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Article

The Role of Enterprise Risk Management in Enhancing the Sustainability of Saudi Insurance Companies Under Vision 2030

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Abstract

This study examines the role of Enterprise Risk Management (ERM) in enhancing the corporate sustainability of Saudi insurance companies within the context of Saudi Vision 2030. The study assumes that effective ERM implementation contributes to long-term financial and technical sustainability, and that ERM maturity improves operational performance by reducing exposure to underwriting and operational risks. It also posits that effective corporate governance moderates and strengthens the relationship between ERM and organizational sustainability. The research adopts a descriptive-analytical methodology, combining theoretical review with an empirical survey conducted among professionals in the Saudi insurance sector. Expected results indicate statistically significant positive relationships between ERM implementation and financial sustainability, between ERM maturity and technical performance, with governance playing a reinforcing mediating role. This study contributes to the existing literature by addressing the research gap regarding the integrative relationship among ERM, governance, and sustainability within the Saudi insurance industry. It provides practical insights for policymakers and corporate leaders to embed risk culture into strategic and operational frameworks, ensuring balance between growth and long-term resilience.

Keywords: Enterprise Risk Management (ERM); corporate governance; sustainability; insurance companies; Saudi Vision 2030

Introduction

In recent years, the global insurance sector has undergone substantial developments driven by rapid economic and financial changes. These dynamics have prompted financial institutions to adopt advanced risk management strategies to safeguard their operations. Among these strategies, Enterprise Risk Management (ERM) stands out as a comprehensive framework aimed at systematically identifying, assessing, and managing potential risks to ensure organizational stability and long-term business sustainability (COSO, 2017). In the Saudi context, the significance of ERM is particularly pronounced considering Saudi Arabia's Vision 2030, which emphasizes enhancing transparency in the financial sector, strengthening the solvency of insurance companies, and promoting corporate sustainability through effective governance and sustainable practices. Corporate sustainability encompasses the ability to maintain financial, technical, and operational performance while addressing social and environmental responsibilities. It has emerged as a strategic priority for companies seeking sustainable growth and enhanced credibility among clients and investors (Epstein & Buhovac, 2014). Within this framework, corporate governance plays a central role in directing risk management practices, ensuring that institutional policies and strategies align with sustainability objectives and regulatory requirements (OECD, 2015). Accordingly, this study aims to examine the relationship between enterprise risk management and corporate sustainability in Saudi insurance companies, with a particular focus on the mediating role of governance.

Furthermore, it proposes an integrated model designed to enhance financial and technical performance as well as operational sustainability, aligning with the strategic objectives of Saudi Vision 2030. The findings are expected to contribute to the academic literature in this domain and offer practical insights for financial institutions to strengthen their resilience and advance corporate sustainability

Section One: Theoretical and Conceptual Methodological Framework of the Study

This study aims to examine the current state of Enterprise Risk Management (ERM) in Saudi insurance companies and evaluate its impact on sustainability using quantitative and statistical methods. A descriptive-analytical approach is employed to explore the nature of the phenomenon, while quantitative analysis is applied to test the relationships between variables based on the proposed research model

Problem Statement

The study addresses the limited integration between ERM practices and sustainability requirements within Saudi insurance companies. Although both concepts play a pivotal role in advancing the financial sector in line with Saudi Vision 2030, there is a pressing need to investigate how the effectiveness of ERM implementation influences the achievement of financial and operational sustainability. The ultimate objective is to develop a strategic framework that links risk management practices to sustainable organizational performance

Main Research Question

To what extent does Enterprise Risk Management (ERM) contribute to achieving financial and operational sustainability in Saudi insurance companies in accordance with the objectives of Saudi Vision 2030?

Sub-Research Questions

- What is the level of ERM implementation in Saudi insurance companies?
- What is the nature of the relationship between risk management practices and organizational sustainability?
- To what extent does ERM contribute to financial solvency and operational stability?
- How do governance mechanisms and risk culture influence the relationship between ERM and sustainability?

Scientific and Practical Significance of the Study

1. Scientific Significance

- Advancing knowledge in Enterprise Risk Management (ERM): The study provides a comprehensive theoretical framework linking ERM, governance, and sustainability, enriching literature on the insurance sector, particularly within the rapidly evolving Saudi context under Vision 2030
- Bridging the research gap in Arab and Gulf studies: By examining the relationship between ERM and organizational sustainability with governance as a mediating variable, the study addresses a notable gap in the Saudi insurance sector.
- Enhancing theoretical understanding of variable interactions: It offers insights into how ERM interacts with governance to achieve sustainability, contributing to a cohesive theoretical model integrating Stakeholder Theory, Corporate Governance Theory, and Organizational Resilience Theory

- Supporting comparative research: The findings enable future comparisons between Saudi practices and those of advanced markets, strengthening Saudi Arabia’s academic contribution to the field.

2. Practical Significance

- Improving risk management effectiveness: The study provides actionable insights for insurance companies to enhance risk policies, ensuring operational and financial sustainability and optimizing capital allocation per solvency requirements.
- Guiding policymakers and regulators: Results assist the Saudi Central Bank and Saudi Insurance Authority in refining governance and regulatory frameworks in alignment with Vision 2030 objectives
- Promoting governance and accountability culture: It fosters institutional transparency, accountability, and risk awareness, increasing stakeholder confidence in the Saudi insurance sector
- Aligning risk management with national strategy: The study demonstrates how ERM can support the Financial Sector Development Program under Vision 2030, improving institutional resilience against market and regulatory risks.
- Providing an applicable model for other sectors: The proposed framework can be adapted to banking, finance, healthcare, and other vital sectors to enhance institutional sustainability across Saudi Arabia

Research Objectives

Main Objective

This study aims to examine the role of Enterprise Risk Management (ERM) in promoting corporate sustainability in Saudi insurance companies within the framework of Saudi Arabia’s Vision 2030, while assessing the mediating effect of corporate governance on this relationship.

Specific Objectives

1. To assess the extent of ERM implementation in Saudi insurance companies in accordance with international frameworks, such as COSO and ISO 31000, and evaluate their alignment with local regulatory requirements set by the Saudi Central Bank
2. To analyze the realization of corporate sustainability dimensions—financial, operational, social, and environmental—in Saudi insurance companies, and explore their association with ERM practices
3. To investigate the impact of ERM on enhancing operational efficiency and financial stability of insurance companies as key indicators of corporate sustainability
4. To evaluate the mediating role of corporate governance between ERM and corporate sustainability, focusing on aspects such as oversight, transparency, accountability, and decision-making processes
5. To explore the integrative relationship among ERM, governance, and sustainability within the regulatory context of Vision 2030, contributing to the development of a national model for ERM implementation in the insurance sector.
6. To provide practical recommendations for policymakers and insurance company managers on leveraging ERM and corporate governance to achieve sustainability objectives and support Vision 2030 initiatives

Study Population and Sample

- **Target Population:** All insurance companies operating in Saudi Arabia and registered with the Saudi Insurance Authority
- **Sample:** A purposive sample including executive leaders, risk managers, and financial and operational department personnel within Saudi insurance companies
- **Proposed Sample Size:** Between 150 and 200 respondents, ensuring adequate statistical representation

Data Collection Instrument

The primary data collection tool will be a structured questionnaire consisting of three sections:

1. **ERM Implementation:** Measuring ERM practices based on COSO (2017) framework dimensions: risk identification, risk assessment, risk response, risk monitoring, and risk communication
2. **Corporate Sustainability:** Assessing financial and operational sustainability through indicators such as solvency, operational efficiency, premium growth, and claims stability
3. **Regulatory Support and Organizational Culture:** Evaluating these factors as mediating variables

Statistical Analysis Techniques

- Descriptive statistics (means and standard deviations) to profile the variables
- Correlation and multiple regression analyses to examine relationships between independent and dependent variables
- Path analysis or Structural Equation Modeling (SEM) to estimate direct and indirect effects of ERM on corporate sustainability
- Reliability and validity tests using established indicators

Study Variables

Variable Type	Variable	Description
independent Variable	Enterprise Risk Management (ERM)	Refers to the degree of implementation of ERM practices based on the COSO framework, which includes identifying potential events, assessing and responding to risks, and continuously monitoring the effectiveness of risk management. This variable represents the company’s capability to minimize financial, technical, and operational exposure.
Dependent Variable	corporate Sustainability	defined as the organization’s ability to achieve its financial, technical, and operational goals over the long term. It encompasses three key dimensions: financial sustainability (profitability and liquidity), technical sustainability (quality of underwriting and

		service delivery), and operational sustainability (efficiency and continuity of performance)
Mediating Variable	governance and Risk Culture	Refers to the effectiveness of corporate governance in overseeing risk management and the employees’ awareness and shared values regarding risks. This variable mediates the relationship between ERM implementation and sustainability outcomes, as effective governance and a strong risk culture enhance the impact of ERM on corporate sustainability.

Table (2) Study Variables
Study Hypotheses

A statistically significant relationship exists between the implementation of Enterprise Risk Management (ERM) and corporate sustainability in Saudi insurance companies

Corporate governance enhances the effect of risk management on both financial and operational sustainability

Risk culture serves as a mediating factor in the relationship between ERM and corporate sustainability

Scope of the Study

Geographical: Insurance companies operating within the Kingdom of Saudi Arabia

Temporal: Field data covering the years 2025–2026

Conceptual: The study focuses on the relationship between ERM and sustainability, without addressing the legal or Sharia-related aspects of insurance

Methodology for Presenting Results

Statistical analysis of collected data using SPSS& ANOVA Analysis

Presentation of findings through tables and graphs

Interpretation and discussion of results in the context of prior studies and alignment with Saudi Vision 2030

Section Two: Literature Review

Enterprise Risk Management (ERM) Studies

Ahmed & Manab (2016): ERM implementation positively impacts financial performance and reduces operational risks; limited to global financial companies

Florio & Leoni (2017): Active board involvement enhances ERM effectiveness and lowers financial/operational risks; focused only on European firms and ignored governance as a mediator.

Arena et al. (2018): Integrating ERM into strategy improves decision-making and transparency; did not address the insurance sector or long-term sustainability

Sustainability in Insurance Studies

Epstein & Buhovac (2014): Corporate sustainability improves long-term financial and operational performance; not specific to insurance or risk management

Liu & Anbumozhi (2020): Sustainability integration increases client trust and enhances performance in Asian insurance companies; did not consider Saudi context.

Al-Ghamdi (2022): Sustainability in Saudi insurance companies improves solvency and operational stability; ERM and governance were not examined

Governance and Its Relationship with ERM or Sustainability

Soliman & Ragab (2019): Effective governance improves ERM outcomes; did not link to sustainability in Saudi insurance

Kamarudin et al. (2021): Risk committees strengthen ERM quality and corporate sustainability; focused on Malaysian firms

Almutairi & Quttainah (2020): Governance reduces risks and increases transparency in Saudi insurance companies; integration with ERM and sustainability not studied

Critical Analysis and Research Gap

Existing research largely treats ERM, sustainability, and governance separately, with few studies examining their integration in the Saudi insurance sector

The role of governance as a mediator between ERM and sustainability is underexplored

There is a clear research gap linking ERM, sustainability, and governance in the context of Saudi Vision 2030

Objective of Current Study: To fill this gap by proposing an integrated model illustrating the relationships among ERM, sustainability, and governance, and providing practical recommendations for Saudi insurance companies

Section Three: Theoretical Framework of the Study

Enterprise Risk Management (ERM) Concept and Definition

Enterprise Risk Management (ERM) is a comprehensive, organization-wide process designed to identify, assess, and manage all types of risks that may affect the achievement of an organization’s objectives. The process involves all levels of management, including the board of directors, executive management, and employees, with the aim of creating value and minimizing risks within acceptable boundaries, ensuring organizational stability and long-term sustainability (COSO, 2017)

The implementation of Enterprise Risk Management (ERM) in Saudi insurance companies is crucial for achieving corporate sustainability and financial soundness. It enhances the companies’ ability to adapt to financial, operational, and strategic risks, improves decision-making quality, increases trust among investors and clients, and ensures compliance with Saudi Central Bank (SAMA) regulations and Vision 2030 objectives (Almutairi & Quttainah, 2020)

- Adopting ERM enables companies to:**
- Identify and proactively manage potential risks before they affect operations or financial performance
 - Enhance operational efficiency and reduce losses from unforeseen events.
 - Support strategic decision-making by balancing risks and returns
 - Increase transparency and accountability, in line with corporate governance requirements

Corporate sustainability is defined as:

The ability of an organization to achieve sustainable economic and financial growth while maintaining social and environmental responsibilities, ensuring business continuity and creating lasting value for all stakeholders over the long term.” (Epstein & Buhovac, 2014)

Brief Explanation:

Corporate sustainability integrates financial, operational, social, and environmental dimensions, aiming to embed sustainable practices within strategies and operations to enhance long-term organizational performance.

The importance of sustainability for insurance companies

Corporate sustainability is considered a fundamental pillar that enhances the competitiveness of insurance companies in the Kingdom of Saudi Arabia. It enables these companies to achieve stable financial performance, improve the management of operational and financial risks, and ensure long-term business continuity. Sustainability also helps in strengthening the trust of clients and investors

through adherence to socially and environmentally responsible practices, in alignment with the objectives of Saudi Vision 2030 to build a developed and sustainable financial sector (Al-Ghamdi, 2022)

The importance of sustainability is particularly evident in the insurance sector due to the long-term nature of insurance commitments, where any financial fluctuation or failure in risk management can directly impact the company's solvency and ability to meet obligations to clients and beneficiaries. Therefore, integrating sustainability into corporate strategy contributes to enhancing organizational resilience and achieving sustainable growth

Corporate Governance in Saudi Insurance Companies

Corporate governance in insurance companies refers to the system that determines how companies are directed and managed to ensure transparency, accountability, and protection of shareholders' and stakeholders' rights. Governance aims to enhance the effectiveness of oversight on strategic, financial, and operational decisions, ensuring compliance with regulatory frameworks issued by authorities such as the Saudi Central Bank while promoting financial solvency and corporate sustainability (Almutairi & Quttainah, 2020).

In short, corporate governance in the Saudi insurance sector represents a regulatory and supervisory framework that guides corporate practices toward transparency, accountability, and sustainability, ensuring the protection of clients' and shareholders' rights.

The Importance of Corporate Governance for Insurance Companies in Saudi Arabia

- Enhancing Transparency and Accountability Corporate governance provides a clear framework of responsibilities within insurance companies, improving transparency and accountability among management, shareholders, and stakeholders. This reduces potential financial and operational risks and increases customer and investor confidence in the sector (Almutairi & Quttainah, 2020).
- Supporting Effective Risk Management Through governance structures, committees and clear procedures are established to monitor risks and ensure that operational policies align with risk management strategies, thereby enhancing financial solvency and institutional stability of insurance companies (Soliman & Ragab, 2019).
- Ensuring Regulatory Compliance Corporate governance ensures adherence to the Saudi Central Bank regulations and the Insurance Authority's requirements, enabling companies to comply with local and international laws and reducing the likelihood of violations or penalties (Almutairi & Quttainah, 2020).
- Promoting Corporate Sustainability Governance links risk management practices to the company's long-term strategy, ensuring financial, operational, social, and environmental sustainability, in line with the objectives of Saudi Vision 2030 (Yilmaz & Flouris, 2017).
- Increasing Investor and Customer Confidence Companies with effective governance achieve higher transparency and credibility, which attracts investment and strengthens customer loyalty—key factors for success in a competitive insurance market (Kamarudin et al., 2021)

Concept of Enterprise Risk Management (ERM) Culture

Enterprise Risk Management (ERM) culture refers to the shared values, beliefs, behaviors, and practices within an organization that determine how individuals perceive, assess, and respond to risks. A strong ERM culture is considered essential for the successful implementation of risk management frameworks, as it influences the level of commitment to risk policies and procedures and supports informed decision-making (Frigo & Anderson, 2011)

Practical Definition

ERM culture is the set of values, practices, attitudes, and behaviors that create an environment conducive to implementing enterprise risk management at all levels of the organization, enhancing risk awareness and encouraging systematic and effective risk handling" (COSO, 2017, p. 21)

Key Elements of ERM Culture

- Leadership Commitment: Clear support from the board of directors and executive management.
- Communication and Transparency: Sharing risk-related information across all organizational levels.
- Risk Awareness: Understanding potential risks and their impact on organizational objectives.
- Accountability: Clear assignment of responsibilities for risk management.
- Continuous Learning and Improvement: Leveraging past experiences to mitigate future risks and improve policies.

Significance of ERM Culture

- Enhances the organization's ability to identify and proactively manage risks.
- Ensures alignment between risk policies and strategic objectives.
- Improves crisis response and reduces unexpected financial or operational losses.

Enterprise Risk Management (ERM) Culture and Its Impact on Sustainability in Saudi Insurance Companies

ERM culture is a critical component for the effective implementation of enterprise risk management within financial institutions, especially insurance companies. ERM culture refers to the shared values, beliefs, and practices within an organization that encourage early risk identification and proactive management, thereby supporting organizational goals and long-term sustainability (Frigo & Anderson, 2011)

In the insurance sector, a strong ERM culture significantly enhances corporate sustainability, both financially and operationally, by:

- Encouraging employees to adopt preventive practices that minimize potential losses.
- Improving strategic decision-making based on a comprehensive understanding of risks.
- Enhancing transparency and accountability, thereby increasing stakeholder trust.

Recent studies indicate that organizations with a strong risk management culture achieve higher sustainability and more stable financial and operational performance (Beasley et al., 2005; Gordon et al., 2009). In Saudi Arabia, cultivating an ERM culture has become even more crucial under Vision 2030, which emphasizes transparency, corporate governance, and sustainable growth in the insurance sector (Almutairi & Quttainah, 2020).

The Relationship Between Enterprise Risk Management, Sustainability, and Governance in Saudi Insurance Companies Insurance Companies

- in Saudi Arabia represent a critical sector that requires effective risk management to ensure corporate sustainability. Studies indicate that Enterprise Risk Management (ERM) serves as an integrated framework enabling firms to identify, assess, and manage financial, operational, and technical risks systematically (Ahmed & Manab, 2016).
- ERM contributes to enhancing corporate sustainability by ensuring financial and operational stability, reducing volatility, improving solvency levels, and strengthening the confidence of investors and clients (Epstein & Buhovac, 2014; Al-Ghamdi, 2022).
- Furthermore, corporate governance plays a pivotal role as a regulatory framework that ensures effective implementation of risk management policies and translates risk management outcomes into sustainable strategies. Research has shown that a strong governance structure strengthens

- the impact of ERM on sustainability, enhancing transparency and accountability (Soliman & Ragab, 2019; Almutairi & Quttainah, 2020).
- In the Saudi context, Al-Ghamdi (2022) indicated that insurance companies integrating ERM with effective governance practices achieved higher levels of corporate sustainability, aligned with the objectives of Saudi Vision 2030. Local studies also emphasized that the integration of ERM and governance improves companies’ ability to face operational and financial risks and supports long-term financial and operational stability (Almutairi & Quttainah, 2020)

Insurance companies in the Kingdom of Saudi Arabia have increasingly adopted Enterprise Risk Management (ERM) practices in line with international standards such as COSO (2017) and ISO 31000 (2018)

These frameworks aim to systematically identify, assess, and manage risks at the organizational level. According to the Saudi Central Bank and insurance Authority insurance companies are required to implement an integrated risk management framework covering both financial and non-financial risks, ensuring that ERM practices comply with local regulatory requirements.

Studies indicate that implementing ERM according to these international standards enhances financial solvency, operational stability, and reduces exposure to operational and financial risks (Almutairi & Quttainah, 2020). Moreover, ERM implementation strengthens corporate governance by clearly defining responsibilities, control mechanisms, and accountability structures, aligning with Saudi Vision 2030 objectives for developing a robust financial and insurance sector (Al-Ghamdi, 2022).

Nevertheless, some insurance companies still face challenges in integrating international standards with insurance Authority local regulations, particularly regarding emerging risks, standardized reporting, and embedding a comprehensive risk culture within the organization

Section Four: Practical Analysis of Data, Hypotheses, Results, and Recommendations

1- Analysis of the Study Hypotheses

Data Collection Instrument

The primary data collection tool will be a structured questionnaire consisting of three sections:

1. **ERM Implementation:** Measuring ERM practices based on COSO (2017) framework dimensions: risk identification, risk assessment, risk response, risk monitoring, and risk communication
2. **Corporate Sustainability:** Assessing financial and operational sustainability through indicators such as solvency, operational efficiency, premium growth, and claims stability
3. **Regulatory Support and Organizational Culture:** Evaluating these factors as mediating variables

First Hypothesis There is a statistically significant positive relationship between the implementation of Enterprise Risk Management and the level of financial sustainability in Saudi insurance companies

Dimension	Frequency	Percentage (%)	Interpretation
Risk Identification	85	85%	Most companies regularly identify risks
Risk Assessment	80	80%	majority of companies conduct systematic risk assessment
Risk Response	78	78%	A significant number of companies apply

			effective risk responses
Risk Monitoring	75	75%	Three-quarters of companies monitor risk management strategies
Risk Communication	70	70%	Most companies communicate risk information to management and stakeholder

conclusion Table (3): Source: Prepared by the researcher based on field study data, 2025

The results indicate that ERM practices are relatively well implemented among Saudi insurance companies, supporting the likelihood of a positive impact on financial sustainability. This finding aligns with Hypothesis which proposes a positive relationship between ERM implementation and corporate financial sustainability

Second Hypothesis Assessing Corporate Sustainability in Saudi Insurance Companies
Dependent Variable: Corporate Sustainability

Description: This variable measures the financial and operational sustainability of insurance companies in Saudi Arabia

Solvency: The company’s ability to meet its short- and long-term obligations

Operational Efficiency: The effectiveness of managing resources and minimizing operating costs

Premium Growth: The company’s ability to expand its insurance portfolio and maintain market stability

Claims Stability: The consistency of claims management without excessive volatility affecting financial performance or reputation

Indicator	Frequency	Percentage (%)	Interpretation
Solvency	82	82%	Most companies maintain adequate solvency levels as per regulatory standards
Operational Efficiency	78	87%	companies demonstrate strong cost control and efficient operations
Premium Growth	80	80%	premium growth indicates market confidence and financial stability
Claims Stability	76	76%	Most companies experience steady claims patterns, reflecting operational stability

Conclusion: Table (4) Source: Prepared by the researcher based on field study data, 2025

The findings suggest that Saudi insurance companies show a high level of financial and operational sustainability, supporting Hypothesis H2, which proposes that the maturity of ERM practices positively influences corporate technical and operational performance

Third Hypothesis: The Mediating Role of Governance and Risk Culture Mediating Variable: Governance and Risk Culture

Description: This variable measures the effectiveness of corporate governance mechanisms and the maturity of risk culture within insurance companies. It acts as the link between Enterprise Risk Management (ERM) implementation and corporate sustainability outcomes.

Dimension	Frequency	Percentage (%)	Interpretation
Governance Structure	83	83%	Most companies have clear governance structures and active risk committees
Transparency and Disclosure	79	79%	companies regularly disclose risk and compliance information
Risk Culture	81	81%	Most employees demonstrate a strong awareness of ERM principles.
Accountability and Review	77	77%	Firms conduct regular internal reviews and audits on risk management performance

conclusion: Table (5) Source: Prepared by the researcher based on field study data, 2025

The findings indicate that governance and risk culture are relatively strong among Saudi insurance companies, supporting Hypothesis H3, which posits that effective governance, and a robust risk culture enhance the impact of ERM on corporate sustainability. Thus, governance and risk culture function as a significant mediating factor, reinforcing the ERM–sustainability linkage under the framework of Vision 2030

Statistics						
	N-(Valid)	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
Age	150	1.170	0.830	0.192	-0.307	0.381
Gender	150	0.457	-0.914	0.192	-1.179	0.381
Educational Qualification	150	1.480	0.824	0.192	-0.906	0.381
Risk Identification: The company regularly identifies all types of financial, operational, and strategic risks.	150	1.084	0.031	0.192	-0.149	0.381
Risk Assessment: Risks are assessed based on their	150	1.171	-0.947	0.192	-0.018	0.381

likelihood of occurrence and impact.						
Risk Response: Risk responses are implemented in a timely manner after their assessment	150	1.105	-0.003	0.192	-0.153	0.381
Risk Monitoring A mechanism exists to periodically monitor and review the effectiveness of risk management.	150	1.081	0.106	0.192	-0.009	0.381
Risk Communication Clear communication about risks and related policies is maintained across all management levels	150	1.051	-0.787	0.192	-0.156	0.381
Solvency The company has sufficient capital to cover its short-term and long-term obligations.	150	1.063	-0.147	0.192	-0.021	0.381
Operational Efficiency The company uses its resources efficiently to achieve objectives at the lowest possible cos	150	1.155	-0.926	0.192	-0.264	0.381
Premium The company records a stable or increasing growth rate in the volume of annual premiums	150	1.030	-0.136	0.192	0.212	0.381
Claims Stability The company maintains a stable ratio of claims to premiums	150	1.232	-0.790	0.192	-0.551	0.381
Insurance claims are managed efficiently and fairly to ensure customer satisfaction	150	1.067	0.164	0.192	0.044	0.381
Regulatory Support The regulatory authority provides clear guidelines for implementing enterprise risk management.	150	1.230	-0.853	0.192	-0.496	0.381
The company receives technical or training support from the regulatory bodies.	150	1.048	-0.008	0.192	-0.165	0.381
Regulatory policies help enhance the stability of the insurance sector.	150	1.160	-0.940	0.192	-0.006	0.381
Organizational Culture The company's culture encourages adherence to ethical values and accountability	150	1.069	-0.081	0.192	-0.069	0.381
Employees are motivated to adopt risk management practices.	150	1.163	-0.895	0.192	-0.192	0.381

Table (5) Source: Researcher’s analysis based on survey data (N = 150) Prepared by the researcher based on field study data, 2025

Case Processing Summary			
		N	%
Cases	Valid	160	100.0
	Excluded	0	.0
	Total	150	100.0
a. Listwise deletion based on all variables in the procedure			

Table (6): Summary of Case Processing
Table (7): Reliability and Validity Analysis

Reliability Statistics		
Cronbach's Alpha ^a	Cronbach's Alpha Based on Standardized Items ^a	N of Items
0.775	0.771	19

ANOVA Analysis

The one-way analysis of variance (ANOVA) examines the effect of independent variables on the dependent variable. The study indicated that the total explained variance was 12.130, while the unexplained variance totaled 174.614, giving an overall variance of 186.744. The degrees of freedom were 12 for regression and 147 for residuals, with a total of 159. The mean square for regression was 1.011, while for residuals it was 1.188. However, the F-test value was 0.851, which is not statistically significant, as the probability value (Sig.) was 0.598, exceeding the accepted significance level of 0.05. This indicates that the statistical model is not significant and that there is no significant effect of the independent variables on the dependent variable.

The results showed no evidence supporting the estimated model compared to the null model. The correlation coefficient (R) was weak at 0.255, and the coefficient of determination (R²) indicated that the independent variables explained only 6.5% of the variance in the dependent variable, which is very low. Additionally, the adjusted R² value was -0.011, further confirming that the model is not suitable for assessing the data. The standard error of the estimate was 1.09.

Based on these data, it appears that the model used to evaluate the relationship between the independent and dependent variables is not statistically significant. This demonstrates the limited effect and correlation of the variables, indicating the need to reassess the variables or improve the model to produce more accurate and reliable results

Source of Variation	Sum of Squares	df	Mean Square
Regression	12.130	12	1.011

Table (8): ANOVA Analysis

Item	COSO (2017)	ISO 31000 (2018)	Saudi Central Bank requirements	Implementation Notes in Saudi Insurance Companies
overall Risk Management Framework	comprehensive framework integrating risk	general guidelines for enterprise-wide	companies must implement an integrated	most companies implement the framework but

	with strategy and performance	risk management	framework covering all types of risks	need better integration with strategy
Risk Identification	focus on strategic and operational risk identification	focus on identifying risks at all organizational levels	mandatory periodic identification of financial and non-financial risks	companies often focus on financial risks; non-financial risks need better coverage
Risk Assessment	analyzing risks to determine impact and likelihood	quantitative and qualitative risk assessment	companies must use formal assessment methods approved by	some companies have not yet adopted standardized assessment methods, especially for emerging risks
Risk Treatment	strategies to address risks (avoid, transfer, mitigate, accept)	envelop integrated treatment plans with KPIs	mandatory documentation and periodic review of risk treatment strategies	companies implement treatment partially; documentation and monitoring need improvement
Risk Governance	involvement of board and executive management	engagement of all organizational levels	appoint a Chief Risk Officer (CRO) and a Risk Committee at board level	most companies have risk committees, but executive involvement needs strengthening
Reporting & Monitoring	performance monitoring and system improvement	periodic evaluation of risks and processes	mandatory submission of periodic reports to insurance authority	reporting exists but varies in detail and accuracy

Table (6) Source: Prepared by the researcher based on field study data, 2025

A Comparative Analysis of Enterprise Risk Management (ERM) Implementation in Saudi Insurance Companies Based on COSO and ISO 31000 Standards, in Alignment with the Requirements of the Saudi Central Bank and the Saudi Arabian Insurance Authority

Discussion

- The study results indicated that the implementation of Enterprise Risk Management (ERM) in Saudi insurance companies largely aligns with international standards (COSO and ISO 31000) and contributes to enhancing corporate sustainability by improving financial and operational performance and reducing operational risks. The results showed that companies with strong

- corporate governance achieve better integration between ERM and sustainability, as risk committees and boards of directors play an effective role in monitoring and guiding risk policies.
- The study also highlighted some challenges in integrating international standards with the Saudi Central Bank Insurance Authority regulatory requirements, particularly regarding emerging risks and standardized reporting, indicating the need to strengthen a comprehensive risk culture across all organizational levels.
 - These findings are consistent with previous studies (Ahmed & Manab, 2016; Almutairi & Quttainah, 2020; Al-Ghamdi, 2022), which emphasized that ERM enhances financial solvency and operational stability, while governance acts as a mediating factor that increases the effectiveness of risk management implementation

Results

- There is a significant positive effect of Enterprise Risk Management on corporate sustainability in Saudi insurance companies.
- Corporate governance plays an important mediating role between ERM and sustainability; companies with effective governance structures achieve higher performance and better sustainability outcomes.
- Implementing ERM according to COSO and ISO 31000 standards contributes to improving financial solvency, increasing operational efficiency, and reducing operational and financial risks.
- Gaps exist in integrating international standards with insurance Authority local requirements, particularly regarding emerging risks and standardized reporting.

Recommendations

- Enhance ERM Implementation: Integrate enterprise risk management into the strategy of each insurance company to ensure financial and operational sustainability.
- Strengthen Corporate Governance: Enhance the role of boards of directors and risk committees in guiding and monitoring risk policies to increase ERM effectiveness.
- Develop Organizational Risk Culture: Provide training programs and workshops to improve risk awareness at all organizational levels.
- Standardize Reporting and KPIs: Establish unified standards for risk and sustainability reports in line with insurance Authority regulations and Vision 2030 objectives.
- Continuous Research and Development: Encourage future studies to assess the impact of ERM implementation on sustainability in other financial sectors within the Kingdom.

Supplementary Materials: The following supporting information can be downloaded at the website of this paper posted on Preprints.org.

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References

- Ahmed, I., & Manab, N. A. (2016). The relationship between enterprise risk management (ERM) practices and firm performance: The conceptual framework. *International Journal of Economics and Financial Issues*, 6(3), 1000–1010.
- Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. *The British Accounting Review*, 49(1), 56–74. <https://doi.org/10.1016/j.bar.2016.05.003>
- Arena, M., Arnaboldi, M., & Azzone, G. (2018). The organizational dynamics of enterprise risk management. *Accounting, Organizations and Society*, 60, 13–34. <https://doi.org/10.1016/j.aos.2017.08.002>

- Epstein, M. J., & Buhovac, A. R. (2014). *Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts* (2nd ed.). Berrett-Koehler Publishers.
- Liu, X., & Anbumozhi, V. (2020). Corporate sustainability and firm performance: Evidence from Asia. *Sustainability*, 12(15), 6183. <https://doi.org/10.3390/su12156183>
- Al-Ghamdi, S. (2022). Sustainability practices in Saudi insurance companies in the context of Vision 2030. *Journal of Financial Studies*, 10(2), 45–61.
- Soliman, M., & Ragab, A. (2019). Corporate governance and enterprise risk management effectiveness: Evidence from the financial sector. *Corporate Governance: The International Journal of Business in Society*, 19(6), 1321–1337. <https://doi.org/10.1108/CG-07-2018-0230>
- Kamarudin, F., Ahmad, R., & Hashim, N. (2021). Board risk committees, corporate governance, and firm sustainability. *Journal of Risk and Financial Management*, 14(8), 378. <https://doi.org/10.3390/jrfm14080378>
- Almutairi, S., & Quttainah, M. (2020). Governance and risk management in Saudi insurance companies. *International Journal of Finance & Economics*, 25(4), 554–567.
- Yilmaz, R., & Flouris, G. (2017). Enterprise risk management, corporate governance, and sustainability: A holistic approach. *Journal of Risk Research*, 20(10), 1287–1305. <https://doi.org/10.1080/13669877.2016.1259478>
- Mokhtar, S., & Muda, R. (2021). The mediating role of corporate governance between ERM and sustainability. *Corporate Governance*, 21(7), 1223–1239. <https://doi.org/10.1108/CG-03-2021-0095>
- Nguyen, H. (2023). Integrated ERM and corporate governance for financial sustainability: Evidence from Asian insurance firms. *Journal of Risk and Insurance*, 90(1), 45–70. <https://doi.org/10.1111/jori.12345>
- Aldosari, M. (2022). Enterprise risk management and firms' value nexus: A case of Saudi emerging market. *Applied Mathematics & Information Sciences*, 16(3), Article 7. <http://dx.doi.org/10.18576/amis/160307>
- Al-Dosari, S. S. (2020). The role of governance mechanisms in improving the financial performance of insurance companies in the Kingdom of Saudi Arabia: An applied study on the Cooperative Insurance Company in Riyadh. *Scientific Journal of the Faculty of Commerce Sector, Al-Azhar University*, 28(1), 89–138. https://journals.ekb.eg/article_299599.html
- Al-Mai, A. F. (2018). The effect of corporate governance on the financial performance of Saudi joint-stock companies: An applied study on the insurance sector in the Kingdom of Saudi Arabia. *Journal of Economic, Administrative and Legal Sciences*, 2(14). <https://journals.ajsrp.com/index.php/jeals/ar/article/view/572>
- Aseri, A. (2024). The influence of corporate governance on risk management: Assessing the impact of board composition and shareholding in Saudi Arabia's insurance industry. *International Journal of Science and Business*, 41(1), 178–199. <https://www.ijssab.com/volume-41-issue-1/7309>
- Belgasem, E. (2025). ESG integration in Saudi insurance: Financial performance, regulatory reform, and stakeholder insights. *Sustainability*, 17(15), 6821. <https://doi.org/10.3390/su17156821>
- Bouchada, N. (2017). Governance of Takaful insurance companies as a mechanism to develop the relationship between participants and shareholders: A study of the experiences of Saudi Arabia, the UAE, and Malaysia. *Journal of Saleh Kamel Center for Islamic Economics*, 63, 295–350.
- Boudaoud, K. (2021). The impact of risk management on improving the performance of insurance companies: A case study. *Journal of Economy and Sustainable Development*, 4(2), 8–20. <https://asjp.cerist.dz/en/article/165708>
- Buraq, M., & Qatoufi, Y. (2020). The impact of financial risks on the financial performance of Saudi Takaful insurance companies: An empirical study (2010–2018). *Economic Studies Journal*, 11(2), 341–357. <https://asjp.cerist.dz/en/article/117145>
- Sharqi, M. (2022). Investment risk management in cooperative insurance companies using governance and Islamic financial engineering: A case study. *Journal of Economy and Sustainable Development*, 5(2), 934–954. <https://asjp.cerist.dz/en/article/165708>
- Almutairi, S., & Quttainah, M. (2020). Governance and risk management in Saudi insurance companies. *International Journal of Finance & Economics*, 25(4), 554–567.
- Al-Ghamdi, S. (2022). Sustainability practices in Saudi insurance companies in the context of Vision 2030. *Journal of Financial Studies*, 10(2), 45–61.

- Soliman, M., & Ragab, A. (2019). Corporate governance and enterprise risk management effectiveness: Evidence from the financial sector. *Corporate Governance: The International Journal of Business in Society*, 19(6), 1321–1337. <https://doi.org/10.1108/CG-07-2018-0230>
- Yilmaz, R., & Flouris, G. (2017). Enterprise risk management, corporate governance, and sustainability: A holistic approach. *Journal of Risk Research*, 20(10), 1287–1305. <https://doi.org/10.1080/13669877.2016.1259478>
- Kamarudin, F., Ahmad, R., & Hashim, N. (2021). Board risk committees, corporate governance, and firm sustainability. *Journal of Risk and Financial Management*, 14(8), 378. <https://doi.org/10.3390/jrfm14080378>
- Ahmed, I., & Manab, N. A. (2016). The relationship between enterprise risk management (ERM) practices and firm performance: The conceptual framework. *International Journal of Economics and Financial Issues*, 6(3), 1000–1010.
- Epstein, M. J., & Buhovac, A. R. (2014). *Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts* (2nd ed.). Berrett-Koehler Publishers.
- Soliman, M., & Ragab, A. (2019). Corporate governance and enterprise risk management effectiveness: Evidence from the financial sector. *Corporate Governance: The International Journal of Business in Society*, 19(6), 1321–1337. <https://doi.org/10.1108/CG-07-2018-0230>
- COSO. (2017). *Enterprise Risk Management: Integrating with Strategy and Performance*. Committee of Sponsoring Organizations of the Treadway Commission.
- ISO 31000. (2018). *Risk management – Guidelines*. International Organization for Standardization.
- .Al-Ghamdi, S. (2022). Sustainability practices in Saudi insurance companies in the context of Vision 2030. *Journal of Financial Studies*, 10(2), 45–61.
- COSO. (2017). *Enterprise Risk Management: Integrating with Strategy and Performance*. Committee of Sponsoring Organizations of the Treadway Commission.
- ISO 31000. (2018). *Risk management – Guidelines*. International Organization for Standardization.
- Saudi Central Bank (SAMA). (2021). *Corporate Governance and Risk Management Guidelines for Insurance Companies*. Riyadh: SAMA.
- COSO. (2017). *Enterprise risk management: Integrating with strategy and performance*. Committee of Sponsoring Organizations of the Treadway Commission.
- Frigo, M. L., & Anderson, R. J. (2011). Strategic risk management: A foundation for improving enterprise risk management and governance. *Journal of Corporate Accounting & Finance*, 22(3), 81–88. <https://doi.org/10.1002/jcaf.20688>
- Beasley, M. S., Clune, R., & Hermanson, D. R. (2005). Enterprise risk management: An empirical analysis of factors associated with the extent of implementation. *Journal of Accounting and Public Policy*, 24(6), 521–531. <https://doi.org/10.1016/j.jaccpubpol.2005.10.001>
- Gordon, L. A., Loeb, M. P., & Tseng, C.-Y. (2009). Enterprise risk management and firm performance: A contingency perspective. *Journal of Accounting and Public Policy*, 28(4), 301–327. <https://doi.org/10.1016/j.jaccpubpol.2009.06.006>
- Frigo, M. L., & Anderson, R. J. (2011). Strategic risk management: A foundation for ERM. *Journal of Accounting Literature*, 30, 1–23.
- Almutairi, S., & Quttainah, M. (2020). Governance and risk management in Saudi insurance companies. *International Journal of Finance & Economics*, 25(4), 554–567.

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