ENUGU STATE UNIVERSITY OF SCIENCE & TECHNOLOGY

JOURNAL OF SOCIAL SCIENCES & HUMANITIES

Volume 11
Number 2,
2026

PUBLISHED BY
Faculty of Social Sciences,
Enugu State University of Science And Technology

Risk Culture and Communication, Risk Response Strategies, and Operational Performance of Listed Multinational Companies in South-West Nigeria

[1]Omoniyi, B. B., [2]Ganiyu, Kamal, & [3]Adeyemo, D. L.

[1]Department of Economics, Faculty of Social Sciences, Joseph Ayo Babalola University, Osun State, Nigeria

[*2]Ph.D. Candidate, Insurance and Risk Management, Department of Insurance, College of Postgraduate Studies, Joseph Ayo Babalola University, Osun State, Nigeria:

[3]Department of Insurance, Faculty of Management Sciences, Joseph Ayo Babalola University, Osun State, Nigeria

Corresponding autho's email: kamal.ganiyu@fedpoffaonline.edu.ng ; ORCID: 0009-0005-8420-2666

Abstract

Risk culture and communication constitute the informal institutional infrastructure through which formal ERM policies become lived organisational realities, while risk response strategies provide the tactical vehicles through which risk awareness is operationalised; yet their individual contributions to operational performance in emerging-market multinationals remain insufficiently evidenced. This study examined the effect of strategic risk culture and communication, and the relationship between risk response strategies, on the operational performance of listed multinational companies (MNCs) in South-West Nigeria. A cross-sectional field survey design was employed using a structured questionnaire administered to senior and middle management employees of selected MNCs. From a population of 51,286 employees, a sample of 528 was determined via the Krejcie and Morgan (1970) table, of which 499 usable copies were analysed with Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS 3 (5,000 bootstrap resamples). The measurement model satisfied all psychometric thresholds (AVE ≥ 0.500; CR ≥ 0.861; HTMT < 0.850), and collinearity diagnostics were negligible (all VIF = 1.000). Risk culture and communication exerted a significant positive effect on operational performance ($\beta = 0.365$, $t = 10.115$, $p < 0.001$, $R^2 = 0.133$), and risk response strategies likewise exhibited a significant positive relationship ($\beta = 0.314$, $t = 7.931$, $p < 0.001$, $R^2 = 0.099$), with medium effect sizes ($f^2 = 0.154$ and 0.109 respectively). The findings confirm that the cultural-communicative and tactical-executive dimensions of ERM independently enhance process efficiency, service continuity, and output quality. The study concludes that risk culture functions as the systemic enabler of ERM effectiveness and recommends structural cultural embedding, role-specific risk competency programmes, and the upgrade of static risk registers to real-time, intelligence-led response architectures.

Keywords: ***Enterprise risk management; risk culture and communication; risk response strategies; operational performance; multinational companies; Nigeria; PLS-SEM***

Introduction

The global business environment has become increasingly complex, volatile, and interconnected, compelling multinational companies (MNCs) to adopt more sophisticated approaches to risk management. Enterprise Risk Management (ERM) has emerged as a comprehensive framework that enables organisations to identify, assess, and manage risks across the entire enterprise rather than addressing them in isolation (Jurdi & AlGhnaimat, 2021). This holistic approach has gained significant attention from practitioners and academics, particularly in the wake of major corporate failures and global financial crises that highlighted the inadequacies of traditional, siloed risk management practices (Anton & Nucu, 2020). The limitations of traditional approaches became evident during the 2007–2008 global financial crisis, and this realisation led to increased interest in the adoption of ERM frameworks, which offer a more integrated and comprehensive approach to managing diverse risk categories (Farrell & Gallagher, 2019; Beasley et al., 2019). The COSO ERM framework, updated in 2017, integrates risk management with strategy and performance (COSO, 2017), while ISO 31000 provides principles, guidelines, and processes applicable to any organisation regardless of size, sector, or geographic location (ISO, 2018). A survey by Deloitte (2023) found that 79% of global organisations have implemented or are implementing ERM, representing a significant increase from 52% in 2020.

Beyond strategy and governance, the two ERM dimensions most proximate to daily organisational life are risk culture and communication, and risk response strategies. Risk Culture and Communication refers to the organisational attitudes, behaviours, and practices that influence how employees perceive, report, and respond to risks; it is the informal institutional infrastructure through which formal ERM policies become lived organisational realities rather than ceremonial compliance artefacts (Agarwal, 2025). Risk Response Strategies are the formal approaches organisations use to address identified risks, including risk mitigation, transfer, acceptance, or avoidance (Moeller, 2007; Aina, 2025), and they represent the tactical execution layer of the ERM system. Despite their theoretical centrality, the literature has not adequately explored how these factors translate into tangible operational improvements (Rasedi & Sibindi, 2023). Current findings also remain inconsistent and fragmented (Farrell & Gallagher, 2019; Anton & Nucu, 2020), and the regulatory and compliance perspective that dominates much of the adoption literature often overlooks whether ERM implementation genuinely enhances operational resilience or merely satisfies compliance requirements (Tekathen & Dechow, 2020).

The empirical setting of this study accentuates the salience of these two dimensions. In South-West Nigeria, the commercial epicentre of Lagos and the industrial hub of Ogun State host a diverse array of MNCs across fast-moving consumer goods (FMCG), manufacturing, telecommunications, and energy, including companies such as Nestlé, Unilever, Procter & Gamble, MTN, and Lafarge (Isaac et al., 2020; Aguguom et al., 2022). These corporations face a formidable set of challenges that significantly impact their operational performance and risk profiles: severe infrastructural deficits, with unreliable and inadequate power supply forcing companies to depend on costly self-generated power; poor road networks and congested ports that create logistic bottlenecks and disrupt supply chains (Aladejebi, 2020; Oludare et al., 2023); high operating costs, significant currency volatility, and difficulties in accessing foreign exchange; and a regulatory landscape characterised by inconsistency, bureaucratic hurdles, and abrupt policy changes (Abdulmalik, 2023; Osamor et al., 2023). In such an environment, the ability of employees at every level to perceive, report, and communicate risk, and the capacity of the organisation to swiftly avoid, mitigate, transfer, or accept risks, are decisive operational differentiators.

The relationship between ERM adoption and operational performance is a critical area of study because operational performance encompasses efficiency, productivity, quality, innovation, and customer satisfaction (Al-Nimer et al., 2021). Studies on the performance implications of ERM have yielded mixed results: Jurdi and AlGhnaimat (2020) found that insurance companies with mature ERM programmes had higher firm values, Altuntas et al. (2021) documented a positive association between ERM adoption and operational efficiency in the insurance industry, while Farrell and Gallagher (2019) demonstrated that the ERM maturity–performance relationship is moderated by contextual factors. A significant limitation of the current literature is its predominant focus on financial performance indicators such as firm value (Hoyt & Liebenberg, 2025) and stock returns (Tola, 2022), while largely neglecting critical operational performance dimensions including process efficiency, quality of output, and customer satisfaction. This oversight is particularly problematic given that operational efficiency serves as a fundamental driver of competitive advantage, especially in emerging markets where MNCs face heightened operational risks (Stefán, 2023).

This study therefore investigated two specific objectives:

i. examine the effect of strategic risk culture and communication on the operational performance of multinational companies in Nigeria; and

ii. analyse the relationship between risk response strategies and the operational performance of multinational companies in Nigeria.

Two corresponding null hypotheses were tested. The study integrates the Resource-Based View and Dynamic Capabilities Theory to extend ERM literature beyond financial performance to operational resilience, and as one of the first studies to examine these dimensions among South-West Nigerian MNCs, it provides valuable insights into ERM functioning in under-studied institutional environments. From a practical standpoint, given Nigeria's volatile business climate, the findings will

help MNCs optimise ERM implementation to enhance operational efficiency and stakeholder confidence, critical factors for long-term survival in emerging markets (Alli & Ganiyu, 2025).

Ho1: Strategic risk culture and communication has no significant effect on the operational performance of multinational companies in Nigeria.

Ho2: Risk response strategies have no significant influence on the operational performance of multinational companies in Nigeria.

Literature Review

Conceptual Review

Enterprise Risk Management (ERM) Adoption

ERM has been widely defined by scholars and professional organisations, reflecting its multidimensional nature. According to the Committee of Sponsoring Organizations of the Treadway Commission (COSO), ERM is a process, effected by an entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (COSO, 2004, cited in Fadun, 2013). This definition emphasises ERM as a strategic and organisation-wide approach rather than a siloed function. Altuntas et al. (2020) defined ERM as a structured and disciplined framework that aligns strategy, processes, people, technology, and knowledge to evaluate and manage uncertainties in an enterprise, while Khan et al. (2016) defined ERM as a holistic approach to identifying, assessing, and mitigating risks across all organisational functions to enhance decision-making and value creation. The successful adoption of ERM must be conceptualised as a multidimensional construct extending substantially beyond the mere codification of a formal policy: key dimensions include strategic risk integration, strategic risk oversight, risk culture and communication, and risk response strategies (Fraser & Simkins, 2010; GBenga, 2024). The present article focuses on the latter two dimensions, which together capture the behavioural and tactical core of the ERM system.

Risk Culture and Communication

Risk Culture and Communication (RCC) refers to the organisational attitudes, behaviours, and practices that influence how employees perceive, report, and respond to risks. As Agarwal (2025) asserts, the collective ethos, comprising shared values, beliefs, and attitudes toward risk, is a critical, albeit intangible, determinant of ERM's ultimate success. Eastman and Xu (2021) support this view, noting that leadership commitment and employee engagement are essential for successful ERM implementation. Culture operates as the internal environment of the COSO architecture: the procedural efficacy of every ERM component, from objective setting to monitoring, is fundamentally moderated by the organisation's risk culture, and unwavering leadership commitment and active employee engagement are indispensable for embedding risk management practices into the organisational fabric, thereby elevating ERM from a mere compliance exercise to a dynamic, value-adding capability. Communication channels complement the cultural substrate by ensuring that pertinent risk information is systematically identified, captured, and disseminated in a timely and coherent manner to enable personnel at all levels to discharge their responsibilities; effective communication ensures that risk-related information flows vertically and horizontally across the entity, fostering a transparent and risk-aware environment (Fadun, 2013). In the measurement model of this study, RCC is captured through six reflective indicators: encouragement of employees to report risk-related issues (RCC1), clear communication of risk responsibilities across departments (RCC2), promotion of open communication about risk (RCC3), risk awareness as a core part of organisational culture (RCC4), regular provision of risk management training (RCC5), and the effectiveness and reliability of risk communication channels (RCC6).

Risk Response Strategies

Risk Response Strategies (RRS) are the formal approaches organisations use to address identified risks, including risk mitigation, transfer, acceptance, or avoidance. Within the COSO framework, once potential risk events have been identified and formally assessed for likelihood and impact, the organisation formulates its risk response, a strategic decision involving the selection of a course of action, which may include risk avoidance, acceptance, reduction (mitigation), or sharing (transference), guided by the institution's predefined risk appetite (Moeller, 2007). To operationalise the selected response, a system of control activities is instituted, representing the policies, procedures, and mechanisms deployed throughout the organisation to provide reasonable assurance that risk responses are executed effectively, and the entire apparatus is subjected to continuous monitoring to ascertain its continued effectiveness over time (Togok et al., 2016; Noah, 2025a). The COSO ERM framework recommends that response strategy selection be governed by careful cost-benefit analysis aligned with the organisation's risk appetite, a principle that becomes particularly consequential in Nigeria's high-risk environment, where accepting risks without mitigation plans can lead to severe operational disruptions. In this study, RRS is measured through five reflective indicators: the existence of clear risk response protocols (RRS1), implementation of risk mitigation plans for key identified risks (RRS2), regular monitoring of risk treatment strategies (RRS3), utilisation of risk transfer mechanisms where appropriate (RRS4), and the organisation's adaptive capacity to emerging and evolving risks (RRS5).

Operational Performance

Operational Performance refers to the efficiency and effectiveness of an organisation's core business processes in delivering value. It encompasses various dimensions, including efficiency, productivity, quality, innovation, and customer satisfaction (Al-Nimer et al., 2021), and operational efficiency serves as a fundamental driver of competitive advantage, especially in emerging markets where MNCs face heightened operational risks (Stefán, 2023; Alli, 2025). Whereas the mainstream ERM-performance literature has concentrated on financial indicators, this study deliberately operationalises performance through three complementary dimensions adapted from Pagach and Warr (2011) and Kaplan and Norton (1992): process efficiency (the optimisation of workflows and reduction of operational bottlenecks), customer satisfaction (the quality of customer experience and service delivery), and quality of output (the consistency and reliability of products and services). These dimensions are particularly appropriate for the Nigerian context, where the day-to-day reliability of processes, service continuity, and output quality determine the competitiveness of MNCs confronting infrastructural deficits and macroeconomic volatility. In the measurement model, process efficiency (PRE) is assessed through seven indicators covering process optimisation, workflow redundancy, resource allocation, automation, standard operating procedures, bottleneck elimination, and performance metrics, with customer satisfaction (CST) and quality-of-output (QOO) items providing descriptive depth on the outcome domain.

Theoretical Framework

Dynamic Capability Theory

Dynamic Capability Theory, first introduced by Teece, Pisano, and Shuen (1997), represents a significant evolution in strategic management literature by addressing how firms may achieve and sustain competitive advantage in rapidly changing environments. The theory posits that organisations must develop dynamic capabilities, defined as the ability to integrate, build, and reconfigure internal and external competencies, to adapt to shifting market conditions, technological advancements, and competitive pressures. Unlike traditional resource-based views of the firm, which emphasise static resources, Dynamic Capability Theory highlights the need for continuous renewal and transformation through three core processes: sensing, which involves identifying and assessing emerging opportunities and threats; seizing, which entails mobilising resources to capitalise on these opportunities; and transforming, which refers to the reconfiguration of assets and capabilities to ensure long-term viability. The theory identifies the reconfiguration of internal values and norms as a critical dimension of organisational adaptation: risk culture and communication represent the informal

institutional infrastructure through which risk management principles are embedded into the daily cognitive and behavioural routines of organisational members, while risk response strategies operationalise the seizing and reconfiguring capabilities, enabling organisations to mobilise resources in direct response to identified threats and thereby maintain operational continuity.

Prospect Theory

Prospect Theory, introduced by Kahneman and Tversky (1979), revolutionised the understanding of how individuals make decisions under conditions of uncertainty by challenging the traditional economic assumption of rational utility maximisation. One of its central contributions is the explanation of how people evaluate gains and losses asymmetrically, a phenomenon known as loss aversion: individuals tend to feel the pain of losses more intensely than the pleasure derived from equivalent gains, leading them to adopt risk-averse behaviour in gain scenarios and risk-seeking behaviour in loss scenarios. Applied to the present study, Prospect Theory provides a behavioural lens for understanding why managers in Nigerian MNCs, operating amid economic volatility, political instability, and infrastructural challenges, may adopt ERM frameworks primarily to mitigate potential losses rather than pursue opportunities for gain. This risk-averse behaviour may shape the design and implementation of ERM processes, influencing their alignment with operational goals; framing effects, or how risks are communicated and perceived within the organisation, may also influence the effectiveness of ERM adoption, because if risk culture and communication are not aligned with operational goals, employees may fail to embrace ERM practices.

The Eclectic Paradigm

The Eclectic Paradigm, also known as the OLI Framework, was introduced by Dunning (1979) and has become a cornerstone of international business theory for explaining the motivations and determinants of foreign direct investment and multinational enterprise activity. The paradigm derives its name from the three key conditions that Dunning identified as necessary for firms to engage in foreign production: Ownership advantages, Location advantages, and Internalisation advantages. From the perspective of this study, MNCs' superior performance in host-country environments is contingent on their possession of ownership-specific advantages, in this case, the institutional capacity to execute structured risk response mechanisms in a timely and contextually appropriate manner. In the Nigerian environment, characterised by regulatory volatility, currency risk, infrastructural fragility, and supply chain disruptions, the ability to swiftly avoid, mitigate, transfer, or accept risks represents a critical operational differentiator. Together, Dynamic Capability Theory, Prospect Theory, and the Eclectic Paradigm provide a comprehensive foundation for understanding how the cultural-communicative and tactical-executive dimensions of ERM adoption impact operational performance in the Nigerian multinational context.

Empirical Review

Risk Culture and Communication and Operational Performance

A substantial body of empirical work links risk culture to organisational performance. Kpodo and Agyekum (2015), studying 19 banks in Ghana representing approximately 70% of the Ghanaian banking industry's market share, found a positive correlation between risk culture and organisational performance, with leadership actions identified as the most critical factor influencing the development of an effective risk culture. Rahim, Rosid, and Hasan (2024), using a sample of 311 employees from banking and insurance sectors and employing both PLS-SEM and fuzzy set qualitative comparative analysis (fsQCA), found that risk culture has a significant direct effect on employee performance, employee satisfaction, and employee engagement, with employee satisfaction significantly mediating the relationship between risk culture and employee performance; these findings extend the operational implications of risk culture beyond process metrics to the human capital dimension of operational efficiency. Damian Ezechi et al. (2025), examining manufacturing firms in North-Central Nigeria, found a positive and significant relationship between risk review processes, a core component of risk culture, and organisational performance, confirming that the pattern of risk culture enhancing

performance is empirically observable in the Nigerian institutional environment and strengthening confidence in the generalisability of such findings to the Nigerian MNC context.

Further evidence sharpens the performance mechanics of risk culture. Kanu (2022), in a multi-country African study, provided evidence that while ERM alone does not enhance firm financial performance, the integration of ERM with strategic planning, mediated by risk culture, produces a significant improvement in firm performance, suggesting that risk culture's contribution to performance is conditioned by its interaction with other ERM dimensions. Bui, Fang, and Lin (2018), studying publicly traded US non-financial firms during the 2000–2002 dot-com bubble and the 2007–2009 financial crisis, found that risk culture was the most important variable predicting firm performance during crises, establishing risk culture as a performance differentiator precisely in the high-stress, volatile conditions that characterise the Nigerian business environment, marked by currency crises, infrastructure failures, and regulatory volatility. Tshabalala and Naidoo (2023), examining 168 executives across South African organisations, found that a strong strategic risk culture, characterised by transparency, openness to uncertainty, and risk-aware leadership, has a positive impact on both financial and strategic performance outcomes, with internal trust and accountability significantly mediating this relationship. Gumbi and van Wyk (2024), in a qualitative comparative case study of high-reliability organisations in healthcare, aviation, and energy, found that effective strategic risk communication, marked by consistent messaging, two-way communication channels, and real-time reporting, contributes to improved safety, decision quality, and operational responsiveness, with organisations that institutionalised feedback loops and cross-functional communication outperforming those with fragmented communication channels. Collectively, these studies support the expectation that risk culture and communication exert a substantive positive effect on operational performance.

Risk Response Strategies and Operational Performance

The empirical literature on risk response strategies provides robust multi-sector and multi-country support for their performance significance. Sibanda and Molefe (2023), analysing 196 operations and risk management professionals across medium and large manufacturing firms in KwaZulu-Natal, South Africa, found that risk mitigation and avoidance strategies have the most significant positive impact on operational performance, particularly in firms operating in high-complexity environments, while risk acceptance showed a negligible or even negative association with operational performance in most contexts, aligning with the COSO guidance that response selection should follow careful cost-benefit analysis aligned with risk appetite (Moeller, 2007). Daniels and Mthethwa (2024), using mixed-methods data from 143 operations managers in logistics and supply chain firms in Gauteng, found that proactive risk response strategies, specifically prevention and contingency planning, significantly enhance operational efficiency by reducing service disruptions and optimising resource allocation, whereas reactive strategies, while sometimes necessary, were associated with higher costs and lower process stability. Gatehi, Matanda, and Odhiambo (2025), studying four Kenyan county governments, found a strong and significant positive correlation ($r = 0.730$, $p < 0.001$) between risk mitigation and financial performance, with risk mitigation accounting for 82.5% of the variation in financial performance ($R^2 = 0.825$).

Evidence from multinational and small-firm settings in Sub-Saharan Africa reinforces these conclusions. Biira, Tukei, and Mboma (2020), examining Total Uganda Limited, found a significant positive relationship between risk avoidance strategies and organisational performance ($r = 0.689$, $p < 0.001$), concluding that incorporating risk avoidance strategies into company operations significantly enhances organisational performance; the finding is contextually significant for the present study because Total (now TotalEnergies) is itself a multinational corporation operating in a Sub-Saharan African institutional context that shares many of the regulatory and infrastructure challenges characterising the Nigerian MNC environment. Mumassabba et al. (2022), studying SMEs in Kisumu County, Kenya, found that risk avoidance strategies, including delayed market entry, supplier collaboration, and adherence to legal contracting, have a significant positive influence on the competitiveness of SMEs, and the underlying mechanism, that structured risk avoidance preserves competitive position and operational stability, applies equally in the MNC context, where the scale

and complexity of operations amplifies both the potential consequences of unmanaged risks and the performance gains from effective risk response. Ochola and Nyamita (2022), examining 47 Kenyan devolved governments, found that risk avoidance has a statistically significant effect on performance (standardised Beta = 0.341; t = 5.609; p = 0.03 < 0.05), while Thuku and Muchemi (2021), studying insurance companies in Nyeri County, Kenya, found that risk transfer strategies, including insurance derivatives, reinsurance, and partnerships, have a positive and significant effect on performance. These findings from risk transfer, avoidance, and mitigation sub-strategies converge on the same conclusion: diverse forms of risk response collectively and individually contribute to performance improvement, provided they are systematically designed, monitored, and adapted to the organisation's risk environment.

Gaps in the Literature

Despite the considerable scholarly focus on ERM, several critical gaps persist that this study addresses. First, there remains a dominant emphasis on financial performance indicators, such as firm value, return on assets, and cost of capital, as primary measures of ERM effectiveness (Alli, 2026), which has led to the under-exploration of the operational performance dimension that is particularly vital in contexts characterised by operational fragility and resource constraints in developing countries such as Nigeria. Second, the contextual bias toward developed economies in ERM research has resulted in a limited understanding of how ERM functions in emerging markets with unique socio-political and infrastructural challenges; most empirical studies have been conducted in North America, Europe, and parts of Asia, thereby overlooking how institutional voids, cultural diversity, regulatory fragmentation, and political instability influence ERM adoption and effectiveness in countries like Nigeria (Klumpes, 2025; Agarwal, 2025). Third, the strategic and cultural perspective has investigated risk culture and communication largely at the level of adoption antecedents, without adequately tracing how these factors translate into tangible operational improvements (Rasedi & Sibindi, 2023), and the response-strategy literature has typically examined mitigation, transfer, avoidance, and acceptance in isolation from the broader ERM architecture. By examining risk culture and communication and risk response strategies as distinct drivers of operational performance among listed MNCs in South-West Nigeria, and by reporting the synergistic context within which they operate, this study responds directly to these gaps.

Methodology

This study adopted a field survey research design to examine the relationship between ERM adoption and operational performance in multinational companies in South-West Nigeria. This design is particularly suitable because it allows data to be collected in real time from representative samples of MNCs in the study region, thereby ensuring ecological validity and contemporary relevance. The field survey approach was chosen for three compelling reasons. First, it facilitates the collection of primary data directly from knowledgeable respondents who possess first-hand experience with ERM implementation and operational performance metrics within their respective organisations. Second, the design enables the examination of complex relationships among multiple variables simultaneously, which is essential for investigating the multidimensional nature of ERM adoption and its synergistic effects on operational performance. Third, the cross-sectional nature of the field survey allows for the capture of data at a specific point in time, providing a snapshot of current ERM practices and their performance outcomes across different sectors and organisational contexts. The survey instrument was structured to capture both quantitative and qualitative dimensions of ERM adoption, employing validated measurement scales adapted from prior empirical studies while contextualising items to fit the unique characteristics of MNCs operating in Nigeria's institutional environment.

The target population comprises all multinational companies registered with the Nigerian Corporate Affairs Commission (CAC) and operating in South-West Nigeria, particularly Lagos, Ogun, Ekiti, Ondo, Osun, and Oyo States, since a large percentage of multinational companies in Nigeria have their headquarters in Lagos State. Since it was impossible to utilise all multinational companies, the top ten multinational companies with headquarters in Lagos and Ogun States were selected based on

their market capitalisation as of April 2025, spanning telecommunications (Airtel Africa, MTN Nigeria), financial services (Guaranty Trust Holding Company, Zenith Bank), and manufacturing and consumer goods (BUA Foods, BUA Cement, Dangote Cement, Nestle Nigeria, Lafarge Africa, Unilever Nigeria), with a combined employee population of 51,286 in the South-West. Within the selected multinational companies, the study obtained data from key categories of personnel who possess adequate knowledge of organisational operations and strategic decisions, including senior management staff, middle-level management staff, administrative officers, and operational staff, as well as personnel working in relevant departments such as finance, human resources, operations, information technology, and corporate strategy, because of their direct involvement in organisational processes and their ability to provide reliable information relevant to the objectives of the study.

The sample size was calculated using Krejcie and Morgan's (1970) sample size determination for finite populations, which is particularly suitable when the population size is known and relatively large. For large populations, the simplified formula $n = x^2P(1 - P)/d^2$ was applied with $\chi^2 = 3.841$ (95% confidence level, 1 df), $P = 0.5$ (maximum variability), and $d = 0.05$ (5% margin of error), yielding $n = (3.841)(0.5)(0.5)/(0.0025) = 384.1$, and therefore a minimum sample of 384. Following Israel's (2013) suggestion that the minimum sample size should be increased by 10% to 40% to allow for attrition, the study added 40% (144) of the initial sample size, making the actual sample size 528. The study employed a stratified random sampling technique to ensure comprehensive sectoral representation of multinational corporations in South-West Nigeria, implemented in three key phases: stratification, proportional allocation, and random selection. Stratification involved categorising the target MNCs into three primary sectors based on their core business activities: financial services (banking), manufacturing (encompassing fast-moving consumer goods), and telecommunications. Proportional allocation distributed the 528 copies of questionnaire across the ten firms according to their employee populations, and random selection was applied to choose individual participants within each company using a random number generator applied to predefined lists provided by HR departments, ensuring equitable representation across executives, middle managers, and operational staff and mitigating potential systemic errors.

Table 1. Sample size allocation table.

S/N	Company Name	Employee Population in South-West	Sample Size
1	Airtel Africa	8,264	85
2	BUA Foods	2,250	23
3	MTN Nigeria	5,736	59
4	Guaranty Trust Holding Company	5,803	56
5	Zenith Bank	7,704	79
6	Dangote Cement	10,824	111
7	BUA Cement	1,618	17
8	Nestle Nigeria	2,300	24
9	Lafarge Africa	1,455	15
10	Unilever Nigeria	5,332	55
Total		51,286	528

Note. Source: Author's computation (2025).

The study utilised a well-structured questionnaire as the primary instrument, divided into three sections. Section A captured demographic and organisational characteristics; Section B measured ERM adoption across four dimensions, drawing from validated frameworks such as COSO (2017) and Hoyt and Liebenberg (2011); and Section C assessed operational performance, adapted from the works of Pagach and Warr (2011) as well as Kaplan and Norton (1992). All constructs were measured on 5-point Likert scales ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Content validity

was established through expert evaluation: a panel of five ERM experts, comprising both academics and industry practitioners, independently assessed each item's alignment with the study's conceptual framework using a Content Validity Index (CVI), and items achieving a CVI score of ≥ 0.80 were retained, in line with established methodological standards (Polit & Beck, 2006). Construct validity was empirically tested using Exploratory Factor Analysis, with the Kaiser-Meyer-Olkin measure of sampling adequacy (≥ 0.70) and Bartlett's test of sphericity ($p < 0.05$) confirming the factorability of the items (Field, 2018). Reliability was evaluated using Cronbach's alpha, with all dimensions exceeding the 0.70 threshold recommended by Nunnally (1978), and any dimensions showing lower reliability were refined through item analysis before full-scale administration. A pilot survey involving 20 employees of multinational corporations operating in Kwara State was conducted prior to full-scale administration to identify ambiguities, redundancies, or complexities in the questionnaire items.

Consistent with the third objective, and adapting the modelling structure of Chukwu et al. (2025), who modelled organisational performance as a direct function of the prevailing risk culture within manufacturing firms under uncertainty, the effect of risk culture and communication on operational performance was specified in functional form as OP = f(RCC) and transformed into a linear econometric model:

$$OP = \beta_0 + \beta_3 RCC + \varepsilon_t$$

where OP is Operational Performance, RCC is Risk Culture and Communication, β_0 is the intercept term, β_3 is the coefficient measuring the effect of RCC on OP, and ε_t is the stochastic error term capturing unobserved influences. This modification is theoretically justified because communication processes are an integral dimension of risk culture, influencing how risk information is shared, interpreted, and acted upon across organisational levels. Consistent with the fourth objective, and adapting the modelling logic of Cecilia and Anne (2021), who linked risk-transfer and risk-financing instruments to the performance of insurance companies, the relationship between risk response strategies and operational performance was specified as OP = f(RRS) with the estimable form:

$$OP = \beta_0 + \beta_4 RRS + \varepsilon_t$$

where RRS is Risk Response Strategies and β_4 measures its marginal effect on operational performance. These parsimonious specifications reflect the study's focus on the direct effects of each ERM dimension on organisational outcomes, while retaining the structural logic of the modelling traditions from which they are adapted, in which risk-related behavioural norms, communication processes, and response mechanisms serve as direct predictors of organisational performance.

The quantitative data were analysed using a systematic multi-stage approach comprising data cleaning, descriptive statistical summarisation, and hypothesis testing via Structural Equation Modelling. Data cleaning involved missing-data treatment, outlier detection using standardised z-scores and Mahalanobis distance, examination of univariate skewness and kurtosis, and collinearity diagnostics (Tabachnick & Fidell, 2013; Field, 2018). Hypotheses were tested using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 3, chosen for its suitability in predictive modelling, its tolerance for non-normal data, and its flexibility in handling reflective constructs with modest sample sizes (Hair et al., 2019). The analysis proceeded in two sequential stages: assessment of the measurement (outer) model, covering indicator reliability (outer loadings ≥ 0.70), internal consistency reliability (Cronbach's alpha and Composite Reliability between 0.70 and 0.95), convergent validity (AVE ≥ 0.50; Fornell & Larcker, 1981), and discriminant validity via the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio (< 0.90; Henseler et al., 2015); followed by evaluation of the structural (inner) model. Path coefficient significance was assessed through bootstrapping with 5,000 resamples, with paths considered statistically significant at $p < 0.05$; the coefficient of determination (R^2) was interpreted using thresholds of 0.75 (substantial), 0.50 (moderate), and 0.25 (weak); effect sizes (f^2) were interpreted using Cohen's (1988) criteria of 0.02 (small), 0.15 (medium), and 0.35 (large). Ethical compliance was maintained throughout, with informed consent, voluntary participation, anonymity, and secure data management conforming to the standards of the Nigerian Data Protection Regulation (NDPR, 2019).

Results and Discussion

Response Rate and Demographic Profile of Respondents

Table 2 presents the distribution and response profile of the research instrument. A total of 529 questionnaires were administered to respondents drawn from listed multinational companies operating in South-West Nigeria, representing the full complement of the targeted sample. Of this number, 509 questionnaires were successfully returned, yielding a response rate of 96.2% and leaving only 20 copies (3.8%) unreturned. Following a rigorous data screening process aimed at detecting and eliminating incomplete, inconsistent, or otherwise invalid responses, 499 questionnaires were deemed suitable for inclusion in the final analytical dataset, representing 98.0% of the returned instruments, while a residual 10 questionnaires (2.0%) were excluded on grounds of inadequate completion or significant missing data. The response rate of 96.2% is exceptionally high by established standards in survey-based organisational research: Baruch and Holtom (2008), in their comprehensive review of response rates in academic studies, reported a mean organisational survey response rate of approximately 52.7%, with individual-level surveys averaging 35.7%. The response rate achieved in this study substantially exceeds these benchmarks, which enhances the credibility and representativeness of the dataset, and the 499 usable responses constitute a robust and statistically adequate sample for PLS-SEM analysis, particularly given Hair et al.'s (2014) recommendation that PLS-SEM can yield reliable estimates with as few as 100 observations provided the model meets the relevant quality criteria.

Table 2. Distribution of research questionnaire.

Response Rate	Frequency	Percentage (%)
Questionnaires Distributed	529	100.0
Questionnaires Returned	509	96.2
Questionnaires Unreturned	20	3.8
Total Distributed	529	100.0
Questionnaires Used for Analysis	499	98.0
Questionnaires Excluded	10	2.0
Total Returned	509	100.0

Note. Figures represent the frequency and proportional distribution of questionnaires across the stages of administration, return, and usability screening. Source: Field Survey (2026).

Table 3 presents the socio-demographic and professional profile of the 529 respondents, examined across five categorical variables. With respect to gender distribution, the sample comprises 289 male respondents (54.63%) and 240 female respondents (45.37%); the near-parity in representation indicates that the findings are unlikely to be materially influenced by gender-specific perceptions or reporting biases, a balance consistent with the gender composition observed in senior and mid-level professional cadres within the Nigerian financial and corporate sectors (Adeyemi & Fagbemi, 2010). Regarding age and work experience, the plurality of respondents falls within the 35–44 years bracket (37.05%) and the 6–15 years experience range (56.72%), representing a core cohort of mid-career professionals and operational managers. The inclusion of early-career professionals is a methodological strength rather than a limitation: mid-level managers and frontline operational staff are the actual nodes where risk culture is lived, communication channels are tested, and process efficiencies are realised, whereas top executives are frequently insulated from day-to-day operational realities. The functional area composition reflects robust representation from Risk Management (25.90%), Operations and Strategy (24.00%), Finance and Accounting (21.74%), and Compliance and Audit (16.63%), ensuring that the data captures a 360-degree perspective on ERM implementation across organisational silos.

Table 3. Demographic profile of respondents.

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	289	54.63
	Female	240	45.37
	Total	529	100
Age Group	25–34 years	152	28.73
	35–44 years	196	37.05
	45–54 years	122	23.06
	55 years and above	59	11.15
	Total	529	100
Educational Qualification	Bachelor's Degree	173	32.70
	Postgraduate Degree	230	44.99
	Professional Certification	85	16.07
	Others	33	6.24
	Total	529	100
Work Experience	1–5 years	104	19.66
	6–10 years	159	30.06
	11–15 years	141	26.66
	Above 15 years	125	23.62
	Total	529	100
Functional Area	Risk Management	137	25.90
	Finance / Accounting	115	21.74
	Operations / Strategy	127	24.00
	Compliance / Audit	88	16.63
	Other Departments	62	11.72
	Total	529	100.0

Note. n = 529. Percentages are rounded to two decimal places. Source: Field Survey Data (2026).

Descriptive Statistics

Table 4 presents the aggregate descriptive statistics for the three latent constructs engaged by this study. All constructs record minimum and maximum values of 1.00 and 5.00 respectively, confirming that the full span of the five-point Likert scale was utilised and that no systematic floor or ceiling effects are present in the data. Mean scores for all constructs range from 3.512 to 3.847, placing each above the theoretical midpoint of 3.0 and suggesting a generally positive organisational posture across both the focal ERM dimensions and the operational outcome indicators. Risk Culture and Communication records a mean of 3.584 (SD = 0.673) and Risk Response Strategies a mean of 3.512 (SD = 0.688), both below the Operational Performance mean of 3.847 (SD = 0.612), which is the highest value recorded in the table. This pattern is consistent with the item-level evidence that, although the cultural and tactical dimensions of ERM are strongly endorsed, they retain comparatively greater headroom for institutional deepening than the operational outcome domain they are intended to strengthen.

Table 4. Descriptive statistics of latent constructs.

Construct	Mean	SD	Min	Max
Operational Performance (PRE)	3.847	0.612	1.00	5.00
Risk Culture & Communication (RCC)	3.584	0.673	1.00	5.00
Risk Response Strategies (RRS)	3.512	0.688	1.00	5.00

Note. All items measured on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). SD = Standard Deviation. n = 499. Source: Field Survey Data (2026).

Table 5 reports the item-level frequency distribution for the Risk Culture and Communication construct, whose aggregate mean of 4.24 (SD = 0.70) reflects a deeply institutionalised and highly mature risk culture in the sampled organisations. Items measuring open communication about risk (RCC3, Mean = 4.25) and encouragement of risk reporting by employees (RCC1, Mean = 4.28) attract exceptional endorsement, with approximately 90% of respondents agreeing or strongly agreeing. Crucially, the institutional and formal dimensions of risk culture, specifically the systematic provision of risk management training (RCC5, Mean = 4.23; 88.2% positive) and the embedding of risk awareness as a core organisational value (RCC4, Mean = 4.20; 86.6% positive), score equally high. This uniformity demonstrates that the sampled MNCs have successfully bridged the gap between surface-level interpersonal communication and deep-level cultural assumptions: from a social learning theory perspective, the systematic deployment of risk training and clear communication channels confirms that observable risk behaviours are actively transmitted and reinforced across all organisational levels.

Table 5. Frequency distribution – Risk Culture & Communication (RCC).

Code	Item Statement	SD n (%)	D n (%)	U n (%)	A n (%)	SA n (%)	Mean	SD
RCC1	Employees are encouraged to report risk-related issues.	1 (0.2)	8 (1.6)	35 (7.0)	260 (52.1)	195 (39.1)	4.28	0.66
RCC2	Risk responsibilities are clearly communicated across departments.	2 (0.4)	10 (2.0)	42 (8.4)	255 (51.1)	190 (38.1)	4.24	0.70
RCC3	Open communication about risk is promoted within the organisation.	1 (0.2)	9 (1.8)	38 (7.6)	265 (53.1)	186 (37.3)	4.25	0.67
RCC4	Risk awareness is a core part of the organisational culture.	3 (0.6)	14 (2.8)	50 (10.0)	245 (49.1)	187 (37.5)	4.20	0.74
RCC5	Training on risk management is regularly provided to staff.	2 (0.4)	12 (2.4)	45 (9.0)	250 (50.1)	190 (38.1)	4.23	0.71
RCC6	Risk communication channels are effective and reliable.	1 (0.2)	11 (2.2)	40 (8.0)	260 (52.1)	187 (37.5)	4.24	0.69
Total	Construct Aggregate – Risk Culture & Communication	10 (0.3)	64 (2.1)	250 (8.4)	1,535 (51.3)	1,135 (37.9)	4.24	0.70

Note. SD = Strongly Disagree; D = Disagree; U = Undecided; A = Agree; SA = Strongly Agree. Percentages in parentheses. n = 499. Source: Field Survey (2026).

Table 6 presents the item-level frequency distribution for the Risk Response Strategies construct, which operationalises the tactical and dynamic dimension of ERM and records a highly positive aggregate mean of 4.22 (SD = 0.72). The data reflects a highly dynamic and proactive risk

response architecture: the item measuring the organisation's adaptive capacity to emerging risks (RRS5, Mean = 4.20; 87.4% positive) and the regular monitoring of risk treatment strategies (RRS3, Mean = 4.17; 85.4% positive) yield strong endorsement, although these two items register the lowest means within the construct, suggesting that the monitoring and adaptive components of the response architecture lag slightly behind its structural components of protocols (RRS1) and mitigation plans (RRS2). Collectively, these findings demonstrate that the sampled organisations do not merely possess static risk response resources, such as formal protocols and mitigation plans, but actively deploy capabilities to monitor treatments and reconfigure resources in response to evolving risk environments, confirming that ERM implementation in this context is characterised by proactive intelligence and operational execution that effectively mitigates disruptions in real time.

Table 6. Frequency distribution – Risk Response Strategies (RRS).

Code	Item Statement	SD n (%)	D n (%)	U n (%)	A n (%)	SA n (%)	Mean	SD
RRS1	The organisation has clear risk response protocols.	2 (0.4)	10 (2.0)	40 (8.0)	260 (52.1)	187 (37.5)	4.24	0.70
RRS2	Risk mitigation plans are implemented for key identified risks.	1 (0.2)	12 (2.4)	45 (9.0)	255 (51.1)	186 (37.3)	4.23	0.69
RRS3	There is regular monitoring of risk treatment strategies.	3 (0.6)	15 (3.0)	55 (11.0)	245 (49.1)	181 (36.3)	4.17	0.76
RRS4	Risk transfer mechanisms are utilised where appropriate.	2 (0.4)	11 (2.2)	42 (8.4)	250 (50.1)	194 (38.9)	4.25	0.71
RRS5	The organisation adapts quickly to emerging and evolving risks.	1 (0.2)	14 (2.8)	48 (9.6)	255 (51.1)	181 (36.3)	4.20	0.72
Total	Construct Aggregate – Risk Response Strategies	9 (0.4)	62 (2.5)	230 (9.2)	1,265 (50.7)	929 (37.2)	4.22	0.72

Note. SD = Strongly Disagree; D = Disagree; U = Undecided; A = Agree; SA = Strongly Agree. Percentages in parentheses. n = 499. Source: Field Survey (2026).

Because the outcome construct of this study is multidimensional, Tables 7 and 8 provide descriptive depth on two complementary operational performance dimensions as perceived by the same respondents. The Customer Satisfaction construct (Table 7) records an aggregate mean of 4.24 (SD = 0.70), indicating exceptional satisfaction with customer-facing outcomes and a clear recognition of ERM's value: items that specifically attribute customer-facing improvements to ERM implementation, namely CST3 (service delivery improved following ERM implementation, Mean = 4.25; 89.8% positive) and CST5 (ERM reduced service disruptions affecting customers, Mean = 4.20; 87.4% positive), record very high means within the construct. This finding effectively closes the attribution gap, demonstrating that operational staff clearly recognise and validate ERM's direct role in reducing service disruptions and enhancing overall service delivery (Noah, 2025b). The Quality of Output construct (Table 8) records an aggregate mean of 4.22 (SD = 0.71), mirroring the customer satisfaction pattern and reflecting superior attainment of quality benchmarks: items examining the effect of ERM on output reliability (QOO4, Mean = 4.20; 86.6% positive) and the benchmarking of output quality against industry standards (QOO6, Mean = 4.19; 85.8% positive) register high mean scores, confirming that quality management systems and enterprise risk frameworks are deeply integrated in a structural alignment that may be described as a value-realisation synergy, where ERM implementation directly enhances output consistency, minimises defects, and ensures that quality standards are rigorously benchmarked and maintained.

Table 7. Frequency distribution – Customer Satisfaction (CST).

Code	Item Statement	SD n (%)	D n (%)	U n (%)	A n (%)	SA n (%)	Mean	SD
CST1	Products and services consistently meet customer expectations.	1 (0.2)	8 (1.6)	35 (7.0)	265 (53.1)	190 (38.1)	4.27	0.66
CST2	Customer complaints are resolved promptly and satisfactorily.	2 (0.4)	12 (2.4)	42 (8.4)	255 (51.1)	188 (37.7)	4.23	0.71
CST3	Service delivery has improved following ERM implementation.	1 (0.2)	10 (2.0)	40 (8.0)	260 (52.1)	188 (37.7)	4.25	0.68
CST4	Customers rate the organisation's service quality highly.	2 (0.4)	11 (2.2)	38 (7.6)	250 (50.1)	198 (39.7)	4.27	0.70
CST5	ERM practices have reduced service disruptions affecting customers.	1 (0.2)	14 (2.8)	48 (9.6)	255 (51.1)	181 (36.3)	4.20	0.71
CST6	Customer feedback is systematically collected and utilised.	3 (0.6)	13 (2.6)	45 (9.0)	245 (49.1)	193 (38.7)	4.23	0.73
Total	Construct Aggregate – Customer Satisfaction	10 (0.3)	68 (2.3)	248 (8.3)	1,530 (51.1)	1,138 (38.0)	4.24	0.70

Note. SD = Strongly Disagree; D = Disagree; U = Undecided; A = Agree; SA = Strongly Agree. Percentages in parentheses. n = 499. Source: Field Survey (2026).

Table 8. Frequency distribution – Quality of Output (QOO).

Code	Item Statement	SD n (%)	D n (%)	U n (%)	A n (%)	SA n (%)	Mean	SD
QOO1	Products and services consistently meet established quality standards.	1 (0.2)	10 (2.0)	38 (7.6)	260 (52.1)	190 (38.1)	4.26	0.68
QOO2	Defect rates in outputs are systematically minimised.	2 (0.4)	12 (2.4)	42 (8.4)	255 (51.1)	188 (37.7)	4.23	0.71
QOO3	Quality assurance processes are consistently applied across operations.	1 (0.2)	11 (2.2)	40 (8.0)	260 (52.1)	187 (37.5)	4.24	0.68
QOO4	ERM implementation has improved the reliability of organisational output.	3 (0.6)	14 (2.8)	50 (10.0)	245 (49.1)	187 (37.5)	4.20	0.75
QOO5	Quality standards are regularly reviewed and updated.	2 (0.4)	13 (2.6)	45 (9.0)	250 (50.1)	189 (37.9)	4.23	0.72
QOO6	Output quality is benchmarked against recognised industry standards.	1 (0.2)	15 (3.0)	55 (11.0)	240 (48.1)	188 (37.7)	4.19	0.73

Code	Item Statement	SD n (%)	D n (%)	U n (%)	A n (%)	SA n (%)	Mean	SD
Total	Construct Aggregate – Quality of Output	10 (0.3)	75 (2.5)	270 (9.0)	1,510 (50.4)	1,129 (37.7)	4.22	0.71

Note. SD = Strongly Disagree; D = Disagree; U = Undecided; A = Agree; SA = Strongly Agree. Percentages in parentheses. n = 499. Source: Field Survey (2026).

Diagnostic Tests

Prior to inferential statistical analysis, a series of diagnostic assessments were conducted to evaluate the statistical assumptions underlying the PLS-SEM framework, encompassing collinearity among predictor constructs and the stability of the bootstrap distributions. Multicollinearity among the exogenous predictors was assessed using the Variance Inflation Factor (VIF), the standard diagnostic metric in PLS-SEM inner model evaluation. Multicollinearity poses a significant inferential threat because it inflates the standard errors of path coefficient estimates, producing unstable and potentially misinterpreted coefficients (Kock & Lynn, 2012); Hair et al. (2019) recommend a conservative VIF threshold of 3.3 as the maximum tolerable level for PLS-SEM applications. As shown in Table 9, the VIF values are 1.000 for both RCC and RRS, each of which enters its individual structural model as the sole exogenous predictor of Operational Performance; values at this theoretical minimum are comfortably below the threshold and indicate the complete absence of multicollinearity among the predictor constructs.

Table 9. Collinearity statistics – Variance Inflation Factor (VIF).

Predictor Construct	VIF – Individual Model
Risk Culture & Communication (RCC)	1.000
Risk Response Strategies (RRS)	1.000

Note. VIF values below the recommended maximum of 3.3 (Hair et al., 2019) indicate negligible multicollinearity. In the individual bivariate models each focal ERM dimension is the sole exogenous predictor of Operational Performance, and a VIF of 1.000 therefore reflects the absence of any collinearity. Source: SmartPLS 3 output.

4.4 Measurement Model Assessment

The evaluation of the outer (measurement) model is a methodologically mandatory prerequisite in structural equation modelling (Anderson & Gerbing, 1988; Hair et al., 2019). Table 10 presents the outer loadings, outer weights, Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's alpha for the three constructs engaged by this article. Indicator reliability was evaluated through the outer loadings of each observed variable on its assigned latent construct: Hair et al. (2014) stipulate that outer loadings should exceed 0.708 to ensure that the construct accounts for more than 50% of the variance in its corresponding indicators. The results demonstrate robust indicator reliability across all measurement items: outer loadings range from a minimum of 0.721 (RRS1) to a maximum of 0.856 (PRE2), with no indicator falling below the recommended threshold, and the Operational Performance construct exhibits the most uniformly high indicator loadings (0.839–0.856), a pattern consistent with the theoretically well-developed and empirically tested nature of this construct within the operations management and ERM literature.

Table 10. Measurement model – outer loadings, outer weights, AVE, Composite Reliability, and Cronbach's alpha.

Construct / Indicator	Description	Loading	Outer Weight	AVE	CR	α
Operational Performance (PRE)	7-item reflective construct			0.717	0.941	0.928
PRE1	Process optimisation	0.843	0.166			
PRE2	Workflow redundancy	0.856	0.172			
PRE3	Resource allocation	0.848	0.167			
PRE4	Automation	0.850	0.168			
PRE5	SOPs	0.853	0.170			
PRE6	Bottleneck elimination	0.840	0.173			
PRE7	Performance metrics	0.839	0.166			
Risk Culture & Communication (RCC)	6-item reflective construct			0.588	0.894	0.863
RCC1	Reporting encouragement	0.764	0.229			
RCC2	Communication clarity	0.755	0.196			
RCC3	Open communication	0.758	0.209			
RCC4	Cultural embedding	0.726	0.171			
RCC5	Training provision	0.792	0.225			
RCC6	Channel effectiveness	0.814	0.267			
Risk Response Strategies (RRS)	5-item reflective construct			0.557	0.861	0.810
RRS1	Response protocols	0.721	0.277			
RRS2	Mitigation plans	0.758	0.286			
RRS3	Treatment monitoring	0.743	0.278			
RRS4	Risk transfer	0.741	0.260			
RRS5	Adaptive response	0.757	0.244			

Note. PRE = Operational Performance; RCC = Risk Culture & Communication; RRS = Risk Response Strategies. All outer loadings exceed the minimum acceptable threshold of 0.708 (Hair et al., 2014). AVE ≥ 0.500 confirms convergent validity (Fornell & Larcker, 1981). CR and Cronbach's α values ≥ 0.700 confirm composite and internal reliability (Nunnally, 1978). Bolded rows represent construct-level summary statistics. Source: SmartPLS 3 output files.

Internal consistency reliability was assessed using both Cronbach's alpha and Composite Reliability. While Cronbach's alpha assumes equal weighting of all indicators and is acknowledged to be a conservative lower-bound estimator of true reliability (Sijtsma, 2009), Composite Reliability is considered the preferred metric in PLS-SEM because it accounts for the differential outer loadings of the indicators (Hair et al., 2019). Both indices consistently exceed the minimum threshold of 0.70 recommended by Nunnally (1978): Cronbach's alpha ranges from 0.810 (RRS) to 0.928 (PRE), while Composite Reliability ranges from 0.861 (RRS) to 0.941 (PRE). All values fall below the upper ceiling of 0.95 beyond which construct redundancy and lack of item diversity would be suspected (Hair et al., 2019), confirming that the constructs are measured with excellent internal consistency. Convergent validity, evaluated using the Average Variance Extracted, is likewise satisfactory for all three constructs: Operational Performance exhibits the highest AVE of 0.717, followed by Risk

Culture and Communication (0.588) and Risk Response Strategies (0.557), all comfortably above the 0.500 benchmark established by Fornell and Larcker (1981). It is therefore empirically established that each latent construct explains more variance in its assigned indicators than is attributable to measurement error.

Discriminant validity establishes the empirical distinctiveness of the latent constructs, confirming that each construct represents a unique, non-redundant theoretical domain (Henseler et al., 2015). Two complementary approaches were employed: the classical Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio of correlations. Table 11 presents the Fornell-Larcker matrix, in which the diagonal values, representing the square root of AVE for each construct, range from 0.746 (RRS) to 0.847 (PRE). In all cases these diagonal values substantially exceed the highest inter-construct correlation in their respective rows and columns; for instance, PRE exhibits a square root of AVE of 0.847, which exceeds its highest inter-construct correlation of 0.391 (with RCC) by a substantial margin of 0.456; RCC achieves a diagonal value of 0.767 that exceeds all of its off-diagonal correlations; and Risk Response Strategies records a diagonal value of 0.746 that surpasses its correlations with PRE (0.336) and RCC (0.353). These results confirm that each construct shares more variance with its own indicators than with any other construct in the model.

Table 11. Discriminant validity – Fornell-Larcker criterion (square root of AVE on the diagonal).

Construct	PRE	RCC	RRS
Operational Performance (PRE)	0.847		
Risk Culture & Communication (RCC)	0.391	0.767	
Risk Response Strategies (RRS)	0.336	0.353	0.746

Note. Diagonal entries (bold) represent the square root of AVE for each construct; off-diagonal entries are inter-construct Pearson correlations. Discriminant validity is supported when each diagonal value exceeds all corresponding row and column off-diagonal values (Fornell & Larcker, 1981). Source: SmartPLS 3 output.

Table 12 presents the HTMT matrix, a more sensitive and less lenient discriminant validity test than the Fornell-Larcker criterion (Henseler et al., 2015). Problematic discriminant validity is flagged when HTMT values exceed 0.850 (conservative criterion) or 0.900 (lenient criterion for conceptually similar constructs). The maximum HTMT value observed is 0.432, between Operational Performance and Risk Culture and Communication, which is substantially below both thresholds; the remaining HTMT ratios are 0.371 (PRE–RRS) and 0.389 (RCC–RRS), confirming robust empirical distinctiveness across all construct pairings. The notably low HTMT ratios between the two focal ERM dimensions validate the multidimensional conceptualisation of ERM adopted in this study and confirm that respondents cognitively differentiated between the distinct ERM domains. Having established satisfactory indicator reliability, internal consistency reliability, convergent validity, and discriminant validity, the research is fully justified in proceeding to structural model evaluation.

Table 12. Discriminant validity – Heterotrait-Monotrait (HTMT) ratio matrix.

Construct	PRE	RCC	RRS
Operational Performance (PRE)	–		
Risk Culture & Communication (RCC)	0.432	–	
Risk Response Strategies (RRS)	0.371	0.389	–

Note. Off-diagonal entries are HTMT ratios of correlations; discriminant validity is confirmed when all HTMT ratios are < 0.850 (Henseler et al., 2015; Gold et al., 2001). Source: SmartPLS 3 output.

Structural Model Assessment and Hypothesis Testing

The structural (inner) model was assessed using PLS-SEM bootstrapping with 5,000 resamples, as recommended by Hair et al. (2019). Statistical significance is evaluated at the conventional $p < 0.05$

level using two-tailed t-tests, with t-statistics exceeding 1.96 confirming significance. Table 13 presents the complete hypothesis test results for the two individual-model hypotheses. Hypothesis 3 (H3: RCC → Operational Performance) is supported with β = 0.365, M = 0.370, STDEV = 0.036, and t = 10.115 (95% CI: [0.297, 0.439]; R^2 = 0.133). The positive, highly significant effect of RCC on Operational Performance corroborates the theoretical proposition that the cultural and communicative infrastructure of risk management exerts a substantive, independent influence on operational outcomes.

Table 13. Hypothesis testing results – individual models (H3–H4) with bootstrap statistics.

Hypothesis / Path	β (O)	M	STDEV	t-Stat	95% CI [LL, UL]	p-Value	Decision
H3: RCC → Operational Performance	0.365	0.370	0.036	10.115	[0.297, 0.439]	< 0.001	Supported
H4: RRS → Operational Performance	0.314	0.321	0.040	7.931	[0.242, 0.398]	< 0.001	Supported

Note. β (O) = Original sample path coefficient; M = Bootstrap mean; STDEV = Bootstrap standard deviation; t-Stat = |O/STDEV|; 95% CI = Percentile bootstrap confidence interval. All p-values < 0.001. H_0 is rejected when t > 1.96 and the 95% CI excludes zero. Source: SmartPLS 3 bootstrapping output (H3_BOOTSTRAP.xlsx, H4_BOOTSTRAP.xlsx).

Hypothesis 4 (H4: RRS → Operational Performance) confirms a positive and statistically significant effect with β = 0.314, M = 0.321, STDEV = 0.040, and t = 7.931 (95% CI: [0.242, 0.398]; R^2 = 0.099). Although RRS registers the more modest of the two focal path coefficients (consistent with the descriptive finding that tactical execution, while strongly endorsed, is comparatively less institutionally embedded in the sampled context), its t-statistic of 7.931 remains far in excess of the 1.96 threshold, and its 95% CI excludes zero, thereby affording full support for H4. Figures 2 and 3 display the SmartPLS path diagrams for each individual model, showing the standardised path coefficients, R^2 values, and indicator loadings.

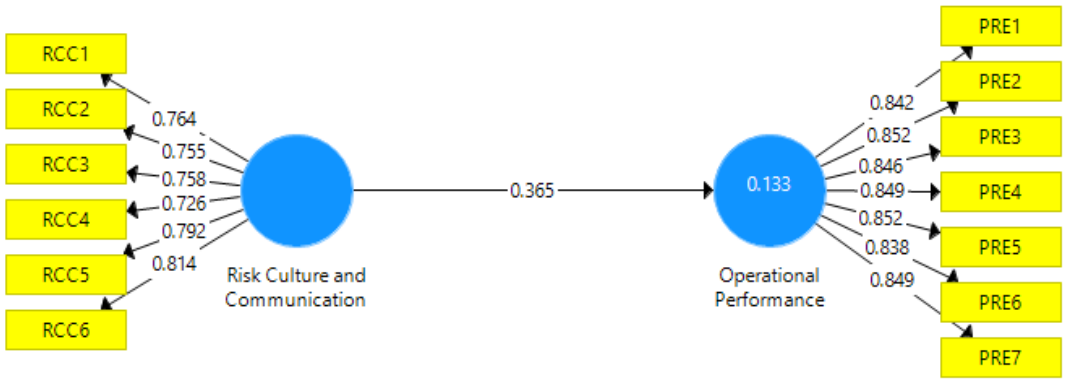

Figure 2. H3 path diagram: Risk Culture & Communication → Operational Performance (β = 0.365, R^2 = 0.133).

Source: SmartPLS 3 output (2026).

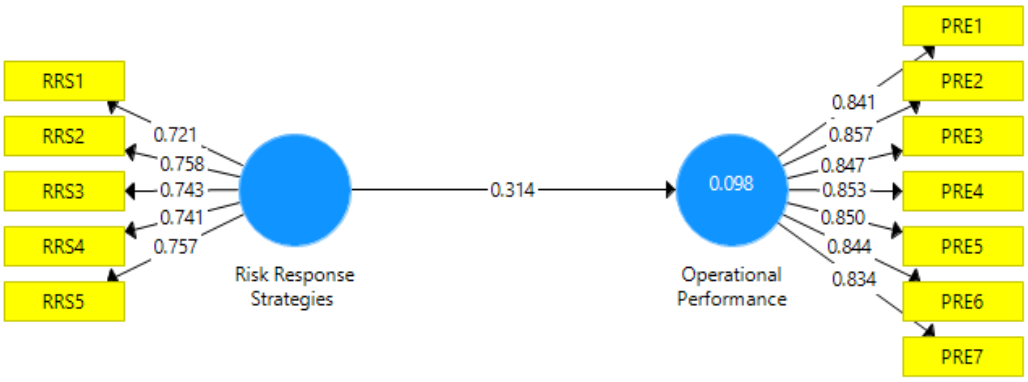

Figure 3. H4 path diagram: Risk Response Strategies → Operational Performance (β = 0.314, R^2 = 0.099).

Source: SmartPLS 3 output (2026).

Table 14 reports the percentile and bias-corrected (BC) bootstrap confidence intervals for the two structural paths. Bias-corrected intervals are considered more conservative and statistically defensible than standard percentile intervals because they correct for any asymmetry in the bootstrap distribution, thereby reducing the risk of Type I error in the presence of distributional skewness (Efron & Tibshirani, 1993; Preacher & Hayes, 2008). All bias values are negligible in magnitude (0.0049 for H3 and 0.0067 for H4), and the minimal discrepancy between the percentile and BC confidence intervals, for instance a difference of merely 0.009 for H3, confirms the near-perfect symmetry of the bootstrap distributions across both paths. The BC intervals remain entirely positive and exclude zero, a necessary and sufficient condition for rejecting the null hypotheses and affirming the direction, magnitude, and significance of each structural relationship, and the remarkable consistency of point estimates and confidence intervals across 5,000 independently drawn bootstrap resamples confirms that the findings are robust to sampling variation.

Table 14. Bootstrap confidence intervals – percentile and bias-corrected (5,000 subsamples).

Hypothesis / Path	β (O)	Bias	Pctile 2.5%	Pctile 97.5%	BC 2.5%	BC 97.5%	R^2	Sig.
H3: RCC → OP (individual)	0.365	0.0049	0.297	0.439	0.288	0.430	0.133	***
H4: RRS → OP (individual)	0.314	0.0067	0.242	0.398	0.230	0.386	0.099	***

Note. β (O) = Original sample coefficient; Bias = Bootstrap mean minus original sample coefficient; Pctile = Percentile CI bounds; BC = Bias-corrected CI bounds. *** $p < 0.001$ (two-tailed). R^2 values reported for the individual-model hypotheses. Source: SmartPLS 3 bootstrapping output.

Table 15 presents the effect sizes (f^2) for the structural paths, providing a scale-independent assessment of the practical significance of each relationship that supplements the statistical significance information provided by t-statistics and confidence intervals. Cohen (1988) established the widely adopted benchmarks of $f^2 \geq 0.02$ (small), $f^2 \geq 0.15$ (medium), and $f^2 \geq 0.35$ (large) for regression-based analyses, benchmarks that Hair et al. (2019) have explicitly extended to PLS-SEM applications. In the individual bivariate models, RCC exerts a medium effect on Operational Performance (f^2 = 0.154) and RRS likewise exerts a medium effect (f^2 = 0.109), indicating that, beyond their statistical significance, both focal dimensions account for meaningful and non-trivial proportions of incremental variance in operational performance; in both statistical and practical terms, therefore, the two focal dimensions exert practically significant contributions to operational performance.

Table 15. Effect size (f^2) for structural paths – individual models.

Path Relationship	f^2 (Individual Model)	Effect (Individual)
RCC → Operational Performance	0.154	Medium
RRS → Operational Performance	0.109	Medium

Note. $f^2 = (R^2\text{included} - R^2\text{excluded}) / (1 - R^2\text{included})$. Effect size classifications: $f^2 \geq 0.02$ = small; $f^2 \geq 0.15$ = medium; $f^2 \geq 0.35$ = large (Cohen, 1988; Hair et al., 2019). Source: SmartPLS 3 effect size output.

Discussion of Findings

Effect of Risk Culture and Communication on Operational Performance

The third specific objective was to examine the effect of strategic risk culture and communication on the operational performance of multinational companies in Nigeria. The null hypothesis (Ho3), which stated that strategic risk culture and communication has no significant effect on operational performance, was rejected. The individual model yielded $\beta = 0.365$, $t = 10.115$, and a 95% bias-corrected confidence interval of [0.288, 0.430], all significant at $p < 0.001$ ($R^2 = 0.133$). With a medium effect size ($f^2 = 0.154$) accompanying the significant path coefficient, the practical significance of this relationship is considerable, positioning risk culture and communication as the behavioural enabler through which formal ERM structures are translated into operational value across the enterprise. The theoretical basis for this finding is grounded in Dynamic Capability Theory (Teece et al., 1997), which identifies the reconfiguration of internal values and norms as a critical dimension of organisational adaptation: risk culture and communication represent the informal institutional infrastructure through which risk management principles are embedded into the daily cognitive and behavioural routines of organisational members, the mechanism through which formal ERM policies become lived organisational realities rather than ceremonial compliance artefacts (Agarwal, 2025).

The empirical literature provides extensive corroboration. Kpodo and Agyekum (2015), studying 19 banks in Ghana representing approximately 70% of the Ghanaian banking industry's market share, found a positive correlation between risk culture and organisational performance, with leadership actions identified as the most critical factor influencing the development of an effective risk culture; this finding resonates with item RCC3 in the present study (open communication about risk is promoted within the organisation), which recorded one of the highest endorsement rates within the RCC construct, suggesting that leadership-driven communication norms are among the more developed aspects of risk culture in the sampled MNCs. Rahim et al. (2024) found that risk culture has a significant direct effect on employee performance, employee satisfaction, and employee engagement, with employee satisfaction mediating the culture-performance relationship; this direct pathway provides a micro-foundational explanation for the macro-level relationship between RCC and operational performance documented here. Bui et al. (2018) established that risk culture was the most important variable predicting firm performance during the dot-com and financial crises, establishing risk culture as a performance differentiator precisely in the high-stress, volatile conditions that characterise the Nigerian business environment, marked by currency crises, infrastructure failures, and regulatory volatility. Tshabalala and Naidoo (2023) demonstrated that a strong strategic risk culture, characterised by transparency, openness to uncertainty, and risk-aware leadership, has a positive impact on both financial and strategic performance outcomes, with internal trust and accountability mediating the relationship. Gumbi and van Wyk (2024) found that effective strategic risk communication contributes to improved safety, decision quality, and operational responsiveness in high-reliability organisations, mirroring the present item-level evidence that interpersonal communication norms (RCC1–RCC3) are somewhat more developed than the deeper institutional anchoring of risk culture (RCC4, RCC5). Collectively, the evidence confirms that strategic risk culture and communication exerts a substantive and practically significant effect on operational performance in Nigerian MNCs, and that risk culture functions not merely as an independent operational driver but as a systemic multiplier whose effectiveness extends across the wider ERM

architecture, consistent with the holistic, integrative conceptualisation of ERM advanced by COSO (2017) and ISO 31000:2018 (ISO, 2018).

Relationship between Risk Response Strategies and Operational Performance

The fourth specific objective was to analyse the relationship between risk response strategies and the operational performance of multinational companies in Nigeria. The null hypothesis (Ho4), which stated that risk response strategies have no significant influence on operational performance, was rejected. The individual model produced $\beta = 0.314$, $t = 7.931$, and a 95% bias-corrected confidence interval of [0.230, 0.386], significant at $p < 0.001$ ($R^2 = 0.099$), with a medium effect size ($f^2 = 0.109$). These estimates indicate that risk response strategies account for a meaningful, albeit comparatively modest, share of the variance in operational performance, reflecting the descriptive finding that tactical risk response execution, while strongly endorsed, is somewhat less institutionally embedded in the sampled MNCs, with the adaptive (RRS5) and monitoring (RRS3) components trailing the protocol (RRS1) and mitigation-planning (RRS2) components.

The theoretical basis for this finding is grounded in the Eclectic Paradigm (Dunning, 1979), which establishes that MNCs' superior performance in host-country environments is contingent on their possession of ownership-specific advantages, in this case, the institutional capacity to execute structured risk response mechanisms in a timely and contextually appropriate manner. In the Nigerian environment, characterised by regulatory volatility, currency risk, infrastructural fragility, and supply chain disruptions, the ability to swiftly avoid, mitigate, transfer, or accept risks represents a critical operational differentiator. Dynamic Capability Theory further contextualises the relationship: risk response strategies operationalise the seizing and reconfiguring capabilities described by Teece et al. (1997), enabling organisations to mobilise resources in direct response to identified threats and thereby maintain operational continuity. The empirical evidence provides robust multi-sector and multi-country support. Sibanda and Molefe (2023) found that risk mitigation and avoidance strategies have the most significant positive impact on operational performance in high-complexity manufacturing environments, while risk acceptance showed a negligible or even negative association, aligning with the COSO principle that response selection should follow careful cost-benefit analysis aligned with the organisation's risk appetite (Moeller, 2007), a principle that becomes particularly consequential in Nigeria's high-risk environment. Daniels and Mthethwa (2024) distinguished proactive from reactive responses, finding that prevention and contingency planning significantly enhance operational efficiency by reducing service disruptions and optimising resource allocation, whereas reactive strategies are associated with higher costs and lower process stability; this distinction is critical for interpreting the present finding that the sampled MNCs' response architecture is tilted toward formal protocol development and plan formation, while the proactive, adaptive, and monitoring dimensions remain comparatively underdeveloped. Gatehi et al. (2025) reported that risk mitigation accounts for 82.5% of the variation in financial performance among Kenyan county governments ($r = 0.730$), and Biira et al. (2020) found a significant positive relationship between risk avoidance strategies and organisational performance ($r = 0.689$) in a multinational setting that shares many of the institutional challenges of the Nigerian environment. Ochola and Nyamita (2022) and Thuku and Muchemi (2021) likewise confirmed the performance significance of risk avoidance and risk transfer strategies, respectively. A further implication follows from the theoretical synthesis: risk response strategies are likely to be most powerful when supported by complementary ERM capabilities, including strategic integration, governance oversight, and a supportive risk culture, a synergistic logic consistent with the proposition that the whole is greater than the sum of its parts in ERM implementation.

Conclusion and Recommendations

Conclusion

This study examined the effect of strategic risk culture and communication, and the relationship between risk response strategies, on the operational performance of listed multinational companies in South-West Nigeria, using PLS-SEM on a usable sample of 499 senior and middle management

respondents drawn from ten listed MNCs across banking, manufacturing, and telecommunications. The measurement model demonstrated excellent psychometric properties, with all outer loadings exceeding 0.708, AVE values above 0.500, Composite Reliability above 0.861, and discriminant validity confirmed through both the Fornell-Larcker criterion and HTMT ratios. Two clear conclusions follow from the structural results. First, strategic risk culture and communication exerts a statistically significant, positive effect on operational performance ($\beta = 0.365$, $t = 10.115$, $p < 0.001$, $R^2 = 0.133$, $f^2 = 0.154$), confirming that organisational culture and communication channels are critical enablers of ERM effectiveness that convert formal risk structures into lived operational practice. Second, risk response strategies exhibit a statistically significant, positive relationship with operational performance ($\beta = 0.314$, $t = 7.931$, $p < 0.001$, $R^2 = 0.099$, $f^2 = 0.109$), though with the more modest explanatory power of the two focal paths, indicating that response strategies alone are insufficient without complementary reinforcement from the cultural and communicative infrastructure of ERM; the prevailing reliance on static, protocol-heavy frameworks must evolve into dynamic, intelligence-led adaptation to survive Nigeria's macroeconomic volatility. Descriptively, the sampled MNCs exhibit mature surface-level risk communication and well-developed response protocols, while the deeper institutional embedding of risk awareness and the proactive monitoring and adaptive components of the response architecture remain areas for development.

Recommendations

Based on the empirical findings and theoretical synthesis, the following evidence-based recommendations are directed at corporate boards, executive management, and risk practitioners of multinational companies in Nigeria.

First, MNCs must invest in moving beyond surface-level risk communication to achieve structural cultural embedding: this requires the development of role-specific risk competency programmes, the integration of risk-awareness metrics into annual performance appraisals, and the formal recognition of proactive risk-reporting behaviours; establishing risk culture champions within operational departments will help decentralise risk ownership and align it with daily operational routines.

Second, MNCs must urgently upgrade their risk response architectures from static, annual risk registers to continuous, real-time monitoring systems: investments should be directed toward integrated risk dashboards, automated early-warning systems, and pre-agreed contingency protocols tailored to Nigeria-specific macro-risks such as currency devaluation, supply chain disruptions, and power grid failures, with risk response effectiveness tracked via agile key performance indicators such as mean-time-to-risk-detection and risk treatment closure rates (Alli & Ganiyu, 2021).

Contributions, Limitations and Future Research

Theoretically, this study extends ERM literature beyond financial performance to operational resilience by conceptualising risk culture and communication and risk response strategies as firm-specific capabilities within an integrated Resource-Based View and Dynamic Capabilities framework, thereby repositioning ERM from a compliance-oriented framework to a value-creating operational resource, and by documenting the multiplier role of risk culture within the ERM architecture. Empirically, it offers scarce evidence from multinational companies in South-West Nigeria, an emerging market context that is under-researched, and its focus on operational rather than aggregate financial outcomes fills a significant gap, as operational measures are key drivers of competitiveness and long-term sustainability. Methodologically, the validated measurement scales provide a replicable foundation for further empirical investigations in similar institutional environments. The study is nonetheless subject to limitations that contextualise its findings: the reliance on cross-sectional survey data captures a snapshot of ERM maturity at a single point in time and cannot definitively prove longitudinal causality; the geographical and sectoral confinement to South-West Nigerian MNCs across banking, manufacturing, and telecommunications limits immediate generalisability to other geopolitical zones and institutional profiles; and the self-reported perceptual data reflect managerial perceptions rather than objective archival operational records, so the potential for social desirability bias or common method variance cannot be entirely eliminated. Future research should therefore employ longitudinal designs to track the temporal evolution of ERM maturity and its cumulative

impact on operational performance trajectories; replicate the four-dimensional ERM model in other emerging markets such as Kenya, South Africa, Ghana, or Vietnam to isolate which ERM dimensions are universally effective and which are contingent upon national institutional voids and cultural dimensions; integrate mediating mechanisms such as employee satisfaction and engagement, whose mediating role is implied by the evidence of Rahim et al. (2024); and pursue qualitative investigation of the attribution gap regarding customer satisfaction and output quality to explore the internal communication failures and cognitive barriers that prevent operational staff from linking risk management to value creation.

References

Abdulmalik, M. R. (2023). Macroeconomic factors and profitability: A study of selected multinational food and beverages companies in Nigeria. *European Journal of Business and Innovation Research, 11*(2), 15–30.

Adeyemi, S. B., & Fagbemi, T. O. (2010). Audit quality, corporate governance and firm characteristics in Nigeria. *International Journal of Business and Management, 5*(5), 169–179.

Agarwal, R. (2025). Enterprise risk management (ERM) adoption in developing and developed markets: A comparative study. *Journal of Accounting & Organizational Change, 21*(1), 169-188.

Aguguom, T. A., Ashamu, S. O., & Olanipekun, E. (2022). Multinationality and financial performance: The place of multinational manufacturing companies in Nigeria. *Universal Journal of Accounting and Finance, 10*(2), 538–548.

Aina, J. (2025). Digital transformation in life insurance marketing: examining new age advertisement strategies adoption in Nigeria's insurance sector. *JABU International Journal of Social and Management Sciences, 9*(2), 53-66.

Aladejebi, O. (2020). 21st century challenges confronting women entrepreneurs in Southwest Nigeria. *Archives of Business Research, 8*(3), 261–280.

Alli, N. (2025, August). Customer-centric innovation and competitive advantage in the insurance sector. Preprint.

Alli, N. G. (2026). Marketing Intensity And Financial Performance Of Listed Insurance Companies: An Ex Post Facto Analysis. *Management and Marketing Journal, 24*(1), 103-129.

Alli, N. G., & Ganiyu, K. (2021). Knowledge, attitude and perception of artificial intelligence and its application in the key operations of insurance in Nigeria. *Nigerian Journal of Risk and Insurance, 11*(1), 1-19.

Alli, N. G., & Ganiyu, K. (2025). Empowering insurance consumers in Nigeria: exploring the interplay between financial literacy, trust, and decision-making. *The Journal of Risk Management and Insurance, 29*(1), 17-46.

Al-Nimer, M., Abbadi, S. S., Al-Omush, A., & Ahmad, H. (2021). Risk management practices and firm performance with a mediating role of business model innovation: Observations from Jordan. *Journal of Risk and Financial Management, 14*(3), 113.

Altuntas, M., Berry-Stölzle, T. R., & Cummins, J. D. (2021). Enterprise risk management and economies of scale and scope: Evidence from the German insurance industry. *Annals of Operations Research, 299*(1), 811–845.

Altuntas, M., Berry-Stölzle, T. R., & Hoyt, R. E. (2020). Enterprise risk management adoption and managerial incentives. *Journal of Insurance Issues, 43*(2), 1–42.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411–423.

Anton, S. G., & Nucu, A. E. A. (2020). Enterprise risk management: A literature review and meta-analysis. *Journal of Risk and Financial Management, 13*(11), 281–307. https://doi.org/10.3390/jrfm13110281

Arena, M., Arnaboldi, M., & Palermo, T. (2022). The dynamics of (dis)integrated risk management: A comparative field study. *Accounting, Organizations and Society, 95,* 101237. https://doi.org/10.1016/j.aos.2021.101237

Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human Relations, 61*(8), 1139–1160.

Beasley, M. S., Branson, B. C., & Hancock, B. V. (2019). The state of risk oversight: An overview of enterprise risk management practices (10th ed.). North Carolina State University, Poole College of Management.

Biira, B., Tukei, M., & Mboma, F. (2020). Effect of risk management strategies on organizational performance: Evidence from Uganda's manufacturing sector. *International Journal of Business and Management Review, 8*(5), 13–26.

Bui, T., Fang, W., & Lin, C. (2018). The impact of enterprise risk management on firm performance: Evidence from the U.S. financial sector. *Journal of Risk and Financial Management, 11*(2), 35–49.

Cecilia, T., & Anne, M. (2021). Risk transfer mechanisms and performance of insurance companies in Kenya. *International Journal of Finance and Accounting, 10*(2), 28–41.

Chukwu, D. E., Ifeoma, M., & Okeke, S. (2025). Navigating uncertainty: The impact of risk culture on manufacturing performance in North-Central Nigeria. *Journal of Risk and Financial Management, 18*(1), 1–18.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates.

COSO. (2004). Enterprise risk management: Integrated framework. Committee of Sponsoring Organizations of the Treadway Commission. https://www.coso.org

COSO. (2017). Enterprise risk management: Integrating with strategy and performance. Committee of Sponsoring Organizations of the Treadway Commission. https://www.coso.org

Damian Ezechi, C. P., Efanga, U. O., Ihemeje, J. C., Anochie, U. C., Orji, C. P., Egberongbe, T. T., & Takon, S. M. (2025). Navigating uncertainty: The impact of risk culture on manufacturing performance in North-Central Nigeria. *Nsukka Journal of the Humanities, 33*(1).

Daniels, R., & Mthethwa, P. (2024). Evaluating the impact of proactive and reactive risk responses on operational efficiency. *Journal of Operations Management, 42*(1), 54–73.

Deloitte. (2023). The future of risk: New game, new rules. https://www2.deloitte.com/global/en/pages/risk/articles/future-of-risk.html

Dunning, J. H. (1979). Explaining changing patterns of international production: In defence of the eclectic theory. *Oxford Bulletin of Economics and Statistics, 41*(4), 269–295.

Eastman, E. M., & Xu, J. (2021). Market reactions to enterprise risk management adoption, incorporation by rating agencies, and ORSA Act passage. *Risk Management and Insurance Review, 24*(2), 151–180.

Efron, B., & Tibshirani, R. J. (1993). An introduction to the bootstrap. Chapman & Hall.

Fadun, O. S. (2013). Promoting 'enterprise risk management' adoption in business enterprises: Implications and challenges. *International Journal of Business and Management Invention, 2*(1), 69–78.

Farrell, M., & Gallagher, R. (2019). Moderating influences on the ERM maturity–performance relationship. *Research in International Business and Finance, 47,* 616–628.

Field, A. (2018). Discovering statistics using IBM SPSS statistics (5th ed.). Sage Publications.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.

Fraser, J. R. S., & Simkins, B. J. (2010). Enterprise risk management: Today's leading research and best practices for tomorrow's executives. John Wiley & Sons.

Gatehi, D., Matanda, J., & Odhiambo, R. (2025). Enterprise risk management adoption and firm performance among insurance firms in Kenya. *African Journal of Business and Economic Research, 20*(1), 145–162.

GBenga, A. N. (2024). Business risk management ideology and entrepreneurial development of students in tertiary institutions in Southwestern, Nigeria. *Journal of Technology Management and Business, 11*(1), 32-48.

Gold, A. H., Malhotra, A., & Segars, A. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems, 18*(1), 185–214.

Gumbi, S., & van Wyk, R. (2024). The role of strategic risk communication in enhancing performance outcomes: Insights from high-reliability organizations. *Journal of Business Communication, 61*(2), 201–225.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). A primer on partial least squares structural equation modeling (PLS-SEM). Sage Publications.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.

Hoyt, R. E., & Liebenberg, A. P. (2011). The value of enterprise risk management. *Journal of Risk and Insurance, 78*(4), 795–822.

Hoyt, R. E., & Liebenberg, A. P. (2025). Enterprise risk management and firm value: New evidence from insurance companies. *Journal of Risk and Insurance, 92*(1), 45–72.

ISO. (2018). ISO 31000:2018, Risk management: Guidelines. International Organization for Standardization.

Israel, G. D. (2013). Determining sample size. University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS. https://edis.ifas.ufl.edu

Jaber, M., & Shah, M. (2024). Enterprise risk management in volatile business environments: A strategic necessity for multinational corporations. *International Business Review, 33*(2), 102–119.

Jurdi, D. J., & AlGhnaimat, B. (2020). Enterprise risk management maturity and firm value: Evidence from insurance companies. *Risk Management and Insurance Review, 23*(2), 113–136.

Jurdi, D. J., & AlGhnaimat, S. M. (2021). The effects of ERM adoption on European insurance firms performance and risks. *Journal of Risk and Financial Management, 14*(11), 554.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263–292.

Kanu, S. I. (2022). Risk culture and strategic planning roles on enterprise risk management and firm performance in selected African countries. *Journal of Risk and Financial Management, 15*(7), 1–19.

Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard: Measures that drive performance. *Harvard Business Review, 70*(1), 71–79.

Khan, M. J., Hussain, D., & Mehmood, W. (2016). Why do firms adopt enterprise risk management (ERM)? Empirical evidence from France. *Management Decision, 54*(8), 1886-1907.

Klumpes, P. J. M. (2025). Enterprise Risk Management Adoption Practices by US and European Multinationals. *Accounting and Auditing, 1*(1), 5.

Kock, N., & Lynn, G. S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems, 13*(7), 546–580.

Kpodo, B., & Agyekum, K. (2015). The effect of enterprise risk management on performance of insurance companies in Ghana. *International Journal of Business and Social Research, 5*(2), 37–43.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610.

Moeller, R. R. (2007). COSO enterprise risk management: Understanding the new integrated ERM framework. John Wiley & Sons.

Mumassabba, S., Mukulu, E., & Atikiya, R. (2022). Enterprise risk management practices and organizational performance: Evidence from public enterprises in Kenya. *Journal of Economics and Business Research, 28*(2), 72–89.

Noah, A. (2025a). An Integrated Risk Sciences Framework for Food Security in Nigeria: Interplay of Risk Assessment, Mitigation Strategies, and Behavioral Factors. Preprint.

Noah, A. (2025b). Operational Risk and its Influence on Passenger Satisfaction in Airport Services. Ege Üniversitesi Ulaştırma Yönetimi Araştırmaları Dergisi, 2(1), 1-29.

Nunnally, J. C. (1978). Psychometric theory (2nd ed.). McGraw-Hill.

Ochola, S., & Nyamita, M. O. (2022). Enterprise risk management and organizational performance of state-owned enterprises in Kenya. *African Journal of Accounting, Auditing and Finance, 11*(1), 101–118.

Oludare, J. K., Oladeji, O. S., Adeyemi, K., & Otokiti, B. (2023). Thematic analysis of knowledge management practices and performance of multinational manufacturing firms in Nigeria. *International Journal of Management and Organizational Research, 2*(1), 51-67.

Osamor, I., Omoregbee, G., & Olugbenga, A. (2023). Effects of thin capitalization on the financial performance of multinational companies in Nigeria. *Iranian Journal of Accounting, Auditing and Finance, 7*(2), 99-110.

Pagach, D., & Warr, R. (2011). The characteristics of firms that hire chief risk officers. *Journal of Risk and Insurance, 78*(1), 211–234.

Polit, D. F., & Beck, C. T. (2006). Essentials of nursing research: Methods, appraisal, and utilization (6th ed.). Lippincott Williams & Wilkins.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891.

Rahim, R., Rosid, M., & Hasan, M. (2024). Risk culture and operational performance in the post-pandemic insurance industry: Evidence from Southeast Asia. *Asian Economic and Financial Review, 14*(3), 256–274.

Rasedi, G., & Sibindi, A. B. (2023). Enterprise risk management and organizational resilience: The strategic and cultural dimensions. *African Journal of Risk Management, 6*(1), 44–62.

Sibanda, M., & Molefe, T. (2023). Risk response strategies and operational performance: A sectoral analysis of manufacturing firms. *Journal of Risk Management in Financial Institutions, 16*(2), 122–141.

Sijtsma, K. (2009). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. *Psychometrika, 74*(1), 107–120.

Stefán, H. (2023). Enterprise risk management in emerging markets: Operational efficiency and competitive advantage. *Journal of Emerging Market Finance, 22*(1), 45–67.

Tabachnick, B. G., & Fidell, L. S. (2013). Using multivariate statistics (6th ed.). Pearson.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533.

Tekathen, M., & Dechow, N. (2020). Semantic narrowing in risk talk: The prevalence of communicative path dependency. *Management Accounting Research, 48,* 100692.

Thuku, J., & Muchemi, A. (2021). Influence of risk management strategies on financial performance of microfinance institutions in Nyeri County, Kenya. *International Journal of Finance and Accounting, 6*(2), 45–54.

Togok, S. H., Isa, C. R., & Zainuddin, S. (2016). Enterprise risk management adoption in Malaysia: A disclosure approach. *Asian Journal of Business and Accounting, 9*(1), 83-104.

Tola, A. (2022). Enterprise risk management and stock return volatility: Evidence from European firms. *Journal of Financial Risk Management, 11*(2), 89–110.

Tshabalala, M., & Naidoo, V. (2023). Strategic risk culture and organizational performance: A behavioral perspective. *South African Journal of Business Management, 54*(3), 1–16.