

The Role of Internal Audit in Enhancing Corporate Governance Principles and Risk Management in the Saudi Arabian Private Sector

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Abstract: - This study investigated the contribution of internal audit to improving corporate governance principles and strengthening risk management practices in Saudi private sector organizations. Amid increasing regulatory, operational, and technological pressures, internal audit has evolved beyond its traditional compliance function to become a governance mechanism that promotes transparency, accountability, and organizational resilience. The study adopted a quantitative research design based on the positivist paradigm. Data were collected through a structured questionnaire completed by professionals involved in internal audit and risk management functions. Descriptive statistics, reliability analysis, t-tests, ANOVA, chi-square tests, and regression analysis were conducted using SPSS. The findings indicate that internal audit efficacy significantly improves corporate governance implementation and risk management practices by enhancing transparency, accountability, board oversight, ethical compliance, and risk identification, assessment, and mitigation. Overall, strengthening internal audit capacity, independence, and integration with governance and risk management promotes organizational control, sustainable performance, effectiveness, and resilience.

Key-Words: - internal audit efficacy; corporate governance; risk management; internal control; organizational resilience; Saudi Arabia.

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1 Introduction

Organizations operate in increasingly complex, dynamic environments characterized by frequent changes in technology, regulatory requirements, and stakeholder expectations, which have led to a sharper focus on governance, risk management, and internal control systems as critical tools to build organizational resilience and sustain performance, [1], [2]. As a result, organizations increasingly recognize the need to timely and effectively enhance their monitoring and control activities and enhance their risk identification and response capabilities to address constantly evolving risks.

In this context, internal auditing has matured from a compliance-based role to a strategic role that offers assurance and advisory services in organizations. Internal auditing is an independent, objective function that adds value and improves organizations' operations by systematically evaluating governance, risk management, and control processes per the Global Internal Audit Standards. Internal auditors can offer objective evaluations and suggestions to decision-makers, helping to improve accountability, strengthen internal controls, and boost organizational performance [3], [4].

Internal auditing refers to the entire process of conducting audit functions, such as reviewing, evaluating, monitoring, and performing other supervisory roles in performing duties and organizational operations [5]. These activities should be conducted in compliance with existing regulations, such as those on the reliability of financial reporting. As for secondary-level education, the internal audit (IA) function can be used as an effective tool to improve the effectiveness and efficacy of the institutional work of education, [6], [7].

Corporate governance is a system by which organizations are directed, controlled, and monitored to achieve their strategic goals with regard to the protection of shareholders' and other stakeholders' interests [8]. New governance models focus on transparency, accountability, disclosure, ethical practice, and good board oversight as key principles to improve an organization's performance and the trust of its stakeholders. These are considered to be key building blocks of governance systems that promote market integrity, sustainable growth, and long-term organizational resilience as defined by the Principles of Corporate Governance (G20/OECD),

[9].

Good corporate governance promotes the minimization of information asymmetry between management and stakeholders, enhances internal control mechanisms, and improves a corporation's decision-making. Governance mechanisms have become intertwined with risk oversight, sustainability, and organizational accountability in the face of increasingly complex regulatory and operational landscapes. Thus, governance is seen no longer only as a compliance requirement but also as an organizational governance strategy that assists with the effective management of the organization and the creation of long-term value [10].

Risk management has become a fundamental business process that helps organizations understand, measure, and manage potential risks that could impact their strategic and operational goals [11]. Today, it goes beyond the traditional goal of loss prevention to embrace the proactive management of financial, operational, technological, regulatory, and compliance risks. Current approaches focus on embedding risk management into organizational strategy, governance, and performance management systems to build organizational resilience and create sustainable value [12].

As businesses around the world become complex, go digital, and meet changing customer demands, risk management is becoming increasingly critical. Systematic risk management practices are likely to give organizations greater foresight in predicting threats, to enhance decision-making processes, and to ensure business continuity during turbulent times [2].

Contemporary research pays growing attention to the connection between IA, corporate governance, and risk management. IA is increasingly recognized and valued as a crucial governance tool in terms of independent assurance on the effectiveness of internal controls, governance processes, and risk management processes. IA provides assurance and advisory services to boards of directors and audit committees to help them determine whether the risks facing the organization are adequately identified, assessed, monitored, and controlled. This function provides transparency, increases accountability, and contributes to better governance within the organization, [1], [4].

Moreover, IA has a great value in supporting enterprise risk management (ERM) by evaluating processes related to risk management and offering recommendations that enhance an organization's reactions to emerging risks and uncertainties. Recent studies indicate that IA's most beneficial effect in an organization is being a strategic partner to the organization's risk management program without

becoming part of the management team, in which capacity it is sufficiently independent to objectively assess management's work. Hence, internal auditors in modern organizations are seen as significantly contributing to the effectiveness of governance and the maturity of risk management within them [13].

Saudi Arabia's private sector is a key driver of economic diversification and sustainable development goals in the context of Vision 2030, and private sector organizations are under greater pressure to practice effective governance and risk management practices due to ongoing regulatory reform, rising investor requirements, digital transformation programs, and a focus on transparency and accountability. At the same time, the IA function has become even more critical as organizations facing increasingly complex risks strive to strengthen their oversight processes and boost stakeholder trust [14], [15].

Although IA has become an important governance and risk management mechanism, limited empirical evidence exists on how IA contributes to the implementation of corporate governance principles and the improvement of risk management practices in Saudi private sector organizations. Previous studies have often dealt with governance, risk management, or IA alone, with few discussing the integrated relationship between these constructs in the setting of Saudi private companies. This gap indicates a need for further empirical study to explore the role of IA in improving governance practices and facilitating good risk management in Saudi organizations.

Thus, the present article investigates and discusses how IA impacts the improvement of corporate governance principles and the strength of risk management in private sector organizations in Saudi Arabia. Specifically, it explores the impact of IA on enhancing transparency and accountability, increasing the effectiveness of governance, and identifying, assessing, and mitigating organizational risks. Using empirical evidence, it aims to shed light on these matters to contribute to the literature on internal auditing, corporate governance, and risk management and to offer practical implications for decision-makers, regulators, and governance professionals in the context of a changing Saudi environment for the private sector.

1.1 Problem Statement

The growing complexity of the modern business world has heightened demand for good governance and thorough risk management practices in private sector companies [16]. Organizations face tremendous pressure to perform sustainably and

maintain stakeholder confidence in their performance, given the rapid rate of technological change, constantly shifting regulatory demands, rising expectations from stakeholders, and increasing operational, financial, and compliance risks. To address these challenges, organizations increasingly turn to governance mechanisms that can strengthen governance and improve both accountability and risk monitoring.

IA has proved to be one of the more significant tools for governance and risk supervision. Independent assurance and advisory, IA assists in the evaluation of internal controls, monitoring governance processes, and the effectiveness of risk management processes [17]. Even though IA functions are increasingly recognized as such and integrated into corporate governance processes, questions remain regarding IA's role in the effective implementation of corporate governance principles and how it improves risk management practices, particularly in private sector organizations, in a dynamic and highly competitive environment.

In Saudi Arabia, the principles of good governance, transparency, accountability, and effective risk management are becoming more relevant to all private sector organizations as a result of current economic reforms and Vision 2030 goals [18]. However, empirical studies are relatively scarce on how IA promotes good governance and enhances risk management processes in the Saudi private sector. Therefore, this study aimed to provide evidence to close the research gap on the relationship of IA to the development of corporate governance principles and on its relationship to bettering risk management practices in private sector companies in Saudi Arabia.

1.2 Research Significance

This study's value lies in exploring the importance of IA in achieving effective governance and risk management in contemporary private sector organizations. In today's dynamic and complex regulatory, technological, and operational landscape, IA has emerged as a crucial tool for enhancing transparency, accountability, risk management, and organizational resilience, so investigating its function with respect to governance and risk management is relevant to academic research and professional practice.

Theoretically, the study adds to the literature by investigating IA as a governance and risk oversight mechanism rather than a compliance and control function. The study discusses IA's relationship with corporate governance principles and risk management practices in one analytical context,

which broadens the scope of existing knowledge on the role of IA in enhancing organizational effectiveness in the private sector context [19].

The findings are useful from a practical standpoint because they can help boards of directors, audit committees, senior management, and governance professionals enhance IA practices and governance and risk management. In addition, the study offers policy and practice insights that can help regulators and professional bodies in formulating policies and practices that promote greater transparency, accountability, and sustainability of private sector organizations in Saudi Arabia, particularly in the context of the governance and economic transformation agenda under Saudi Vision 2030.

2 Literature Review

2.1 Internal Audit, Corporate Governance, and Risk Management

The IA function has evolved from its traditional assurance role, primarily ensuring financial compliance, to a more strategic organizational role that supports governance, risk management, and internal control processes. Internal auditing's independent, objective assurance and advisory function adds value and enhances the reliability and effectiveness of an organization's governance, risk management, and control processes by systematically evaluating them according to the Global Internal Audit Standards. In an increasingly complex regulatory and operational landscape, IA is becoming a critical tool by which organizations improve accountability and internal controls and inform decision-making [3].

Corporate governance embraces the structures, processes, and relationships involved in directing and controlling an organization. Good governance structures provide clear accountability between boards of directors, management, shareholders, and other stakeholders and encourage transparency, accountability, disclosure, and ethical behavior. Good corporate governance practices are essential to organizations' sustainability, investor confidence, market integrity, and the creation of long-term value through effective oversight and responsible decision-making [9].

Risk management is a systematic approach to identifying, analyzing, monitoring, and responding to risks that could affect the ability to accomplish strategic and operational goals. Modern perspectives take a different approach to risk management, seeing

it as part of an organization's governance and not as a separate control activity. The COSO Enterprise Risk Management framework emphasizes the need to establish a system wherein risk management is integrated into an organization's governance and strategic planning, performance measurement, and reporting to increase resilience and sustain organizational performance [12], [20].

2.2 Internal Audit and Corporate Governance

The governance literature has extensively examined the relationship between IA and corporate governance. It is widely accepted that IA is a key governance tool to support the role of board oversight, to strengthen accountability, and to improve the effectiveness of an organization's control systems. Independent assessments of organizational processes and internal controls give internal auditors the opportunity to ensure the effectiveness of governance and enhance transparency and adherence to an organization's policies and regulatory requirements [21].

Broad empirical evidence supports the positive influence of IA on the effectiveness of governance. IA contributes to good corporate governance in various ways, including strengthening oversight and improving organizational control practices [22]. Furthermore, compliance with internal auditing standards and the professional competence of internal auditors significantly enhance the effectiveness of internal auditing in advancing corporate governance [23], [24]. In addition, governance attributes, such as board expertise and board role performance, are positively associated with the quality of organizational reporting, underscoring the importance of a high-quality internal audit function supported by an effective governance structure [25], [26].

These studies suggest that IA can be a key component of governance effectiveness by improving governance mechanisms, accountability, board support, and organizational control systems. To date, however, the literature on the extent of such contributions is scarce, especially in private sector organizations in the context of an emerging economic environment such as Saudi Arabia.

2.3 Internal Audit and Risk Management

As the nature and complexity of organizations' risks increase, IA has evolved from assurance to supporting the process of risk oversight and enterprise risk management (ERM). Modern IA plays a role in risk management by assessing risk procedures, checking the effectiveness of controls, identifying deficiencies in risk responses, and

making recommendations to help organizations be resilient and make informed decisions.

Several empirical studies that identify the need for IA to reinforce risk management support this observation. IA is a highly important part of the organizational risk management framework, and the audit function will be effective if adequate support is provided by senior management, audit committees, and the organization's risk culture, [11]. IA plays a role in risk management by assessing risk-related processes and making recommendations to enhance an organization's ability to respond to identified risks, [27]. Further, IA, risk management systems, and organizational control mechanisms complement one another in minimizing financial irregularities and improving fraud prevention [28].

In general, the existing literature suggests that the IA function positively impacts an organization's risk management process by continuously monitoring, independently assessing, and offering advice on the risk management process, yet more empirical studies are needed that focus on the effectiveness of this relationship in private sector organizations in an increasingly complex governance and risk landscape.

2.4 Theoretical Foundation

2.4.1 Agency Theory

An effective model for understanding the role of IA in corporate governance is agency theory, which postulates that conflict may occur when principals give authority to agents, especially in the absence of control, ownership, and separation. Information asymmetry, shareholder/board of directors/mismanagement goals, and conflict of interest are all common features of such conflicts. Therefore, effective monitoring and control are needed to minimize the agency problem and prevent managerial action from going against the aims of the organization, [19], [29].

In this context, IA is an intrinsic governance structure that can effectively identify, analyze, and mitigate agency conflicts by independently assessing organizational activities, internal controls, and governance processes. By providing assurance and advice, IA increases transparency, enhances accountability, uncovers control weaknesses, and minimizes fraud and opportunistic activity. Therefore, agency theory explains what IA should do to improve corporate governance principles.

2.4.2 The Three Lines Model

The three-lines model is a complementary theory that offers a different view of how IA contributes to the function of organizational risk management. The

model presents the concept of governance and risk management distributed along three interconnected lines. The first is operational management, which is responsible for the ownership and management of risks as part of the work management does on a day-to-day basis. The second line consists of roles related to risk management and compliance that support, monitor, and enable risk control activities. IA, the third line, offers independent assurance on the effectiveness of governance, risk management, and internal control systems, [30], [31].

The evolution of the model highlights the importance of communication, coordination, value creation in an organization, and the independence of IA in achieving the best governance and risk oversight. In this context, IA plays a key role in an organization's risk management process by analyzing its risk processes, measuring the effectiveness of its control systems, and offering objective suggestions that will aid the decision-making process based on the risks involved. On this basis, the three lines model is suitable for explaining the expected relationship between the efficacy of IA and the effectiveness of risk management in private sector organizations [32].

2.5 Literature Synthesis and Research Gap

The reviewed literature shows that IA has emerged as a governance and risk oversight tool in modern organizations. In the past, scholars have identified that effective IA roles contribute to the development of internal controls, improve transparency and accountability, aid boards of directors in oversight, and enhance organizations' governance practices. Likewise, the literature shows that IA is effective in assessing risk management processes, identifying the weaknesses of controls, and supporting an organization's responses to new risks and uncertainties.

Notwithstanding these contributions, the existing knowledge base has a number of limitations. First, most previous studies have examined the connection between IA and corporate governance (or the connection between IA and risk management) separately; fewer studies address the interplay of IA in governance and IA in risk management in the same organization. Second, many of the findings are based on evidence from banking institutions, public institutions, and specific national contexts, which may restrict the applicability of the evidence to private sector institutions that are subject to different economic and regulatory conditions.

In addition, previous studies on governance and auditing have focused on the strategic function of IA, but few have addressed IA's contribution to the

realization of corporate governance principles and to improving the implementation of risk management in private sector companies in Saudi Arabia. Given the growing significance of governance, accountability, transparency, and risk oversight within the scope of the Saudi Vision 2030, further research is required to elucidate the specific role of IA and how it contributes to organizational effectiveness in this regard.

Thus, this study aimed to fill this gap by investigating the IA function and how it both improves Saudi Arabian private sector companies' corporate governance principles and strengthens their risk management practices. The study examined these relationships concurrently and contributes to the current literature and evidence base in an important and dynamic economy.

3 Methodology

To maintain consistency and accuracy in all aspects of the study design, this research on the role of IA in applying corporate governance principles and in the risk management process in the private sector adopted the Research Compass framework. Philosophically, this study followed positivism, which argues that novel events can be observed, measured, and quantified objectively and explored in terms of cause-and-effect relationships, yielding statistical results [33].

3.1 Data Collection Design and Data Analysis

A cross-sectional study was conducted, with data collected via an electronically distributed structured questionnaire. The study targeted a specific sample of professionals and specialists, such as IA managers, department heads, and IA practitioners in the selected profession, to ensure the collection of highly reliable primary data without the use of mediators. The data were analyzed in SPSS statistical software. Subsequently, the questionnaire answers were subjected to a series of elaborate analyses, starting with descriptive statistics and data physical properties, followed by analysis of the reliability of the measurement instrument (Cronbach's alpha coefficient). In the third stage, inferential analysis, specifically multiple regression analysis, was used to analyze and interpret how audit practices across different disciplines and multiple controls were affected. ANOVA, t-tests, and chi-squared tests were also conducted.

3.2 Study Population and Sample

Prior to the distribution of the research instrument

(questionnaire), a pilot study was conducted among 30 participants from the study population (main study sample) to test the instrument's accuracy and reliability in measuring what it was designed to measure. This involved determining the questionnaire items' level of consistency (by calculating Cronbach's alpha coefficients) and the level of correspondence between each questionnaire item and the theoretical aspect it described (by calculating Pearson's alpha coefficients).

The Cochran formula was used to select a total sample of 384 participants, because in cases in which the number of the statistical population cannot be exactly determined (unknown population), it represents the best scientific method for determining sample size [34]. The questionnaire was subjected to extensive validation and reliability testing prior to the actual application to ensure that the objectives of the questionnaire.

This systematic approach proved the questionnaire's effectiveness in identifying the variables and ensuring the reliability of the obtained results and the possibility of extending the results to the private sector institutions. The comprehensive research framework described below provides scientific references and methodological justifications for the study's design and sample selection. Since the research population was not precisely defined, the Cochran equation ($n = Z^2pq/e^2$) was used to ensure that the sample size was representative, thus increasing the accuracy of the research results [35]. To ensure broad specialist knowledge and experience in the fields of audit and risk management, a number of participants were chosen to represent organizations in the private sector—including various job titles, such as risk management manager, IA manager, IA officer, and risk management officer—who were expected to provide realistic views and experiences on governance practices. The sample obtained from this methodology was adequate and representative and resulted in a high level of reliability and generalizability to provide insight into the role of IA as a strategic tool to support the principles of governance and reduce organizational risk.

3.3 Study Tool and Procedures for Verifying Validity and Reliability

As the study progressed, the researcher employed a variety of tools and procedures to discern whether the study was valid and reliable. A close-ended questionnaire was used as the primary tool to collect data, covering the concepts of internal auditing, application of governance principles, and maturity of risk management practices of private sector

organizations. The questions were evaluated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). To enhance content validity, the questionnaire was validated by IA and risk management experts. A pilot study was done on a small sample of specialists prior to distribution to the final sample. The instrument was further tested for its reliability using Cronbach's alpha coefficient, and the results show that the internal consistency of all the variables had a high value.

3.4 Description of the Study Tool

The final version of the questionnaire had three major axes as described below.

First axis: IA efficacy. This measure was used to describe the independent variable and indicates the effective performance of IA functions in private sector organizations. It comprised 16 items measuring audit independence, efficacy, planning, and quality of reporting.

Second axis: corporate governance implementation. The extent of application of governance principles, including transparency, accountability, and board oversight, was measured by 16 items based on a previous survey on governance and theoretical frameworks.

Third axis: risk management practices. This axis addressed the process of identifying, assessing, responding to, and controlling organizational risk. The scale on this axis was measured by 16 validating items.

3.5 Characteristics of the Study Sample

Frequencies and percentages were calculated for the study participants' demographic variables, including gender, age, education level, job title, and experience in years. The personal and professional characteristics of the study participants are summarized in Table 1.

According to Table 1, a higher proportion of males (66.1%) was found than females (33.9%). The largest age group comprised those aged 31–40 years (43.5%), followed by 41–50 years (32.8%), 51 years and above (16.9%), and those 30 years and below (6.8%). In regard to education level, 3.4% of the respondents were diploma holders, 50.5% held bachelor's degrees, and 46.1% had master's degrees or PhDs. The respondents' most common job title was IA manager (33.6%), followed by risk management manager (24.2%), IA officer (22.1%), and risk management officer (20.1%). With regard to experience, 43.5% of respondents had 10 years or more.

Table 1. Distribution of participants

Category	Subcategory	Frequency	Percentage
Gender	Male	254	66.1%
	Female	130	33.9%
Total		384	100%
Age	≤30 years	26	6.8%
	31–40 years	167	43.5%
	41–50 years	126	32.8%
	≥51 years	65	16.9%
Total		384	100%
Education level	Diploma	13	3.4%
	Bachelor's degree	194	50.5%
	Master's degree/PhD	177	46.1%
Total		384	100%
Job title	Risk management manager	93	24.2%
	IA manager	129	33.6%
	IA officer	85	22.1%
	Risk management officer	77	20.1%
Total		384	100%
Years of experience	≤5 years	92	24%
	5–10 years	125	32.6%
	≥10 years	167	43.5%
Total		384	100%

Source: created by the author

3.6 Interrater Reliability

Validation was performed through an intensive process. A team of subject matter experts with specialization in IA, corporate governance, and risk management analyzed the appropriateness and scientific nature of the questionnaire items in terms of clarity and relevance to the research objectives. A few modifications were made based on their views to improve the questionnaire's clarity, whereupon it was agreed that the questionnaire was adequately and appropriately designed.

A pilot test was also conducted to check the reliability and validity of the instrument. The findings of the pilot test revealed that the tool had an acceptable level of face validity and internal consistency, establishing the questionnaire's suitability for use in the research. The final questionnaire comprised 48 items in three major dimensions.

3.7 Internal Consistency of Questionnaire Items

The internal consistency measure involved calculating the Pearson correlation coefficient between the item score and the sum of scores for the axis to which that item belonged. The Pearson correlation coefficients are presented in Table 2.

Table 2. Pearson correlation coefficient of each item's score

Item no.	Correlation coefficient	Item no.	Correlation coefficient	Item no.	Correlation coefficient
First axis: Internal audit efficacy					
1	.753**	2	.768**	3	.605**
4	.786**	5	.751**	6	.768**
7	.763**	8	.640**	9	.759**
10	.893**	11	.773**	12	.886**
13	.743**	14	.696**	15	.755**
16	.739**				
Second axis: Corporate governance implementation					
1	.762**	2	.784**	3	.810**
4	.797**	5	.796**	6	.815**
7	.808**	8	.869**	9	.731**
10	.700**	11	.735**	12	.773**
13	.861**	14	.797**	15	.725**
16	.708**				
Third axis: Risk management maturity					
1	.693**	2	.712**	3	.632**
4	.767**	5	.783**	6	.660**
7	.803**	8	.857**	9	.838**
10	.864**	11	.648**	12	.702**
13	.741**	14	.666**	15	.877**
16	.831**				

** Statistically significant at the .01 level

Source: created by the author

As the Table 2 shows, the correlation coefficients between the items and the total score of the axis to which they relate are all statistically significant at the .01 level. All the values are significant, ranging from .605–.893 in the first axis (IA efficacy) to .700–.869 in the second axis (corporate governance implementation) and .632–.877 in the third axis (risk management maturity), indicating the questionnaire items' strong internal consistency validity.

3.8 Cronbach's Alpha Reliability Coefficient for the Questionnaire Axes

The Cronbach's alpha reliability coefficient was calculated for the overall questionnaire and for its axes. The Cronbach's alpha reliability coefficients are presented in Table 3.

Table 3. Cronbach's alpha reliability coefficient for the questionnaire axes

No.	Axis	Cronbach's alpha reliability coefficient
1	.908	.908
2	.920	.920
3	.927	.927
Overall reliability coefficient		.970

Source: created by the author

The reliability coefficients of the questionnaire axes are very high, ranging from .908 to .927, and the total reliability coefficient is .970. The extracted reliability coefficients validate the use of these questionnaire axes in the field due to their reliability and ability to measure accurately.

4 Results and Discussion

This section highlights and explains the results of the analysis conducted to determine the importance of IA in the improvement of governance practices and risk management in private organizations operating in Saudi Arabia. The analysis aims to determine the efficacy of IA in the development of governance practices and risk management maturity levels. The arithmetical means and standard deviations of the first axis are presented in Table 4 (Appendix).

Table 4 (Appendix) indicates that the average of the first axis represents a high response score, with an arithmetical mean of 3.912 and a standard deviation of 0.854. Item 3 yielded the highest response score, with an arithmetical mean of 4.23 and a standard deviation of 1.122. The statistical outcomes indicate that item 12 had the lowest arithmetical mean, 3.39, with a standard deviation of 1.482, putting it in the moderate rating category. The study highlights a shift in the function of IA from only monitoring to being a key partner whose role is to govern and manage risks [13]. Its efficacy is one of the components of successful harmonization with international auditing standards and principles of integrity and transparency. The arithmetical means and standard deviations of the second axis are shown in Table 5.

The mean response score for the second axis was very high at 3.959, verifying the axis's consistency with its dimensions. Among the more interesting findings is the high mean response score generated by item 26 compared to the moderate response score produced by item 24. These scores indicate the priorities of the sample regarding the problems included in this axis.

The very high average implies a favorable opinion about the effectiveness of corporate governance in the studied organizations, where it is regarded as an important pillar of the organization and a key asset enhancing oversight performance. The arithmetical means and standard deviations of the third axis are presented in Table 6.

With an average of 3.843, the third axis is characterized by a high degree of agreement, which proves the effectiveness of an organization's risk management policies. Item 34 shows the highest

average value of 4.49, whereas item 37 produced the lowest value of 3.07, representing a medium level.

Table 5. Arithmetical means and standard deviations of the second axis

No.Items	Mean	Standard deviation	Response score
17 Financial and operational information is readily available.	3.70	1.422	High
18 Stakeholders are clearly informed of the organization's decisions.	4.27	1.314	Very high
19 IA reports are shared appropriately with stakeholders.	4.10	1.424	High
20 Policies and procedures are transparent to employees.	4.10	1.447	High
21 Employees are held accountable for their actions.	3.90	.727	High
22 Employees have clearly defined roles and responsibilities.	3.47	1.239	High
23 Management is responsible for implementing audit recommendations.	3.83	1.425	High
24 Board oversight ensures organizational accountability.	3.30	1.518	Moderate
25 Audit committees are effective and active.	4.19	1.310	High
26 The board of directors reviews audit results regularly.	4.47	1.057	Very high
27 The board of directors monitors the efficacy of governance practices.	3.80	1.254	High
28 Internal auditing contributes to the board's decision-making process.	4.29	1.218	Very high
29 IA monitors adherence to ethical standards.	4.06	1.469	High
30 Employees adhere to the established ethical guidelines.	3.37	1.338	High
31 Management promotes ethical conduct throughout the organization.	4.30	1.275	Very high
32 Ethical violations are reported and addressed promptly.	4.20	1.255	Very high
Overall mean	3.959	.881	High

Source: created by the author

These results prove the prescience of management's approach and its maturation in terms of risk prediction and risk management, which speaks to the effectiveness of the organizational and control system.

Table 6. Arithmetical means and standard deviations of the third axis

No.Items	Mean	Standard deviation	Response score
33 Potential risks are reviewed and updated regularly.	4.49	.928	Very high
34 The organization systematically identifies operational risks.	4.49	.811	Very high
35 Internal auditing supports the risk identification process.	3.94	1.266	High
36 Employees are aware of organizational risk factors.	4.39	.993	Very high
37 Risk assessment is integrated into the decision-making process.	3.07	1.268	Moderate
38 Identified risks are assessed in terms of their potential impact.	3.96	1.284	High
39 IA evaluates the effectiveness of risk assessments.	4.20	1.224	Very high
40 The organization uses qualitative and quantitative risk analysis.	3.49	1.502	High
41 Control measures are in place to mitigate identified risks.	4.27	1.240	Very high
42 Employees receive training on effective risk management.	3.20	1.353	Moderate
43 Risk mitigation strategies are regularly updated.	4.23	1.146	Very high
44 Audit findings contribute to improving risk mitigation practices.	4.23	1.148	Very high
45 IA regularly reviews risk management reports.	3.70	1.345	High
46 Risks are continuously monitored to detect any changes.	3.09	1.326	Moderate
47 Management responds promptly to the findings of risk monitoring.	3.33	1.227	Moderate
48 Early warning systems are used to detect emerging risks.	3.39	1.286	Moderate
Overall mean	3.843	.849	High

Source: created by the author

Table 7 reports the results of the simple linear regression analysis examining the impact of internal audit efficacy on corporate governance implementation.

Table 7. Impact of internal audit efficacy on corporate governance implementation

Independent variable	B	Beta	R ²	T-value	T-sig.	D.W.	VIF
Internal audit efficacy	.857	.830 ^a	.690	29.132	.000	2.279	1.000
Dependent variable	Corporate governance implementation						
B₀: Intercept (constant)	.605						
Adj. R²	.689						
F-value	848.656						
F-sig.	.000 ^b						

Source: created by the author

The results in Table 7 show that the IA efficacy variable has a positive, significant relationship with the variable of the implementation of corporate governance, with IA efficacy as an explanatory and predictive variable in the regression model developed. The regression coefficient ($B = 0.857$) suggests that a one-unit increase in IA efficacy is associated with an increase in IA practices in corporate governance. This is further corroborated by the standardized beta coefficient ($\beta = .830$), which means that the independent variable has a strong predictive effect on the dependent variable. In terms of modeling, this relationship can be represented by the linear predictive equation: corporate governance implementation = $0.605 + 0.857$ (IA efficacy), which will translate the empirical findings to a quantifiable predictive structure. Furthermore, the model is very explanatory, with an R^2 of .690 and an adjusted R^2 of .689, which means that the independent variable explains a large part of the variance of the implementation of corporate governance. The overall regression model is significant ($F = 848.656$, $p < .001$), which indicates that the model is robust and predictive. Furthermore, the Durbin–Watson statistic (2.279) shows no serious evidence of autocorrelation in the residual series; the VIF value (1.000) indicates no serious multicollinearity problems, thus supporting the stability and reliability of the model estimates. From the overall findings, it can be concluded that IA efficacy is very important in predicting and strengthening the implementation of corporate governance in the study area, where the conclusions are strong both empirically and by using the model. This indicates that effective internal auditing is the primary driver of strengthening corporate governance through six key mechanisms:

1. Providing strategic direction using a risk-based audit methodology that moves forward the organization's priorities.
2. Advising and supporting the senior leadership with data needed to make decisions.
3. Enhancing transparency and accountability within the values. The application of these values is a daily reality that helps to ensure the accurate preparation of financial and operational reports, to identify control gaps as early as possible, and to follow up on the implementation of corrective actions.
4. Ensuring integrity and transparency through independence, impartial oversight, and reduced administrative conflicts.
5. Upholding professional quality through compliance with the International Professional Practices Framework (IPPF) and providing for the accuracy and strength of the organizational structure.
6. Exploiting the specific knowledge of the study sample. The findings on the correlation between audit and governance benefit from the experience of the participants (audit and risk managers and practitioners), who provided realistic and accurate assessments.

Table 8 presents the results of the simple linear regression analysis on the impact of internal audit efficacy on risk management.

Table 8. Impact of internal audit efficacy on risk management

Independent variable	B	Beta	R	R ²	T-value	T-sig.	D.W.	VIF
Internal audit efficacy	.927	.932	.932 ^a	.869	50.402	.000	2.393	1.000
Dependent variable	Risk management							
B ₀ : Intercept (constant)	.217							
Adj. R ²	.869							
F-value	2540.325							
F-sig.	.000 ^b							

Source: created by the author

Table 8 shows a significant positive relationship between IA efficacy and risk management, with an effect of 0.927, meaning that IA efficacy functions as the dominant variable for explaining and predicting risk management in the context of the regression approach. The regression coefficient ($B = 0.927$) indicates that the effect on the extent of risk management practices increases significantly as IA efficacy increases, which is strongly supported by the

standardized beta coefficient ($\beta = .932$) with a highly pronounced predictive effect. At the level of modeling, this relation can be captured in the linear predictive equation: risk management = $0.217 + 0.927$ (IA efficacy), which shows the process of structuring empirical data in a quantitative model. The model also explains a high percentage of the variance in the study variables (namely risk management) as expressed by an R^2 value of .869 and an adjusted R^2 value of .869. Moreover, the general regression model is highly statistically significant ($F = 2540.325$, $p < .001$), indicating the strength and predictability of the model. The Durbin-Watson statistic (2.393) suggests that there is no significant autocorrelation in the residuals, and the VIF value (1.000) indicates that there are no issues of multicollinearity, supporting the stability and reliability of the model. These results present strong empirical and modeled evidence that the efficacy of IA has a significant impact and is a significant predictor of effective risk management practices in the context of this study. This effect results from the following determinants:

1. Ensuring that assurance is achieved at all times (continuous assurance). This means that auditors must take an internally conservative approach to provide the required assurance on numerous unsettled safety controls. This changes the attitude and approach to management from reactive and traditional to more sophisticated organizational management.
2. Integration through diversity (risk approach). This is indicative of the growing dependence on a multistate strategy with resources focused on multiple areas of the organization.
3. Credibility and objectivity of the assessment. The qualitative skills of the study sample (experts and practitioners directly responsible for risks) helped to provide realistic and consistent perspectives, thereby adding scientific accuracy and objectivity to the measurement of these ratios.
4. Link with local development (ERM assistance). It helps to integrate effectively and periodically, in order to assist all higher-level management systems, and it enables a common language and coordination among the management units, diversity management, and senior management.

The findings based on the field study reveal a positive impact of the efficacy of internal auditing on the implementation of governance practices in private sector firms. This finding highlights the evolution of the role of internal auditing from an error-checking function to a control and advisory one

in today's understanding of the auditing process, which has evolved from mere error checking to become a principle of transparency and accountability.

The findings also indicate that IA efficacy significantly influences the maturity of risk management practices. This can be attributed to the transition from the traditional audit method to one based on risk, which influences risk identification, assessment, monitoring, and the alignment of risks to the strategic goals of the organization. The COSO framework of ERM principles further underscores the significance of IA's complementary role in assessing the effectiveness of ERM systems and improving their responses to potential risks, especially in contexts of uncertainty and change that are integral to business operations [36].

The results are consistent with the findings of many earlier research studies, indicating that the activation of the role of discrimination has a positive effect on the reduction of operational cases and that IA systems are effective [37], [38].

The results of the study not only confirm earlier theories but can also provide a practical model that is representative of actual private sector IA. The added value of this model is based on three core principles: independence, professional competency, and functional integration with governance and risk frameworks. The integration embodies the contemporary concept of strategic management, wherein auditing ceases to be a supervisory process and becomes a fundamental necessity to guarantee the sustainability and adaptability of organizations in a changing, highly volatile global economy. The results of the independent samples *t*-test for internal audit efficacy based on gender are reported in Table 9.

Table 9. Independent samples *t*-test for differences in internal audit efficacy based on gender

Variable	Males (Mean ± SD)	Females (Mean ± SD)	<i>t</i> - value	df	Sig. (2- tailed)	Decision
Internal audit efficacy	3.93 ± 0.754	3.88 ± 1.025	0.609	3820.543		No statistically significant difference

Source: created by the author

The results of the independent samples *t*-test comparing differences in IA efficacy between the female and male groups are presented in Table 9. The findings indicate that the mean score of males ($M = 3.93$, $SD = 0.754$) is slightly higher than that of females ($M = 3.88$, $SD = 1.025$), but the difference is not statistically significant ($t = 0.609$, $df = 382$, $p = .543$). This indicates that there is no significant

difference between male and female respondents in terms of their perceptions of the efficacy of IA. Thus, gender is not a factor that seems to affect perceptions of IA efficacy among the sample studied. Table 10 reports the results of the independent samples *t*-test examining differences in corporate governance implementation based on gender.

Table 10. Independent samples *t*-test for differences in corporate governance implementation based on gender

Variable	Males (Mean ± SD)	Females (Mean ± SD)	<i>t</i> - value	df	Sig. (2- tailed)	Decision
Corporate governance implementation	4.01 ± 0.773	3.87 ± 1.060	1.448	3820.148		No statistically significant difference

Source: created by the author

The findings reported in Table 10 represent the independent samples *t*-test comparing corporate governance implementation on the basis of gender. The findings reveal that men scored slightly higher than women, with a mean score of 4.01 ($SD = 0.773$) against 3.87 ($SD = 1.060$) for females. Nonetheless, as indicated by a *t*-value of 1.448 and *df* of 382 ($p = .148$), this finding reveals that there is no statistically significant difference between male and female respondents with respect to the implementation of corporate governance. Thus, gender does not affect views on corporate governance implementation. Table 11 reports the results of the independent samples *t*-test examining differences in risk management practices based on gender.

Table 11. Independent samples *t*-test for differences in risk management practices based on gender

Variable	Males (Mean ± SD)	Females (Mean ± SD)	<i>t</i> - value	df	Sig. (2- tailed)	Decision
Risk management practices	3.87 ± 0.754	3.80 ± 1.011	0.711	3820.477		No statistically significant difference

Source: created by the author

The results in Table 11 show the independent samples *t*-test examining differences in risk management practices based on gender. The findings indicate that males yielded a slightly higher mean score ($M = 3.87$, $SD = 0.754$) than females ($M = 3.80$, $SD = 1.011$), but the difference is not statistically significant ($t = 0.711$, $df = 382$, $p = .477$), indicating that there are no significant differences between males and females in relation to risk management. Hence, gender is not a significant factor affecting perceptions of risk management.

Table 12 presents the results of the one-way ANOVA for differences in internal audit efficacy based on age.

Table 12. One-way ANOVA for differences in internal audit efficacy based on age

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	19.068	3	6.356	9.273	.000	Significant differences exist
Within groups	260.460	380	0.685	—	—	—
Total	279.528	383	—	—	—	—

Source: created by the author

As shown in Table 12, the analysis of data from the one-way ANOVA indicates that the respondents' age has an effect on perception of IA efficacy ($F = 9.273$, $p < .001$). The results indicate that the variation between the age groups is substantial as compared to the variation within age groups, with a between-groups sum of squares [SS] of 19.068 and a high between-groups mean square (MS) of 6.356 as compared to the within-groups MS of 0.685. Accordingly, the results confirm a statistically significant difference in perceptions of the efficacy of IA across different age groups.

The one-way ANOVA results show a significant difference in IA efficacy related to age; thus, Scheffé's test was used in post hoc analysis. This test is suitable for determining which specific pairs of age groups differ at the desired significance level and for preventing Type I error in multiple comparisons. The post hoc results give a more detailed picture of the difference in perceptions of the efficacy of IA according to age group. Table 13 (Appendix) reports the results of Scheffé's post hoc test for multiple comparisons of internal audit efficacy based on age.

The post hoc analysis (Scheffé's test) was conducted on the basis of the results of the significant ANOVA test to specify particular differences in the perceptions of different age groups regarding IA efficacy. Scheffé's test revealed that respondents below 30 years old had perception scores that were significantly higher than those of all other age categories, including 30–40 years ($p < .001$), 41–50 years ($p < .001$), and 51 years and above ($p = .009$). However, it found no statistically significant differences between the perceptions of older respondents, that is, in the 30–40, 41–50, and 51 and older age categories. Table 14 reports the results of the one-way ANOVA examining differences in corporate governance implementation based on age.

Table 14. One-way ANOVA results for differences in corporate governance implementation based on age

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	24.530	3	8.177	11.368	.000	Significant differences exist
Within groups	273.320	380	0.719	—	—	—
Total	297.850	383	—	—	—	—

Source: created by the author

The outcomes of the one-way ANOVA analysis shown in Table 14 demonstrate statistically significant differences in corporate governance implementation between age groups ($F = 11.368$, $p < .001$). Between-groups variability ($SS = 24.530$, $MS = 8.177$) is greater than within-groups variability ($MS = 0.719$), demonstrating the existence of meaningful differences between age groups. Table 15 (Appendix) reports the results of Scheffé's post hoc test for multiple comparisons of corporate governance implementation based on age.

Scheffé's post hoc analysis was performed after the results obtained from the ANOVA test revealed significance, so as to detect differences between age groups with regard to corporate governance implementation. The results indicate that the perception of respondents who were below 30 years of age was significantly higher than those of all the other age groups, namely 30–40 ($p < .001$), 41–50 ($p < .001$), and 51 and above ($p < .001$). By contrast, there were no statistically significant differences between the older age groups of 30–40, 41–50, and 51 years and above, meaning that their perception of corporate governance implementation was quite similar. Table 16 reports the results of the one-way ANOVA examining differences in risk management practices based on age.

Table 16. One-way ANOVA results for differences in risk management practices based on age

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	24.534	3	8.178	12.352	.000	Significant differences exist
Within groups	251.591	380	0.662	—	—	—
Total	276.125	383	—	—	—	—

Source: created by the author

The one-way ANOVA test results in Table 16 show statistically significant differences in risk management practices according to the respondents' age ($F = 12.352$, $p < .001$). The between-groups variance ($MS = 8.178$) is greater than the within-groups variance ($MS = 0.662$).

Because the results of the ANOVA test revealed significant differences in risk management practices between different age groups, it was necessary to conduct a post hoc analysis using Scheffé's test to determine these differences. Table 17 reports the results of Scheffé's post hoc test for multiple comparisons of risk management practices based on age.

Table 17. Post hoc Scheffé's test for multiple comparisons of risk management practices based on age

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 30 years	From 30 to 40 years	1.010*	.172	.000	.53	1.49
	From 41 to 50 years	1.018*	.175	.000	.53	1.51
	51 years or more	.918*	.189	.000	.39	1.45
From 30 to 40 years	Less than 30 years	-1.010*	.172	.000	-1.49	-.53
	From 41 to 50 years	.008	.096	1.000	-.26	.28
	51 years or more	-.092	.119	.896	-.43	.24
From 41 to 50 years	Less than 30 years	-1.018*	.175	.000	-1.51	-.53
	From 30 to 40 years	-.008	.096	1.000	-.28	.26
	51 years or more	-.100	.124	.886	-.45	.25
51 years or more	Less than 30 years	-.918*	.189	.000	-1.45	-.39
	From 30 to 40 years	.092	.119	.896	-.24	.43
	From 41 to 50 years	.100	.124	.886	-.25	.45

Source: created by the author

Further, a Scheffé's post hoc test was performed after obtaining the significant ANOVA results to determine which particular age groups differed from

one another in regard to risk management practices. The results of the post hoc Scheffé tests show that people under 30 years old had much stronger risk management practices than all other age categories, including those 30–40 ($p < .001$), 41–50 ($p < .001$), and 51 or more ($p < .001$) years.

By contrast, there were no significant differences between the perceptions of older age groups (30–40, 41–50, and 51 or more), which means that their perceptions of risk management practices were fairly equal. Thus, younger respondents had a better perception of risk management practices in comparison with older respondents. Table 18 reports the results of the one-way ANOVA examining differences in internal audit efficacy based on education level.

Table 18. One-way ANOVA results for differences in internal audit efficacy based on education level

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	3.163	2	1.581	2.180	.114	Not significant
Within groups	276.365	381	.725	—	—	—
Total	279.528	383	—	—	—	—

Source: created by the author

The findings of the one-way ANOVA, as shown in Table 19, reveal that there were no significant differences regarding IA efficacy depending on the respondents' education level ($F = 2.180$, $p = .114$). The significance value is greater than the accepted level of significance ($\alpha = .05$), meaning that the differences observed between the education level groups are not statistically significant. The mean SS (3.163) shows some differences between the groups, but the difference is quite small compared to the difference within groups ($MS = 0.725$), implying that education level has no statistically significant influence on respondents' perception of IA efficacy. The results of the one-way ANOVA test were not statistically significant, no post hoc multiple comparison test was needed.

Table 19. One-way ANOVA results for differences in corporate governance implementation based on education level

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	7.432	2	3.716	4.875	.008	Significant
Within groups	290.418	381	0.762	—	—	—
Total	297.850	383	—	—	—	—

Source: created by the author

Table 19 reports the results of the one-way ANOVA examining differences in corporate governance implementation based on education level.

The results of the one-way ANOVA in Table 19 indicate statistically significant differences in corporate governance implementation based on respondents' education level ($F = 4.875$, $p = .008$). The significance value is less than the accepted level of significance ($\alpha = .05$), indicating that respondents with different education levels differed significantly in perceptions of corporate governance implementation. The between-groups variation ($SS = 7.432$, $MS = 3.716$) is greater than would be expected by chance when compared to the within-groups variation ($MS = 0.762$), yielding a statistically significant F-value.

As the one-way ANOVA results revealed significant differences by education level, a post hoc analysis using Scheffé's test was conducted to identify the specific groups between which differences existed, giving a more detailed understanding of how perceptions of corporate governance implementation varied according to respondents' educational qualifications. Table 20 reports the results of Scheffé's post hoc test for multiple comparisons of corporate governance implementation based on education level.

Table 20. Post hoc Scheffé's test for multiple comparisons of corporate governance implementation based on education level

(I) Educational Level	(J) Educational Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Diploma	Bachelor's degree	.492	.250	.146	-.12	1.11
	Master's or PhD	.244	.251	.624	-.37	.86
Bachelor's degree	Diploma	-.492	.250	.146	-1.11	.12
	Master's or PhD	-.248*	.091	.025	-.47	-.02
Master's or PhD	Diploma	-.244	.251	.624	-.86	.37
	Bachelor's degree	.248*	.091	.025	.02	.47

Source: created by the author

A Scheffé's post hoc test was performed after the significant results of the ANOVA to find the differences between education level groups concerning corporate governance implementation. The results of Scheffé's post hoc test show a

statistically significant difference between respondents with a bachelor's degree and respondents with a master's degree or PhD ($p = .025$). The mean difference in favor of respondents holding a master's degree or a PhD is statistically significant, which means that this group has stronger perceptions of the implementation of corporate governance compared with respondents holding a bachelor's degree.

However, there are no statistically significant differences between diploma respondents and bachelor's degree respondents ($p = .146$) or between diploma respondents and respondents with a master's degree or PhD ($p = .624$). Thus, the differences in perceptions are related only to respondents with bachelor's degrees versus respondents with master's degrees/PhDs. Table 21 reports the results of the one-way ANOVA examining differences in risk management practices based on education level.

Table 21. One-way ANOVA results for differences in risk management practices based on education level

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	7.038	2	3.519	4.9830	.007	Significant
Within groups	269.087	381	0.706	—	—	—
Total	276.125	383	—	—	—	—

Source: created by the author

The results of the one-way ANOVA in Table 21 reveal that the level of education of the respondents is statistically significant ($F = 4.983$, $p = .007$) with respect to risk management practices. Its significance value is lower than the accepted level of significance ($\alpha = .05$), indicating a difference between the education level groups regarding perceptions of risk management practices. The between-groups variation ($SS = 7.038$, $MS = 3.519$) is large enough compared to the within-groups variation ($MS = 0.706$); therefore, the F-value is statistically significant.

The one-way ANOVA having revealed statistically significant differences between the three education level groups, a post hoc analysis using Scheffé's test was performed to identify the groups that differed to give a better understanding of the differences in perceptions of risk management practices. Table 22 reports the results of Scheffé's post hoc test for multiple comparisons of risk management practices based on education level.

In light of significant ANOVA test results, Scheffé's post hoc tests were carried out to determine the specific differences in the perception of risk management practices by different education level

groups.

Table 22. Post hoc Scheffé's test for multiple comparisons of risk management practices based on education level

(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Diploma	Bachelor's degree	.352	.241	.344	-.24	.94
	Master's or PhD	.090	.241	.933	-.50	.68
Bachelor's degree	Diploma	-.352	.241	.344	-.94	.24
	Master's or PhD	-.263*	.087	.011	-.48	-.05
Master's or PhD	Diploma	-.090	.241	.933	-.68	.50
	Bachelor's degree	.263*	.087	.011	.05	.48

Source: created by the author

The results of Scheffé's post hoc test show a statistically significant difference between respondents having a bachelor's degree and respondents having a master's or PhD ($p = .011$). The positive mean difference is in favor of respondents with postgraduate degrees, indicating that respondents with master's degrees and PhDs had a significantly higher level of risk management practices perception than respondents with bachelor's degrees.

By contrast, there was no statistically significant difference in perception of risk management practices between diploma holders and respondents with bachelor's degrees ($p = .344$) or between diploma holders and respondents with master's degrees or PhDs ($p = .933$), indicating that the significant variation in perception of risk management practices is limited to differences between respondents with bachelor's degrees and those with postgraduate degrees. Table 23 reports the results of the one-way ANOVA examining differences in internal audit efficacy based on job position.

The one-way ANOVA results in Table 23 reveal statistically significant differences between respondents according to job position with regard to IA efficacy ($F = 7.711$, $p < .001$). The significance value is lower than the accepted meaning level ($\alpha = .05$), indicating a significant difference in perceptions of IA efficacy in the various job positions. The between-groups variation ($SS = 16.040$, $MS = 5.347$)

is significantly larger than the within-groups variation ($MS = 0.693$), yielding a statistically significant F-value.

Table 23. One-way ANOVA results for differences in internal audit efficacy based on job position

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	16.040	3	5.347	7.711	.000	Significant
Within groups	263.488	3800	.693	—	—	—
Total	279.528	383	—	—	—	—

Source: created by the author

The ANOVA having demonstrated significant differences between job position groups, a post hoc comparison using Scheffé's test was used to determine the specific significantly different groups, allowing a more in-depth analysis of the differences in the IA efficacy perceptions. Table 24 (Appendix) reports the results of Scheffé's post hoc test for multiple comparisons of internal audit efficacy based on job position.

Scheffé's post hoc test was carried out based on the significant ANOVA results to identify the exact differences between different job positions in relation to IA efficacy. The Scheffé's post hoc test results show significant differences for the job position IA officer compared to IA manager ($p = .025$), risk management manager ($p = .001$), and risk management officer ($p = .001$).

However, there are no significant differences between IA managers and risk management managers ($p = .517$), between IA managers and risk management officers ($p = .538$), or between risk management managers and risk management officers ($p = 1.000$). Therefore, the result shows that those who occupy managerial positions report higher level perceptions of IA efficacy than those at the officer level, especially IA officers, showing that job position is an important factor influencing perception of IA efficacy. Table 25 reports the results of the one-way ANOVA examining differences in corporate governance implementation based on job position.

Table 25. One-way ANOVA results for differences in corporate governance implementation based on job position

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	21.770	3	7.257	9.988	.000	Significant
Within groups	276.080	3800	.727	—	—	—
Total	297.850	383	—	—	—	—

Source: created by the author

The results of the one-way ANOVA in Table 25 show statistically significant differences in corporate governance implementation by the respondents' job position ($F = 9.988$, $p < .001$). The significance value is less than the predetermined significance level ($\alpha = .05$), indicating a statistically significant difference in the perception of corporate governance implementation according to job position. The variance between groups ($SS = 21.770$, $MS = 7.257$) is much larger than the variance within groups ($MS = 0.727$). In light of these ANOVA results, a post hoc analysis using Scheffé's test was conducted. Table 26 (Appendix) reports the results of Scheffé's post hoc test for multiple comparisons of corporate governance implementation based on job position.

To pinpoint the significant differences among the job positions as suggested by the ANOVA outcomes, a Scheffé's post hoc test was conducted on corporate governance implementation. The results reveal several significant differences between managerial positions and officer-level positions.

First, IA managers perceived significantly lower values than risk management managers ($p = .003$). Furthermore, the perception levels of risk management managers were significantly higher than those of IA officers ($p < .001$).

By contrast, there were no statistically significant differences between IA managers and IA officers ($p = .224$) or between IA managers and risk management officers ($p = .883$). Similarly, there were no significant differences for most comparisons involving risk management officers.

In general, risk management managers' perception levels of corporate governance implementation are significantly higher than those of IA officers, suggesting that job positions have a significant effect on perceptions of corporate governance implementation. Table 27 reports the results of the one-way ANOVA examining differences in risk management practices based on job position.

Table 27. One-way ANOVA results for differences in risk management practices based on job position

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	6.665	3	2.222	3.133	.026	Significant
Within groups	269.460	380	.709	—	—	—
Total	276.125	383	—	—	—	—

Source: created by the author

The results of the one-way ANOVA in Table 27 show statistically significant differences in risk

management practices according to job position ($F = 3.133$, $p = .026$). The significance value is lower than the level of significance ($\alpha = .05$), revealing statistically significant differences in risk management practices by job position. Variation between groups ($SS = 6.665$, $MS = 2.222$), while quite low, is enough to yield a statistically significant F-value in comparison with variation within groups ($MS = 0.709$). Given these results, Scheffé's post hoc test was performed to identify the differences between groups. Table 28 reports the results of Scheffé's post hoc test for multiple comparisons of risk management practices based on job position.

Table 28. Post hoc Scheffé's test for multiple comparisons of risk management practices based on job position

(I) Job Position	(J) Job Position	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
IA manager	Risk management manager	-.229	.115	.264	-.55	.09
	IA officer	.150	.118	.654	-.18	.48
	Risk management officer	-.071	.121	.952	-.41	.27
Risk management manager	IA manager	.229	.115	.264	-.09	.55
	IA officer	.379*	.126	.031	.02	.73
	Risk management officer	.158	.130	.686	-.21	.52
IA officer	IA manager	-.150	.118	.654	-.48	.18
	Risk management manager	-.379*	.126	.031	-.73	-.02
	Risk management officer	-.221	.132	.428	-.59	.15
Risk management officer	IA manager	.071	.121	.952	-.27	.41
	Risk management manager	-.158	.130	.686	-.52	.21
	IA officer	.221	.132	.428	-.15	.59

Source: created by the author

The post hoc analysis by job position using Scheffé's test to determine the specific differences between groups concerning risk management practices revealed that there were not many statistically significant differences between managerial and officer-level job positions. However, risk management managers had higher perceptions of risk management practices than IA officers ($p = .031$), indicating a perceptual difference between managerial and officer-level job positions.

By contrast, no statistically significant differences were found between IA managers and risk management managers ($p = .264$) or between IA managers and IA officers ($p = .654$), nor did risk management officers show statistically significant differences with other groups. Table 29 reports the results of the one-way ANOVA examining differences in internal audit efficacy based on years of experience.

Table 29. One-way ANOVA results for differences in internal audit efficacy based on years of experience

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	4.789	2	2.394	3.320	.037	Significant
Within groups	274.740	381	.721	—	—	—
Total	279.528	383	—	—	—	—

Source: created by the author

The outcomes of the one-way ANOVA in Table 29 prove the existence of statistically significant differences in IA efficacy depending on respondents' years of experience ($F = 3.320$, $p = .037$). The value of significance is smaller than the level of significance ($\alpha = .05$), revealing statistically significant differences in the perception of IA efficacy by years of experience.

The variability between groups ($SS = 4.789$, $MS = 2.394$) is not very high in comparison with the variability within groups ($MS = 0.721$), but is enough to yield the statistically significant F-value. As the ANOVA outcomes demonstrate differences between groups with various levels of experience, it was necessary to conduct a post hoc Scheffé's test. Table 30 reports the results of Scheffé's post hoc test for multiple comparisons of internal audit efficacy based on years of experience.

The findings show statistically significant differences in perceived IA efficacy between employees with less than 5 years' experience and those with 5 to less than 10 years ($p = .039$), favoring the latter. There are no statistically significant differences in perceived IA efficacy between

employees with experience of less than 5 years and those with 10 years or more ($p = .435$) or between those with 5 to less than 10 years and those with 10 years or more ($p = .302$). Overall, the results imply that differences in perceived IA efficacy exist primarily between early- and mid-level experience groups but not between senior experience groups. Table 31 reports the results of the one-way ANOVA examining differences in corporate governance implementation based on years of experience.

Table 30. Post hoc Scheffé's test for multiple comparisons of internal audit efficacy based on years of experience

(I) Years Of Experience	(J) Years Of Experience	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 5 years	From 5 to less than 10 years	.298*	.117	.039	.01	.58
	10 years and above	.142	.110	.435	-.13	.41
From 5 to less than 10 years	Less than 5 years	-.298*	.117	.039	-.58	-.01
	10 years and above	-.156	.100	.302	-.40	.09
10 years and above	Less than 5 years	-.142	.110	.435	-.41	.13
	From 5 to less than 10 years	.156	.100	.302	-.09	.40

Source: created by the author

Table 31. One-way ANOVA results for differences in corporate governance implementation based on years of experience

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	4.415	2	2.208	2.866	.058	Not significant
Within groups	293.435	381	.770	—	—	—
Total	297.850	383	—	—	—	—

Source: created by the author

The result of the one-way ANOVA in Table 31 shows no statistically significant difference in corporate governance implementation in terms of the respondents' years of experience ($F = 2.866$, $p = .058$). The value of the level of significance is only slightly greater than the acceptable level of significance ($\alpha = .05$), implying that there is no significant difference in corporate governance implementation by years of experience. Though the between-groups variance ($SS = 4.415$, $MS = 2.208$) indicates some differences between the groups in terms of years of experience, they do not sufficiently exceed the within-groups variance ($MS = 0.770$). Table 32 reports the results of the one-way ANOVA examining differences in risk management practices based on years of experience.

Table 32. One-way ANOVA results for differences in risk management practices based on years of experience

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between groups	8.698	2	4.349	6.196	.002	Significant
Within groups	267.427	381	.702	—	—	—
Total	276.125	383	—	—	—	—

Source: created by the author

The findings of the one-way ANOVA in Table 32 show statistically significant differences in risk management practices based on the respondents' years of experience ($F = 6.196$, $p = .002$). The significance value is less than the level of significance used ($\alpha = .05$), revealing significant differences in risk management practices across different years of experience. There is a relatively high between-groups variability ($SS = 8.698$, $MS = 4.349$) compared to within-group variability ($MS = 0.702$), yielding a statistically significant F-value that suggests the existence of significant differences between experience groups. Table 33 reports the results of Scheffé's post hoc test for multiple comparisons of risk management practices based on years of experience.

There are statistically significant differences in perception of risk management practices between employees with experience of less than 5 years and employees with experience of 5–9 years ($p = .002$) in favor of the former, who had a higher perception of risk management practices. However, there are no statistically significant differences between employees with experience of less than 5 years and employees with experience of 10 years or more ($p = .127$) or between employees with experience of 5–9

years and those with experience of 10 years or more ($p = .183$), demonstrating their similarities. Thus, there are differences in perception of risk management practices only in early- and mid-level experience groups, but not in senior experience groups.

Table 33. Post hoc Scheffé's test for multiple comparisons of risk management practices based on years of experience

(I) Years Of Experience	(J) Years Of Experience	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 5 years	From 5 to less than 10 years	.405*	.115	.002	.12	.69
	10 years and above	.222	.109	.127	-.05	.49
From 5 to less than 10 years	Less than 5 years	-.405*	.115	.002	-.69	-.12
	10 years and above	-.183	.099	.183	-.43	.06
10 years and above	Less than 5 years	-.222	.109	.127	-.49	.05
	From 5 to less than 10 years	.183	.099	.183	-.06	.43

Source: created by the author

Table 34. Chi-squared test of the relationship between age and gender

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	175.504 ^a	3	.000
Likelihood ratio	204.045	3	.000
N of valid cases	384	-	-

Source: created by the author

Table 34 reports the results of the chi-squared test examining the relationship between age and gender.

The results of a chi-squared test indicate a statistically significant relationship between age and gender. The Pearson chi-squared value is 175.504

with 3 degrees of freedom and a significance level of $p = .000$, which is less than .05, indicating a significant association between the two variables in the study sample. The likelihood ratio (204.045, $df = 3$, $p = .000$) supports the same conclusion, confirming the robustness of the relationship. Table 35 reports the results of the chi-squared test examining the relationship between education level and gender.

Table 35. Chi-squared test of the relationship between education level and gender

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	11.732 ^a	2	.003
Likelihood ratio	15.770	2	.000
N of valid cases	384	-	-

Source: created by the author

The results of a chi-squared test indicate a statistically significant relationship between education level and gender. The Pearson chi-squared value is 11.732 with 2 degrees of freedom and a significance level of $p = .003$, which is less than .05, suggesting a significant association between the two variables within the study sample. The likelihood ratio (15.770, $df = 2$, $p = .000$) supports the same conclusion, confirming the presence of a statistically significant relationship. Table 36 reports the results of the chi-squared test examining the relationship between job position and gender.

Table 36. Chi-squared test of the relationship between job position and gender

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	13.685 ^a	3	.003
Likelihood ratio	14.812	3	.002
N of valid cases	384	-	-

Source: created by the author

The results of a chi-squared test indicate a statistically significant relationship between job position and gender. The Pearson chi-squared value is 13.685 with 3 degrees of freedom and a significance level of $p = .003$, which is less than .05, showing a significant association between the two variables in the study sample. The likelihood ratio (14.812, $df = 3$, $p = .002$) confirms the result, further supporting the presence of a statistically significant relationship. Table 37 reports the results of the chi-squared test examining the relationship between

years of experience and gender.

Table 37. Chi-squared test of the relationship between years of experience and gender

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	79.268 ^a	2	.000
Likelihood ratio	78.164	2	.000
N of valid cases	384	-	-

Source: created by the author

The results of a chi-squared test indicate a statistically significant relationship between years of experience and gender. The Pearson chi-squared value is 79.268 with 2 degrees of freedom and a significance level of $p = .000$, which is less than .05, indicating a significant association between the two variables in the study sample. The likelihood ratio (78.164, $df = 2$, $p = .000$) confirms the result, supporting the presence of a statistically significant relationship. Table 38 reports the results of the chi-squared test examining the relationship between education level and age.

Table 38. Chi-squared test of the relationship between education level and age

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	59.999 ^a	6	.000
Likelihood ratio	72.124	6	.000
Linear-by-linear association	5.518	1	.019
N of valid cases	384	-	-

Source: created by the author

The results of a chi-squared test indicate a statistically significant relationship between education level and age. The Pearson chi-squared value is 59.999 with 6 degrees of freedom and a significance level of $p = .000$, which is less than .05, suggesting a significant association between the two variables. The likelihood ratio (72.124, $df = 6$, $p = .000$) confirms the result, reinforcing the statistical significance of the relationship. Moreover, a linear-by-linear association test (5.518, $df = 1$, $p = .019$) indicates a significant linear trend between education level and age. Table 39 reports the results of the chi-squared test examining the relationship between job position and age.

The chi-squared test results show a significant relationship between job position and age. The Pearson chi-squared is 96.186 with 9 degrees of freedom and a significance value ($p = .000$) less than

.05, showing a significant relationship between job position and age. The likelihood ratio (110.594, $df = 9$, $p = .000$) and the linear-by-linear association (51.214, $df = 1$, $p = .000$) also show a significant relationship between job position and age. Table 40 reports the results of the chi-squared test examining the relationship between years of experience and age.

Table 39. Chi-squared test of the relationship between job position and age

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	96.186 ^a	9	.000
Likelihood ratio	110.594	9	.000
Linear-by-linear association	51.214	1	.000
N of valid cases	384	-	-

Source: created by the author

Table 40. Chi-squared test of the relationship between years of experience and age

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	231.584 ^a	6	.000
Likelihood ratio	229.663	6	.000
Linear-by-linear association	38.504	1	.000
N of valid cases	384	-	-

Source: created by the author

The results of a chi-squared test indicate a statistically significant relationship between years of experience and age. The Pearson chi-squared value is 231.584 with 6 degrees of freedom and a significance level of $p = .000$, which is less than .05. This finding demonstrates a strong association between the two variables. The likelihood ratio (229.663, $df = 6$, $p = .000$) confirms the robustness of this relationship, and the linear-by-linear association test (38.504, $df = 1$, $p = .000$) indicates a statistically significant linear trend between years of experience and age. Table 41 reports the results of the chi-squared test examining the relationship between job position and education level.

The results of a chi-squared test indicate a statistically significant relationship between job position and education level. The Pearson chi-squared value is 64.790 with 6 degrees of freedom and a significance level of $p = .000$, which is less than .05, showing that job position is significantly associated with education level among the participants.

Table 41. Chi-squared test of the relationship between job position and education level

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	64.790 ^a	6	.000
Likelihood ratio	69.588	6	.000
Linear-by-linear association	32.833	1	.000
N of valid cases	384	-	-

Source: created by the author

The likelihood ratio (69.588, $df = 6$, $p = .000$) confirms the robustness of this relationship, and the linear-by-linear association test (32.833, $df = 1$, $p = .000$) indicates a significant linear trend between the two variables. Table 42 reports the results of the chi-squared test examining the relationship between years of experience and education level.

Table 42. Chi-squared test of the relationship between years of experience and education level

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	17.932 ^a	4	.001
Likelihood ratio	21.622	4	.000
Linear-by-linear association	2.550	1	.110
N of valid cases	384	-	-

Source: created by the author

The findings of a chi-squared test reveal a statistically significant association between years of experience and education level. The Pearson chi-squared value of 17.932 ($df = 4$, $p = .001$) indicates an overall significant association between the two variables. The finding of the likelihood ratio (21.622, $df = 4$, $p = .000$) validates the conclusion of a statistically significant relationship between the two variables. However, the linear-by-linear association (2.550, $df = 1$, $p = .110$) shows that although an association exists between the variables, there is no significant linear association between them. Table 43 reports the results of the chi-squared test examining the relationship between job position and years of experience.

According to the output of a chi-squared test, there is a statistically significant association between job position and years of experience. The Pearson chi-squared value is 70.758 with 6 degrees of freedom and a significance level of $p = .000$, which is less than .05, showing a statistically significant association between job position and years of

experience. The likelihood ratio (75.459, $df = 6$, $p = .000$) also shows a statistically significant association, and the linear-by-linear association test (31.014, $df = 1$, $p = .000$) shows a strong linear association between job position and years of experience.

Table 43. Chi-squared test of the relationship between job position and years of experience

	Value	df	Asymptotic significance (2-sided)
Pearson chi-squared	70.758 ^a	6	.000
Likelihood ratio	75.459	6	.000
Linear-by-linear association	31.014	1	.000
N of valid cases	384	-	-

Source: created by the author

5 Conclusion

Internal auditors offer recommendations and advisory services to assist an organization in sustainably enhancing its internal control systems. Their effectiveness also depends on having a comprehensive governance structure that facilitates the organization's tracking and reacting to fluctuations in its operating environment [2], [13]. The study findings indicate that internal auditing is a pillar of implementing good governance principles and improving the efficacy of risk management systems in private sector institutions in Saudi Arabia. Based on statistical analysis of field data, the findings prove that effective internal auditing directly contributes to the establishment of transparency and accountability and enhances the quality of corporate control and the soundness of administrative decisions. Independent professional IA based on risk assessment and international standards is crucial to enabling organizations to proactively address threats. The present study verifies that this is indeed the benchmark of professional competence that ensures organizational stability and the reduction of risks in all their facets.

The study shows that it is only the level of professional competence that ensures the stability of an organization and the minimization of all aspects of risk. This indicates that, according to these results, the function of internal auditing is not only based on the usual supervisory role but is also a strategic part of governance systems and enhances the embedding of control mechanisms and risk management. This finding also supports Agency Theory, which posits that effective IA reduces information asymmetry,

enhances accountability, and mitigates agency conflicts between management and stakeholders through independent monitoring and assurance. Ultimately, this increases institutional efficacy and sustainability and gives institutions a competitive advantage in today's business world. The study highlights the importance of focusing on the IA function, enhancing the professional skills of IA members, and improving the internal functional connection with audit committees and the board of directors, as it is one of the more effective methods of promoting good governance and effective risk management under current challenges.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this work, the author(s) utilized artificial intelligence (AI) technologies solely for the purpose of linguistic refinement and grammatical correction. Following the application of these tools, the author(s) comprehensively reviewed, verified, and edited the resulting text. The author(s) maintain full accountability and responsibility for the accuracy, integrity, and final content of the publication.

References:

- [1] Hashed, A. A., F. A. Almaqtari, A. Elmashtawy, and N. A. M. Raweh, The Role of Governance Audit Mechanisms on Environmental Sustainability and Emissions in Saudi Arabia Under ESG Regulations, Sustainability, Vol. 17, No. 9, 2025, p. 4020, <https://doi.org/10.3390/su17094020>.
- [2] Nkansa, P., D. Barr-Pulliam, and K. Walker, From Compliance to Strategic Partnerships: The Role of Internal Audit in Enterprise Risk Management and Opportunities for Future Research, Journal of Risk and Financial Management, Vol. 18, No. 12, 2025, p. 707, <https://doi.org/10.3390/jrfm18120707>.
- [3] Institute of Internal Auditors, Assessing The Risk Management Process, Institute of Internal Auditors, 2024, [Online]. <https://www.theiia.org/en/research/guidance/practice-guides/assessing-risk-management-process> (Accessed Date: March 5, 2026).
- [4] Schuett, J., Frontier AI Developers Need an Internal Audit Function, Risk Analysis, Vol. 45, No. 6, 2025, pp. 1332–1352, <https://doi.org/10.1111/risa.17665>.
- [5] Alharbi, M. A., The impact of applying corporate governance principles on

- enhancing the strategic operational performance of family businesses in Saudi Arabia: a field study, *International Journal of Business Excellence*, Vol. 38, No. 5, 2026, pp. 1–28, <https://doi.org/10.1504/IJBEX.2026.10075795>.
- [6] Reznik, S., Internal Audit of School Activities as a Tool to Manage the Quality of Education, *Economics & Education*, Vol. 6, No. 4, 2021, pp. 23–27, <https://doi.org/10.30525/2500-946X/2021-4-3>.
- [7] Vo Van, H., M. Abu Afifa, and D. Bui Van, Internal Audit Functions and Environmental, Social and Governance (ESG): A Systematic Literature Review, *Asian Review of Accounting*, Vol. 34, No. 1, 2026, pp. 75–107, <https://doi.org/10.1108/ARA-07-2024-0241>.
- [8] Ellili, N. O. D., Institutional ownership, corporate governance and climate change risk management: evidence from the Middle East and North Africa, *Corporate Governance: The International Journal of Business in Society*, Vol. 26, No. 4, 2026, pp. 1021–1057, <https://doi.org/10.1108/CG-10-2024-0521>.
- [9] OECD, G20/OECD Principles of Corporate Governance 2023, OECD Publishing, 2023, <https://doi.org/10.1787/ed750b30-en>.
- [10] Aguilera, R. V. and M. Ruiz Castillo, Toward an Updated Corporate Governance Framework: Fundamentals, Disruptions, and Future Research, *BRQ Business Research Quarterly*, Vol. 28, No. 2, 2025, pp. 336–348, <https://doi.org/10.1177/23409444251320399>.
- [11] Weekes-Marshall, D., The Role of Internal Audit in the Risk Management Process: A Developing Economy Perspective, *Journal of Corporate Accounting & Finance*, Vol. 31, No. 4, 2020, pp. 154–165, <https://doi.org/10.1002/jcaf.22471>.
- [12] Committee of Sponsoring Organizations of the Treadway Commission (COSO), Enterprise Risk Management: Compliance Risk Management, Applying the COSO ERM Framework, Committee of Sponsoring Organizations of the Treadway Commission, 2020, [Online]. <https://www.coso.org> (Accessed Date: March 5, 2026).
- [13] Abernikhina, I., The Evolution of Risk Management Theories in Business, *Економіка розвитку систем*, Vol. 7, No. 2, 2025, pp. 13–19, <https://doi.org/10.32782/2707-8019/2025-2-2>.
- [14] Al Naim, A. and A. Alomair, The role of female representation in enhancing audit quality: Insights from Saudi Arabia's emerging market, *Humanities and Social Sciences Communications*, Vol. 12, No. 1, 2025, p. 696, <https://doi.org/10.1057/s41599-025-05032-2>.
- [15] Ghazwani, M., R. Salem, M. Usman, and A. T. Somaili, Bridging Governance and Integrity: The Consequence of CSR Committee and Audit Committee Characteristics on Anti-Corruption Disclosure in Saudi Arabia, *Corporate Social Responsibility and Environmental Management*, Vol. 33, No. 2, 2026, pp. 2128–2146, <https://doi.org/10.1002/csr.70230>.
- [16] Feddaoui, A. and A. Bouabdelli, Theoretical Overview of Modern Corporate Governance: Best Practices and Contemporary Challenges, *International Journal of Professional Business Review*, Vol. 10, No. 5, 2025, p. e05510, <https://doi.org/10.26668/businessreview/2025.v10i5.5510>.
- [17] Salin, A. S. A. P., Z. Ismail, M. Smith, S. A. Raman, N. Omar, and S. M. Shamsudin, Risk Management, Internal Audit Function, and Corporate Performance, *Risk Governance and Control Financial Markets & Institutions*, Vol. 15, No. 4, 2025, p. 33, <https://doi.org/10.22495/rgcv15i4p3>.
- [18] Almgrashi, A. and A. Mujalli, The Influence of Sustainable Risk Management on the Implementation of Risk-Based Internal Auditing, *Sustainability*, Vol. 16, No. 19, 2024, p. 8455, <https://doi.org/10.3390/su16198455>.
- [19] Rehman, A., Can Sustainable Corporate Governance Enhance Internal Audit Function? Evidence from Omani Public Listed Companies, *Journal of Risk and Financial Management*, Vol. 14, No. 11, 2021, p. 537, <https://doi.org/10.3390/jrfm14110537>.
- [20] Zakaria, Z., L. Ferry, Z. Zakaria, and H. Ahmad, Internal Auditing and Temporally Organized Practice of Risk Management: A Field Study of a Public Sector Organization in Malaysia, *Financial Accountability & Management*, Vol. 42, No. 1, 2026, pp. 73–89, <https://doi.org/10.1111/faam.70011>.
- [21] Kateule, M. and K. Euston, The Role of

- Internal Audit in Enhancing Corporate Governance: A Case of Zambian Breweries Plc, *African Journal of Commercial Studies*, Vol. 7, No. 2, 2026, pp. 133–148, <https://doi.org/10.59413/ajocs/v7.i2.14>.
- [22] Adil, M., The Role of Internal Audit in Improving the Implementation of Good Corporate Governance Principles, Vol. 3, No. 2, 2022, pp. 106–118.
- [23] Vadasi, C., M. Bekiaris, and A. Andrikopoulos, Corporate Governance and Internal Audit: An Institutional Theory Perspective, *Corporate Governance: The International Journal of Business in Society*, Vol. 20, No. 1, 2019, pp. 175–190, <https://doi.org/10.1108/CG-07-2019-0215>.
- [24] Balilah, A., M. Alhaider, and S. Alshahrani, The influence of corporate governance on organisational culture and employee engagement in the Saudi context, *Journal of Financial Reporting and Accounting*, Vol. 24, No. 3, 2025, <https://doi.org/10.1108/JFRA-02-2025-0116>.
- [25] Kaawaase, T. K., C. Nairuba, B. Akankunda, and J. Bananuka, Corporate Governance, Internal Audit Quality and Financial Reporting Quality of Financial Institutions, *Asian Journal of Accounting Research*, Vol. 6, No. 3, 2021, pp. 348–366, <https://doi.org/10.1108/AJAR-11-2020-0117>.
- [26] Alzeban, A., K. Al-Hajaya, N. Sawan, H. Chammaa, and S. Foster, The quality of cybersecurity audits: do synergies among the chief audit executive, IT governance and internal audit functions matter?, *Managerial Auditing Journal*, Vol. 41, No. 2, 2026, pp. 322–349, <https://doi.org/10.1108/MAJ-05-2025-4825>.
- [27] Tamimi, O., The Role of Internal Audit in Risk Management from the Perspective of Risk Managers in the Banking Sector, *Australasian Business, Accounting & Finance Journal*, Vol. 15, No. 2, 2021, pp. 114–129, <https://doi.org/10.14453/aabfj.v15i2.8>.
- [28] Putra, I., U. Sulistiyo, E. Diah, S. Rahayu, and S. Hidayat, The Influence of Internal Audit, Risk Management, Whistleblowing System and Big Data Analytics on the Financial Crime Behavior Prevention, *Cogent Economics & Finance*, Vol. 10, No. 1, 2022, p. 2148363, <https://doi.org/10.1080/23322039.2022.2148363>.
- [29] Al-Faryan, M. A. S., Agency theory, corporate governance and corruption: an integrative literature review approach, *Cogent Social Sciences*, Vol. 10, No. 1, 2024, p. 2337893, <https://doi.org/10.1080/23311886.2024.2337893>.
- [30] Brender, N., M. Gauthier, J.-H. Morin, and A. Salihi, Three lines model paradigm shift: a blockchain-based control framework, *Journal of Applied Accounting Research*, Vol. 25, No. 1, 2024, pp. 149–170, <https://doi.org/10.1108/JAAR-06-2022-0143>.
- [31] Kagias, P., A. Garefalakis, I. Passas, P. Kyriakogkonas, and N. Sariannidis, Whistleblowing Based on the Three Lines Model, *Administrative Sciences*, Vol. 14, No. 5, 2024, p. 83, <https://doi.org/10.3390/admsci14050083>.
- [32] Eulerich, M., Q. Huang, J. Pawlowski, and M. A. Vasarhelyi, Using process mining as an assurance tool in the three-lines-model, *International Journal of Accounting Information Systems*, Vol. 56, 2025, p. 100731, <https://doi.org/10.1016/j.accinf.2025.100731>.
- [33] Saunders, M., P. Lewis, and A. Thornhill, *Research Methods for Business Students*, Pearson, Harlow, 2023, ISBN: 978-1-292-40274-1.
- [34] Singh, A. S. and M. B. Masuku, Sampling Techniques & Determination of Sample Size in Applied Statistics Research: An Overview, *International Journal of economics, commerce and management*, Vol. 2, No. 11, 2014, pp. 1–22.
- [35] Cochran, W. G., *Sampling Techniques*, John Wiley & Sons, Inc., New York, 1977, ISBN: 0-471-16240-X.
- [36] Cao, P., Research On the Theoretical Framework and Strategy of Enterprise Risk Management from The Perspective of Economic Management, *Highlights in Business, Economics and Management*, Vol. 57, 2025, pp. 211–218, <https://doi.org/10.54097/4evxhc06>.
- [37] Chen, X. Y., A Literature Review of Corporate Governance, *Edelweiss Applied Science and Technology*, Vol. 8, No. 6, 2024, pp. 8945–8949, <https://doi.org/10.55214/25768484.v8i6.3916>.
- [38] Saini, S., Corporate Governance and its Legal Implications on Indian Corporate Sector: A Comprehensive Study, *International Journal of Scientific Research*

in Engineering and Management, Vol. 09,
No. 05, 2025, pp. 1–9,
<https://doi.org/10.55041/IJSREM48354>.

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APPENDIX

Table 4. Arithmetical means and standard deviations of the first axis

No.Items	Mean	Standard deviation	Response score
1 Internal auditors have full access to the necessary information.	3.90	1.069	High
2 IA operates with complete independence from management.	3.77	1.455	High
3 Audit activities are conducted without any interference from other departments.	4.23	1.122	Very high
4 IA reports are free from any influence by management.	3.80	1.472	High
5 Risk assessment is used to prioritize audit activities.	4.10	1.078	High
6 Audit activities cover all critical areas of the organization.	3.93	1.484	High
7 Internal auditing follows a clear annual audit plan.	3.90	1.470	High
8 Audit plans are aligned with the organization's objectives.	3.81	1.512	High
9 Auditors effectively apply professional judgment in their work.	4.19	1.145	High
10 Internal auditors possess the required professional qualifications.	3.40	1.500	High
11 The audit team possesses sufficient technical skills.	4.03	1.206	High
12 Auditors receive training on the latest auditing standards.	3.39	1.482	Moderate
13 Audit findings include actionable recommendations.	3.80	1.281	Moderate
14 Reports are submitted to management and the board of directors on time.	4.07	1.152	High
15 Audit reports contribute to decision-making processes.	4.16	1.134	High
16 Audit reports are clear and concise.	4.13	1.095	High
Overall mean	3.912	.854	High

Source: created by the author

Table 13. Post hoc Scheffé's test for multiple comparisons of internal audit efficacy based on age

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 30 years	From 30 to 40 years	.892*	.175	.000	.40	1.38
	From 41 to 50 years	.818*	.178	.000	.32	1.32
	51 years or more	.655*	.192	.009	.12	1.19
From 30 to 40 years	Less than 30 years	-.892*	.175	.000	-1.38	-.40
	From 41 to 50 years	-.074	.098	.902	-.35	.20
	51 years or more	-.237	.121	.281	-.58	.10
From 41 to 50 years	Less than 30 years	-.818*	.178	.000	-1.32	-.32
	From 30 to 40 years	.074	.098	.902	-.20	.35
	51 years or more	-.163	.126	.646	-.52	.19
51 years or more	Less than 30 years	-.655*	.192	.009	-1.19	-.12
	From 30 to 40 years	.237	.121	.281	-.10	.58
	From 41 to 50 years	.163	.126	.646	-.19	.52

Source: created by the author

Table 15. Post hoc Scheffé's test for multiple comparisons of corporate governance implementation based on age

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 30 years	From 30 to 40 years	.972*	.179	.000	.47	1.47
	From 41 to 50 years	1.046*	.183	.000	.53	1.56
	51 years or more	.886*	.197	.000	.33	1.44
From 30 to 40 years	Less than 30 years	-.972*	.179	.000	-1.47	-.47
	From 41 to 50 years	.073	.100	.911	-.21	.35
	51 years or more	-.087	.124	.921	-.43	.26
From 41 to 50 years	Less than 30 years	-1.046*	.183	.000	-1.56	-.53
	From 30 to 40 years	-.073	.100	.911	-.35	.21
	51 years or more	-.160	.130	.677	-.52	.20
51 years or more	Less than 30 years	-.886*	.197	.000	-1.44	-.33
	From 30 to 40 years	.087	.124	.921	-.26	.43
	From 41 to 50 years	.160	.130	.677	-.20	.52

Source: created by the author

Table 24. Post hoc Scheffé's test for multiple comparisons of internal audit efficacy based on job position

(I) Job Position	(J) Job Position	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
IA manager	Risk management manager	-.171	.113	.517	-.49	.15
	IA officer	.358*	.116	.025	.03	.69
	Risk management officer	-.177	.120	.538	-.51	.16
Risk management manager	IA manager	.171	.113	.517	-.15	.49
	IA officer	.529*	.125	.001	.18	.88
	Risk management officer	-.006	.128	1.000	-.37	.35
IA officer	IA manager	-.358*	.116	.025	-.69	-.03
	Risk management manager	-.529*	.125	.001	-.88	-.18
	Risk management officer	-.535*	.131	.001	-.90	-.17
Risk management officer	IA manager	.177	.120	.538	-.16	.51
	Risk management manager	.006	.128	1.000	-.35	.37
	IA officer	.535*	.131	.001	.17	.90

Source: created by the author

Table 26. Post hoc Scheffé's test for multiple comparisons of corporate governance implementation based on job position

(I) Job Position	(J) Job Position	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
IA manager	Risk management manager	-.435*	.116	.003	-.76	-.11
	IA officer	.249	.119	.224	-.08	.58
	Risk management officer	-.099	.123	.883	-.44	.25
Risk management manager	IA manager	.435*	.116	.003	.11	.76
	IA officer	.685*	.128	.000	.33	1.04
	Risk management officer	.336	.131	.090	-.03	.70
IA officer	IA manager	-.249	.119	.224	-.58	.08
	Risk management manager	-.685*	.128	.000	-1.04	-.33
	Risk management officer	-.349	.134	.081	-.73	.03
Risk management officer	IA manager	.099	.123	.883	-.25	.44
	Risk management manager	-.336	.131	.090	-.70	.03
	IA officer	.349	.134	.081	-.03	.73

Source: created by the author