertise arises and no one else possesses the necessary skills, it may be preferable for internal auditors to assume to increase their roles in ERM rather than leave it vacant (Mardessi and Arab, 2018b). Hence, it is reasonable to state that internal auditors' objectivity represents an important factor that may moderate the relationship between IA's role in ERM and ERM effectiveness.

According to the above discussion, the following hypotheses are proposed:

H2: The internal auditors' objectivity significantly positively impacts enterprise risk management effectiveness in Jordanian PLCs.

H3: Internal auditors' objectivity moderates the relationship between the internal audit role in enterprise risk management and enterprise risk management effectiveness in Jordanian PLCs.

Methodology

Population – The study population consists of Jordanian PLCs (170 companies as of December 31, 2022). The rationale for selecting them is their significance for the Jordanian economy, high regulatory compliance, and widespread implementation of IA and ERM. **Sample** – The study employs a census sampling technique. This technique involves including all elements of the population (Martínez-Mesa et al., 2016). The rationale for selecting this technique is based on the relatively small population size and the aim to enhance the results' generalizability.

Data collection – The study collected primary data through a cross-sectional questionnaire. Before distribution, the questionnaire was validated by professionals and scholars. A pilot test was also conducted on a small sample to ensure its reliability. Between April 1 and June 15, 2023, a total of 220 questionnaires were distributed using a combination of Google Forms, email, and hand-to-hand distribution methods. **Unit of analysis and unit of observation** – This study is an organizational study that focuses on a single respondent from each company. The unit of analysis is the PLCs, and the unit of observation comprises the senior auditor, team leader, and head of IA.

Response – After eliminating duplicates and considering non-returned questionnaires, 119 responses, representing a 54% response rate, were suitable for data analysis, aligning with Sekaran and Bougie (2016). **Measurements** – The study included three variables: IA role in ERM, internal auditors' objectivity, and ERM effectiveness (refer to Table 1 for the measurements). **Data analysis** – The study used SPSS version 26 and SmartPLS version 3. SPSS was used for data preparation and descriptive analysis, while SmartPLS was used for analysing relationships through Structural Equation Modeling (SEM). The rationale for using SEM through SmartPLS lies in its advantages, such as the ability to handle complex models, support small sample sizes, and avoid the need for data distributional assumptions (Hair et al., 2019).

Table 1

Measurements

| Variables | Factors | Items | Items type | Source |
|--------------------------------|----------------------------------|-------|--------------|---------------------|
| IA role in ERM | 1. Core role | 5 | *Seven scale | IIA (2004, 2009) |
| | 2. Legitimate role | 7 | | |
| | 3. Prohibited role | 6 | | |
| Internal auditors' objectivity | NA | 4 | *Seven scale | Singh et al. (2021) |
| | 1. Internal environment | 3 | | |
| | 2. Objective setting | 3 | | |
| ERM effectiveness | 3. Event identification | 3 | *Seven scale | Togok et al. (2014) |
| | 4. Risk assessment | 3 | | |
| | 5. Risk response | 3 | | |
| | 6. Control activities | 3 | | |
| | 7. Information and communication | 3 | | |
| | 8. Monitoring | 3 | | |

Note: *Seven scale: 1 (Least Extent) to 7 (Highest Extent)

Respondents' profiles – The respondents in this study exhibit a diverse demographic profile. The majority, 62.2%, hold the position of Senior Auditor, while 30.3% are Team Leaders, and 7.5% are Heads of IA. Gender-wise, 76.5% are male, and 23.5% are female. In terms of education, 66.4% have a Bachelor's degree, 30.3% have a Master's degree, and 3.3% hold a PhD. When it comes to experience, 57.1% have 5-10 years, 21.9% have 11-15 years, and 21.0% have over 15 years of auditing experience. The industry sector varies, with 50.5% in the financial sector, 27.7% in the services sector, and 21.8% in the industrial sector. Regarding company age, 38.7% of companies have been around for 10-20 years, 22.6% for 21-30 years, and another 38.7% for more than 30 years. This diversity among the respondents enhances the study's richness and depth.

Results and Discussion

Descriptive Statistics

The descriptive statistics of the study variables (refer to Table 2) show that ERM effectiveness achieved the highest mean (5.66), followed by internal auditors objectivity (4.48) in the second place, and IA role in ERM (3.20) in the third place. Additionally, the statistics show that most variables and factors have standard deviations ranging from 0.54 to 1.36, with an average of 0.85. This indicates a high level of consistency among the surveyed companies.

Table 2

Variables Descriptive Statistics

| Variables and Factors | Min | Max | Mean | Std. D |
|--|-------------|-------------|-------------|-------------|
| Internal Audit Role in Enterprise Risk Management | 2.22 | 4.61 | 3.20 | 0.57 |
| Core Role | 2.40 | 6.00 | 4.25 | 1.01 |
| Legitimate Role | 2.86 | 5.00 | 3.72 | 0.56 |
| Prohibited Role | 1.00 | 3.00 | 1.72 | 0.54 |
| Enterprise Risk Management Effectiveness | 4.17 | 6.83 | 5.66 | 0.73 |
| Internal Environment | 4.33 | 7.00 | 5.90 | 0.81 |
| Objective Setting | 4.33 | 6.63 | 5.69 | 0.59 |
| Event Identification | 4.00 | 7.00 | 5.83 | 0.89 |
| Risk Assessment | 2.67 | 6.00 | 5.38 | 1.36 |
| Risk Response | 3.00 | 7.00 | 5.46 | 1.07 |
| Control Activities | 3.33 | 6.00 | 5.85 | 1.17 |
| Information and Communication | 3.00 | 7.00 | 5.90 | 1.06 |
| Monitoring | 4.00 | 6.67 | 5.24 | 0.81 |
| Internal Auditors Objectivity | 3.00 | 5.75 | 4.48 | 0.78 |

Moreover, to answer RQ 1, the 7-point Likert scale was recoded into a 3-level category: low level (≤ 3), moderate level (>3 and ≤ 5), and high level (>5). The statistics indicate that internal auditors in Jordanian PLCs are moderately involved in ERM roles (mean=3.20). Specifically, they are moderately involved in core roles (mean=4.25/60.71%), legitimate roles (mean=3.72/53.14%), and have a low level of involvement in prohibited roles (mean=1.72/24.57%). These results are consistent with previous studies, such as Denhere (2023); Jassem (2022); Mardessi and Arab (2018b), conducted in Zimbabwe, Malaysia, and Tunisia, respectively.

The results reveal that internal auditors in Jordanian PLCs are more involved in core roles than other roles because they consider it their primary role to ensure ERM effectiveness. Their involvement in legitimate roles is moderate but lower than in core roles, as these roles require a high level of skills and knowledge in the field of ERM, which not all auditors possess. Finally, their involvement in prohibited roles is low, primarily due to some companies lacking professional risk managers or failing to comply with, or having insufficient knowledge about, IIA guidelines.

Measurement Model

The study's measurement model includes higher-order and lower-order constructs. These constructs encompass IA's role in ERM, ERM effectiveness, and internal auditors' objectivity. IA's role in ERM consists of three lower-order constructs, and ERM effectiveness comprises eight lower-order constructs. These constructs are interconnected using a reflective-reflective approach, and the model employs the repeated indicators approach, as Sarstedt et al. (2019) recommended for specifying and estimating these constructs.

The measurement model was evaluated to assess the constructs' reliability and validity, as illustrated in Table 3. Firstly, the factor loadings of all items exceeded 0.60, as recommended by (Asyraf and Afthanorhan, 2013), except for LR4, which had a factor loading of 0.55 and was subsequently removed from the analysis. Secondly, Cronbach's alpha (C_α), rho_A, and composite reliability (CR) of all constructs exceeded 0.70, as recommended by Hair et al. (2019). Thirdly, the Average Variance Extracted (AVE) for internal auditors' objectivity

exceeded 0.50, in line with the recommendation by Hair et al. (2019). However, AVE values for IA role in ERM and ERM effectiveness were slightly lower at 0.46 and 0.43, respectively. Nevertheless, this is not a concern because their associated lower-order constructs achieve AVE levels exceeding 0.57.

Fourthly, the cross-loading analysis indicates that most items exhibit stronger loadings on their intended constructs, except for five items: LR2, PR6, OS1, RA1, and CA3, which displayed notable loadings on different constructs. To enhance the model's discriminant validity, these five items were removed from the analysis, as recommended by Hair et al. (2019). Fifthly, the Fornell and Larcker Criterion analysis reveals that the square root of the AVE for each construct is greater than its correlation with other constructs, aligning with the guidelines provided by Hair et al. (2014). Finally, Table 4 indicates that the Heterotrait-Monotrait (HTMT) ratio, which assesses the construct correlations, is below the recommended threshold of 0.90, as Hair et al. (2019) suggested. The above analyses demonstrate that the study's measurement model and constructs exhibit reliability and validity.

Table 3

First Stage Evaluation

| Higher order Construct | Lower order Construct | Items | Factor loading | C _α | Rho_A | CR | AVE |
|------------------------|-----------------------|-------|----------------|----------------|-------------|-------------|-------------|
| IARERM | CR | CR1 | 0.88 | 0.92 | 0.92 | 0.93 | 0.46 |
| | | CR2 | 0.85 | | | | |
| | | CR3 | 0.89 | | | | |
| | | CR4 | 0.88 | | | | |
| | | CR5 | 0.90 | | | | |
| | LR | LR1 | 0.64 | | | | |
| | | LR2 | deleted | | | | |
| | | LR3 | 0.82 | | | | |
| | | LR4 | deleted | | | | |
| | | LR5 | 0.78 | | | | |
| | | LR6 | 0.75 | | | | |
| | | LR7 | 0.77 | | | | |
| | PR | PR1 | 0.77 | | | | |
| | | PR2 | 0.82 | | | | |
| | | PR3 | 0.82 | | | | |
| | | PR4 | 0.77 | | | | |
| | | PR5 | 0.78 | | | | |
| | | PR6 | deleted | | | | |
| ERME | IE | IE1 | 0.89 | 0.93 | 0.93 | 0.94 | 0.43 |
| | | IE2 | 0.93 | | | | |
| | | IE3 | 0.93 | | | | |
| | | OS1 | deleted | | | | |
| | OS | OS2 | 0.90 | | | | |
| | | OS3 | 0.90 | | | | |
| | | EI1 | 0.89 | | | | |
| | EI | EI2 | 0.90 | | | | |
| | | EI3 | 0.76 | | | | |

| | | | | | | | |
|------------|----|------|---------|-------------|-------------|-------------|-------------|
| | | RA1 | deleted | | | | |
| | RA | RA2 | 0.90 | | | | |
| | | RA3 | 0.93 | | | | |
| | | RR1 | 0.78 | | | | |
| | RR | RR2 | 0.92 | | | | |
| | | RR3 | 0.68 | | | | |
| | | CA1 | 0.95 | | | | |
| | CA | CA2 | 0.95 | | | | |
| | | CA3 | deleted | | | | |
| | | IC1 | 0.72 | | | | |
| | IC | IC2 | 0.92 | | | | |
| | | IC3 | 0.86 | | | | |
| | | M1 | 0.78 | | | | |
| | M | M2 | 0.93 | | | | |
| | | M3 | 0.79 | | | | |
| IAO | | O1 | 0.86 | 0.92 | 0.95 | 0.95 | 0.81 |
| | O2 | 0.91 | | | | | |
| | O3 | 0.93 | | | | | |
| | O4 | 0.91 | | | | | |

Note: IARERM = Internal Auditor Role in Enterprise Risk Management; CR = Core Role; LR = Legitimate Role; PR = Prohibited Role; ERME = Enterprise Risk Management Effectiveness; IE = Internal Environment; OS = Objective Setting; EI = Event Identification; RA = Risk Assessment; RR = Risk Response; CA = Control Activities; IC = Information and Communication; M = Monitoring; IAO = Internal Auditors Objectivity

Table 4
Heterotrait-Monotrait Ratio (HTMT)

| | CA | CR | EI | IAO | IC | IE | LR | M | OS | PR | RA | RR |
|-----|------|------|------|------|------|------|------|------|------|------|------|----|
| CA | | | | | | | | | | | | |
| CR | 0.48 | | | | | | | | | | | |
| EI | 0.66 | 0.59 | | | | | | | | | | |
| IAO | 0.50 | 0.33 | 0.63 | | | | | | | | | |
| IC | 0.61 | 0.46 | 0.70 | 0.47 | | | | | | | | |
| IE | 0.54 | 0.46 | 0.60 | 0.45 | 0.53 | | | | | | | |
| LR | 0.34 | 0.62 | 0.30 | 0.12 | 0.24 | 0.17 | | | | | | |
| M | 0.57 | 0.50 | 0.77 | 0.42 | 0.64 | 0.55 | 0.22 | | | | | |
| OS | 0.53 | 0.38 | 0.66 | 0.24 | 0.51 | 0.55 | 0.28 | 0.78 | | | | |
| PR | 0.15 | 0.51 | 0.20 | 0.12 | 0.19 | 0.10 | 0.83 | 0.14 | 0.14 | | | |
| RA | 0.44 | 0.20 | 0.55 | 0.34 | 0.51 | 0.59 | 0.09 | 0.71 | 0.63 | 0.20 | | |
| RR | 0.53 | 0.51 | 0.69 | 0.48 | 0.74 | 0.67 | 0.17 | 0.58 | 0.70 | 0.20 | 0.62 | |

Structural Model

After assessing the measurement model, this subsection evaluates the structural model, examines the significance of the hypotheses, and discusses the results. To ensure the

robustness of the results, a bootstrapping procedure with 5,000 resamples was employed, using a significance level of 5%.

The first stage evaluates the model fit and predictive relevance. The coefficient of determination (R^2) was calculated to evaluate the explanatory power of the structural model. The results reveal an R^2 value of 0.38 for ERM effectiveness, indicating that the combined effects of the IA role in ERM and internal auditors' objectivity explain 38% of the variance in ERM effectiveness, indicating a satisfactory level of predictive power (Hair et al., 2019). The predictive relevance (Q^2) statistic was calculated to assess the model's predictive relevance. The Q^2 value for ERM effectiveness is 0.16, indicating a satisfactory level of capability to predict ERM effectiveness out-of-sample (Hair et al., 2019).

The second stage uses the path coefficients to examine the significance of the direct hypotheses, H1 and H2. H1 predicts that IA's role in ERM impacts ERM effectiveness significantly and positively. Table 5 indicates that IA role in ERM ($\beta = 0.29$, $T = 3.90$, $P = 0.00$) exhibits a significant positive relationship with ERM effectiveness, thus supporting H1. This result aligns with studies by Abdurrahman et al. (2020); Jassem (2022) conducted in Malaysia, revealing IA's critical role in enhancing overall ERM effectiveness. This result can also be justified based on the fact that evaluating and improving RM represents one of the main responsibilities of internal auditors. Internal auditors maintain several characteristics that enable them to add value to ERM, including identifying and assessing risks across various organizational functions, providing on-going monitoring of RM activities, facilitating communication and coordination between different departments and levels of the company, and offering recommendations for improvements based on their assessments.

Moreover, H2 predicts that internal auditors' objectivity impacts ERM effectiveness significantly and positively. Table 5 indicates that internal auditors' objectivity ($\beta = 0.50$, $T = 7.64$, $P = 0.00$) exhibits a significant positive relationship with ERM effectiveness, thus supporting H2. This result aligns with studies by Abu-Saleem et al. (2019); Ojo (2019) conducted in Jordan and Nigeria, respectively, revealing the importance of internal auditors to maintain objectivity in enhancing overall ERM effectiveness. This result can also be justified based on the fact that when internal auditors maintain a high level of objectivity, they protect the effectiveness of IA and promote its credibility. They provide transparent reports on ERM's implementation and effectiveness status in the company without interference from management and conflicts of interest. Additionally, they offer valuable advice and recommendations to enhance ERM, thereby boosting stakeholder confidence in the audit process.

Table 5

Path Coefficient Assessment

| Hypotheses | β | T | P | Decision |
|------------------|---------|------|-------|-----------|
| H1: IARERM->ERME | 0.29 | 3.90 | 0.00* | Supported |
| H2: IAO->ERME | 0.50 | 7.64 | 0.00* | Supported |

Note: * $p < 0.01$

The third stage uses moderation analysis to examine the significance of the indirect hypothesis, H3. H3 predicts that internal auditors' objectivity moderates the relationship between IA's role in ERM and ERM effectiveness. However, the results presented in Table 6 show that internal auditors' objectivity ($\beta = -0.04$, $T = 0.61$, $P = 0.54$) negatively moderates the relationship between the IA role in ERM and ERM effectiveness, although the moderation is

not statistically significant. Consequently, H3 is rejected. The result aligns with previous research, including studies by Čular et al. (2020); Kertali and Tahajuddin (2018), suggesting that heightened involvement of IA in ERM negatively affects internal auditors' objectivity; however, it diverges from these studies as the observed impact does not reach statistical significance. This result can be justified based on the fact that internal auditors are involved in ERM roles to a level that leads to improved ERM effectiveness while maintaining a moderate level of objectivity in Jordanian PLCs. This level of objectivity prevents it from significantly weakening the relationship between the IA role in ERM and ERM effectiveness. Additionally, the internal auditors' objectivity levels in the study sample are close to each other; they may lack the statistical power to detect a significant moderation effect.

Table 6
 Moderation Analysis

| Hypothesis | β | T | P | Decision |
|----------------------|---------|------|------|----------|
| H3: IA0*IAEREM->ERME | -0.04 | 0.61 | 0.54 | Rejected |

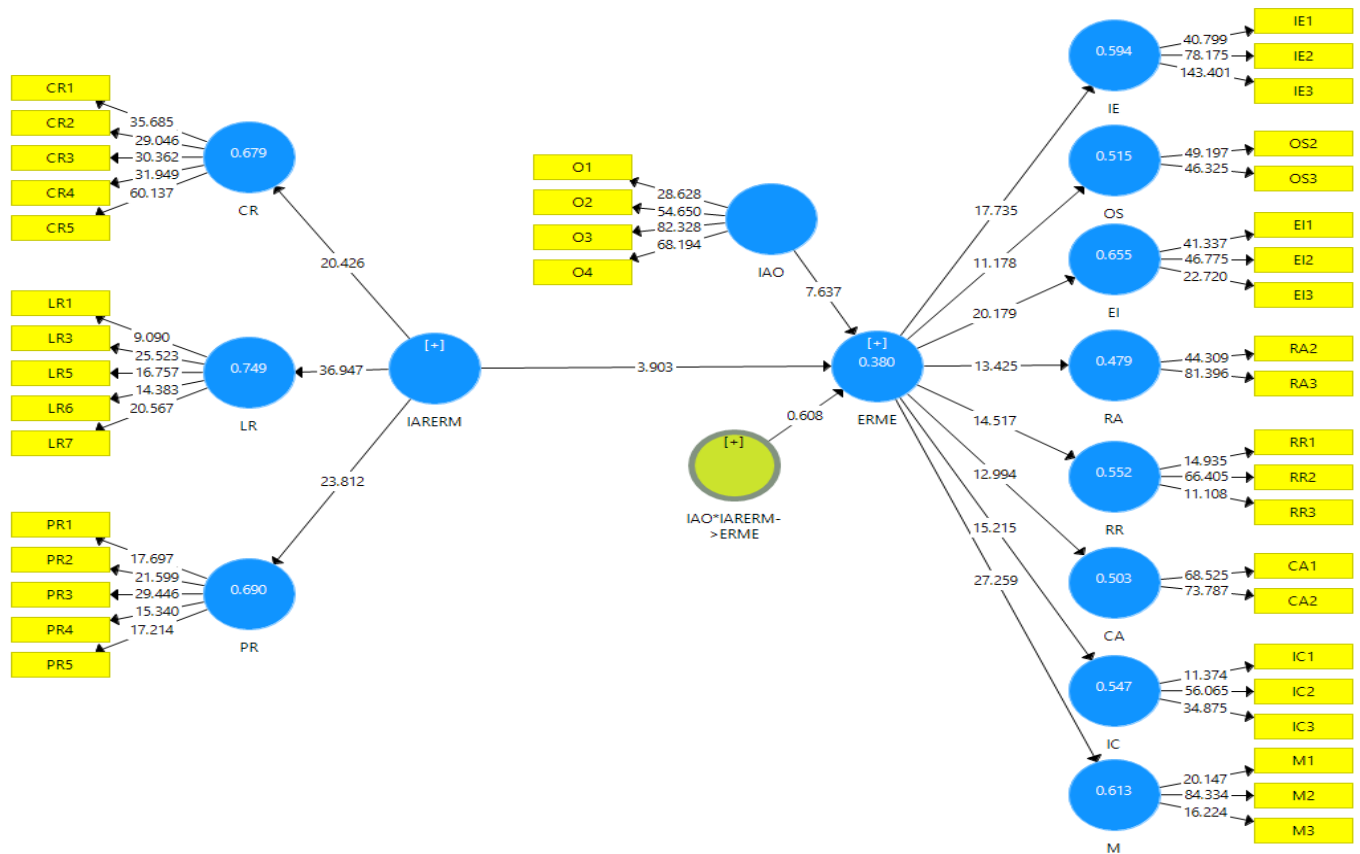


Figure 2: Measurement Model

Conclusion

The study aims to investigate the level of the IA role in ERM and its impact on ERM effectiveness in Jordanian PLCs. Additionally, it aims to explore the impact of internal auditors' objectivity on ERM effectiveness and its potential moderating role in the relationship. The results reveal that internal auditors are moderately involved in ERM roles, with participation rates of 60.71% in core roles, 53.14% in legitimate roles, and 24.57% in

prohibited roles. Furthermore, the IA role in ERM enhances ERM effectiveness by providing assurance and consulting services. Additionally, the objectivity of internal auditors contributes to ERM effectiveness by delivering transparent reports and valuable recommendations, free from interference from management and conflicts of interest. Notably, the objectivity of internal auditors does not significantly moderate the relationship between the IA role in ERM and ERM effectiveness. This lack of moderating is attributed to the moderate level of objectivity maintained by internal auditors, with the levels of objectivity in the study sample closely aligned.

Drawing upon the aforementioned results, this study offers the following recommendations for Jordanian PLCs: 1) Internal auditors should increase their legitimate role in ERM, especially considering that the ERM status is still in its early stages; 2) Internal auditors should decrease their prohibited role in ERM to further protect their objectivity and audit function, thereby avoiding conflicts of interest with management; 3) Internal auditors should raise their awareness and knowledge about IIA standards, ethics, and guidelines related to their role in ERM; 4) When internal auditors need to engage in prohibited roles within ERM, companies should consider hiring external professional parties to provide objective assurance about ERM effectiveness, at least once every two years.

This study contributes by addressing the knowledge gap in the relationship between the IA role in ERM, internal auditors' objectivity, and ERM effectiveness, particularly in the context of developing countries. It is also among the first studies to provide empirical evidence of internal auditors' objectivity as a moderator in the relationship between IA's role in ERM and ERM effectiveness. In addition to advancing academic understanding, this study offers practical insights for practitioners and policymakers. It emphasizes the importance of the IA role in ERM and emphasizes the crucial role of maintaining internal auditors' objectivity in enhancing overall ERM effectiveness.

Moreover, it's essential to acknowledge some limitations in this study. Firstly, the research is exclusively based on quantitative methodology. Secondly, due to the small size of the study population, companies from both financial and non-financial sectors were included. Lastly, the study is confined to a single-country context. These limitations may impact the generalizability of the findings to some extent, particularly in terms of their applicability to other countries. Given these limitations, the paper proposes several avenues for future research, including: 1) Utilizing qualitative or mixed methods to complement the quantitative findings; 2) Narrowing the focus to a single sector while considering the involvement of two or more countries to enhance the study's external validity; 3) Reinvestigating the moderating role of internal auditors' objectivity in different contexts; 4) Exploring the role of audit and risk committees as drivers of the IA role in ERM, and examining their potential moderation role between IA's role in ERM and ERM effectiveness.

References

- Abdurrahman, A. P., Mohamad, S., Garrett, K. W. C., and Ehsanullah, S. (2020). Internal audit and enterprise risk management. *International Journal of Advanced Science and Technology*, 29(9),401-409.
- Abu-Saleem, K., Zraqat, O. M., and Okour, S. M. (2019). The effect of internal audit quality (IAQ) on enterprise risk management (ERM) in accordance to COSO framework. *European Journal of Scientific Research*, 152(2), 177–188.
- Al-Nimer, M., Abbadi, S. S., Al-Omush, A., and Ahmad, H. (2021). Risk management practices and firm performance with a mediating role of business model innovation. *Observations*

- from Jordan. *Journal of Risk and Financial Management*, 14(3), 1–20.
- Al-Okdeh, S. (2023). The role of technology of mind mapping on internal auditing in risk management: evidence from Jordanian commercial banks. In *2023 International Conference on Business Analytics for Technology and Security (ICBATS)*, IEEE, 1–12.
- Alawattegama, K. K. (2022). Enterprise risk management: challenges and the strategies for success. *International Journal of Research in Business and Social Science*, 11(6), 110–115.
- Altanashat, M., Al-Dubai, M., and Alhety, S. (2019). The impact of enterprise risk management on institutional performance in Jordanian public shareholding companies. *Journal of Business & Retail Management Research*, 13(3), 256–268.
- Alzeban, A., and Gwilliam, D. (2014). Factors affecting the internal audit effectiveness: a survey of the Saudi public sector. *Journal of International Accounting, Auditing and Taxation*, 23(2), 74–86.
- Asyraf, W. M., and Afthanorhan, B. W. (2013). A comparison of partial least square structural equation modeling (PLS-SEM) and covariance based structural equation modeling (CB-SEM) for confirmatory factor analysis. *International Journal of Engineering Science and Innovative Technology (IJESIT)*, 2(5), 198–205.
- COSO. (2004). Enterprise risk management-integrated framework. Committee of Sponsoring Organizations of the the Treadway Commission, Retrieved from [www.mastercca.cnam.fr/pdf/support de cours/ccg 206- 207/ccg207-applying-coso.pdf](http://www.mastercca.cnam.fr/pdf/support%20de%20cours/ccg%206-207/ccg207-applying-coso.pdf).
- Čular, M., Slapničar, S., and Vuko, T. (2020). The effect of internal auditors' engagement in risk management consulting on external auditors' reliance decision. *European Accounting Review*, 29(5), 999–1020.
- Dabari, I. J., and Saidin, S. Z. (2016). A moderating role of board characteristics on enterprise risk management implementation: evidence from the Nigerian banking sector. *International Journal of Economics and Financial Issues*, 6(s4), 96–103.
- De Zwaan, L., Stewart, J., and Subramaniam, N. (2011). Internal audit involvement in enterprise risk management. *Managerial Auditing Journal*, 26(7), 586–604.
- Denhere, V. (2023). Internal audit involvement in enterprise risk management (ERM): the case of Zimbabwean public universities. *International Journal of Research in Business and Social Science*, 12(4), 471–482.
- Florea, R., and Florea, R. (2016). Internal audit and risk management. ISO 31000 and ERM approaches. *Economy Transdisciplinarity Cognition*, 19(1), 72–77.
- Gathogoh, J. (2014). An investigation into the role of internal auditing function in enterprise risk management: a case study of Co-operative College of Kenya. *International Journal of Social Sciences and Entrepreneurship*, 1(11), 1–18.
- Grima, S., Baldacchino, P. J., Grima, S., Kizilkaya, M., Tabone, N., and Ellul, L. (2023). Designing a characteristics effectiveness model for internal audit. *Journal of Risk and Financial Management*, 16(2), 1–44.
- Hair Jr, J. F., Risher, J. J., Sarstedt, M., and Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24.
- Hair Jr, J. F., Sarstedt, M., Hopkins, L., and Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): an emerging tool in business research. *European Business Review*, 26(2), 106–121.
- Hamzah, N., Maelah, R., and Saleh, O. M. (2022). The moderating effect of human capital on the relationship between enterprise risk management and organization performance. *International Journal of Business and Society*, 23(1), 614–632.
- IIA. (2004). The role of internal auditing in enterprise-wide risk management. Retrieved from

- www.theiia.org/download.cfm?file=351.
- IIA. (2009). The role of internal auditing in enterprise-wide risk management. Retrieved from www.theiia.org/download.cfm?file=351.
- IIA. (2017). International standards for the professional practice of internal auditing (standards). Retrieved from www.theiia.org/download.cfm?file=351.
- Jaber, T. A., and Shah, S. M. (2023). Enterprise risk management literature: emerging themes and future directions. *Journal of Accounting & Organizational Change*.
- Jassem, S. (2022). Influence of internal audit functions on enterprise risk management: evidence from Malaysian transportation industry. *International Journal of Business Excellence*, 26(2), 196–223.
- Javaid, S., and Aslam, F. (2021). The effect of enterprise risk management on ameliorating competitive advantage: a cross-sectional study of software houses in Pakistan. *Pertanika Journal of Social Sciences and Humanities*, 29(1), 2525–2543.
- Kertali, M., and Tahajuddin, S. (2018). The effect of internal auditors' involvement in enterprise risk management on internal audit objectivity: evidence from Malaysia. *Asian Journal of Economics, Business and Accounting*, 6(3), 1–11.
- Kifflee, S. N. F., Nawli, H. M., and Jusoh, M. A. (2023). Internal Audit effectiveness: effectiveness of internal control system and management support as a moderating variable. *International Journal of Academic Research in Accounting Finance and Management Sciences*, 13(3), 542–555.
- Lien, V. T. P., and Viet, N. V. (2023). Factors governing the effectiveness of internal audit activities at enterprises: evidence from Vietnamese enterprises. *Social Science Journal*, 13(2), 282–299.
- Mardessi, S. M., and Arab, S. D. B. (2018a). Determinants of ERM implementation: the case of Tunisian companies. *Journal of Financial Reporting and Accounting*, 16(3), 443–463.
- Mardessi, S. M., and Arab, S. D. B. (2018b). Internal audit's involvement in risk management process. *Research Journal of Finance and Accounting*, 9(7), 18–25.
- Martínez-Mesa, J., González-Chica, D. A., Duquia, R. P., Bonamigo, R. R., and Bastos, J. L. (2016). Sampling: how to select participants in my research study? *Anais Brasileiros de Dermatologia*, 91(3), 326–330.
- McShane, M. (2018). Enterprise risk management: history and a design science proposal. *Journal of Risk Finance*, 19(2), 137–153.
- Nabulsi, H., and Haidoura, H. M. (2018). Making a difference through internal audit leadership and enterprise risk management. *Journal of Economics and Finance*, 9(2), 52–60.
- Odoyo, F. S., Omwono, G. A., and Okinyi, N. O. (2014). An analysis of the role of internal audit in implementing risk management- a study of state corporations in Kenya. *International Journal of Business and Social Science*, 5(6), 169–176.
- Ojo, A. (2019). Internal audit and risk management in Nigeria's public sector. *International Journal of Business & Law Research*, 7(2), 1–15.
- Pangestuti, D. C., Muktiyanto, A., Geraldina, I., and Darmawan, D. (2023). Modified of ERM index for southeast Asia. *Cogent Business and Management*, 10(2), 2199906.
- Praise, I., and Rapina, R. (2022). The role of internal audit, leadership effectiveness, and organizational culture in risk management effectiveness. *European Journal of Management Issues*, 30(2), 83–91.
- Sarstedt, M., Hair, J. F., Cheah, J. H., Becker, J. M., and Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal*, 27(3), 197–211.

- Sekaran, U., and Bougie, R. (2016). *Research methods for business: a skill building approach* (5th ed). John Wiley & Sons.
- Setiawan, A., Manurung, A. H., Hamsal, M., and Soepriyanto, G. (2021). The analysis of the effect of internal audit, IT capability and CRO role in the enterprise risk management implementation on firm performance moderated by listed status among Indonesian State-Owned enterprises. *Elementary Education Online*, 20(6), 276–298.
- Singh, K. S. D., Ravindran, S., Ganesan, Y., Abbasi, G. A., and Haron, H. (2021). Antecedents and internal audit quality implications of internal audit effectiveness. *International Journal of Business Science and Applied Management*, 16(2), 1–21.
- Spanò, R., and Zagaria, C. (2022). Enterprise risk management systems: emerging issues and future trends. *Integrating Performance Management and Enterprise Risk Management Systems*, 35–68.
- Tahajuddin, S. B., and Kertali, M. (2018). The effect of internal audit characteristics on the effectiveness of internal auditors. *European Journal of Accounting, Auditing and Finance Research*, 6(7), 54–69.
- Togok, S., Isa, C. R., and Zainuddin, S. (2014). Operationalising enterprise risk management (ERM) effectiveness. *Journal of Accounting Perspectives*, 7(1), 28–48.
- Viljoen, P., and Barac, K. (2015). Managing risk: what should internal audit do? *Southern African Journal of Accountability and Auditing Research*, 17(2), 5–17.