RISK MANAGEMENT AND BUSINESS SUSTAINABILITY OF COMMERCIAL BANKS IN RIVERS STATE, NIGERIA

NSE Oluwole Johnson, Prof. (Mrs.) A.E**. BESTMAN** and **IKOROMASOMA,** E**.** *PhD*
Rivers State University Port Harcourt
Department of Office and Information Management
Email: nse.oluwole-johnson@ust.edu.ng

ABSTRACT

This study examined the relationship between risk management and business sustainability in commercial banks in Rivers State, Nigeria. Employing a comprehensive census methodology, the study population encompassed twenty-six commercial banking establishments, with data collected from 104 senior managerial personnel through systematic purposive sampling techniques. The quasi-experimental research design, situated within the quantitative paradigm, facilitated rigorous examination of relationships through both descriptive and inferential statistical procedures. The analytical framework tested three discrete null hypotheses, all of which were rejected based on compelling statistical evidence demonstrating significant positive associations between risk management and business sustainability measures. Risk management exhibited strong significant positive correlations with customers satisfaction, profitability and service quality. These findings provide empirical validation for the theoretical proposition that risk management constitute fundamental determinants of sustainable business performance within Nigeria's commercial banks. Therefore, we recommended that the risk management be implemented by banking institutions as the evidenced from this study have showed strong positive and significant relationship between risk management and the measures of business sustainability outcomes.

Keywords: Risk Management, Business Sustainability, Commercial Banks, Customers Satisfaction, Profitability & Service Quality

INTRODUCTION

The contemporary financial services landscape is characterized by an increasingly complex risk environment, wherein commercial banks must navigate multifaceted challenges that threaten their operational continuity and long-term sustainability (Deloitte, 2024). Risk management, conceptualized as the systematic identification, assessment, monitoring, and control of potential threats to an organization's capital and earnings, has evolved beyond traditional credit and liquidity concerns to encompass comprehensive strategic information security frameworks (Central Bank of Nigeria [CBN], 2024). This paradigmatic shift reflects the recognition that modern banking institutions operate within an interconnected digital ecosystem where information security risks constitute fundamental threats to business sustainability and operational resilience. Stoneburner, Goguen and Feringa (2022) define risk management as the process of identifying, assessing, and reducing risk to an acceptable level and implementing the right mechanisms to maintain that level of risk.

Business sustainability in the banking context refers to an institution's capacity to maintain competitive advantage, generate consistent returns to stakeholders, and contribute positively to economic development while adhering to environmental, social, and governance (ESG) principles over extended time horizons (Johnson & Adeyemi, 2024). The integration of ESG principles integration are clear: enhanced risk management, improved stakeholder relations, innovation, and access to capital/investment, indicating the symbiotic relationship between sustainability frameworks and risk mitigation strategies. This conceptualization encompasses financial sustainability, measured through profitability ratios, capital adequacy, and asset quality indicators;

operational sustainability, evaluated via efficiency metrics and process optimization; environmental sustainability, incorporating green financing initiatives and climate risk considerations; and social sustainability, encompassing community development contributions and stakeholder value creation (Ogundimu & Peters, 2024).

Recent statistics from the Nigeria Inter-Bank Settlement System (NIBSS) indicate a substantial increase in electronic banking transactions, with an estimated 87% of banking operations now conducted through digital channels (Emmanuel & Christopher, 2023). This digital transformation, while beneficial for operational efficiency and customer convenience, has expanded the attack surface for cyber threats. The Central Bank of Nigeria reported that Nigerian banks lost approximately ₦15 billion to cyber-related frauds between 2020 and 2022, highlighting the critical need for enhanced information security measures (Olowookere & Adewale, 2023). The regulatory environment in Nigeria has also evolved to address these challenges. The Central Bank of Nigeria has implemented various guidelines and frameworks for cybersecurity in the banking sector, including the Risk-Based Cybersecurity Framework and Guidelines for Deposit Money Banks and Payment Service Providers (Emmanuel & Christopher, 2023). These regulations have necessitated significant investments in information security infrastructure and personnel, impacting the operational costs and strategic planning of commercial banks in Rivers State. Moreover, the interconnected nature of banking operations means that security vulnerabilities in one institution can have ripple effects across the entire financial system. This systemic risk has elevated information security from an operational concern to a strategic imperative that directly influences business sustainability (Olowookere & Adewale, 2023). Banks must now consider information security as an integral component of their business strategy rather than merely a compliance requirement. Despite the growing recognition of risk management's strategic importance in banking operations, there remains a significant gap in empirical research examining the specific relationship between risk management and business sustainability outcomes in Nigerian commercial banks in Rivers State, Nigeria. This study therefore seeks to address these research gaps by examining the relationship between risk management and business sustainability in Rivers State, Nigeria

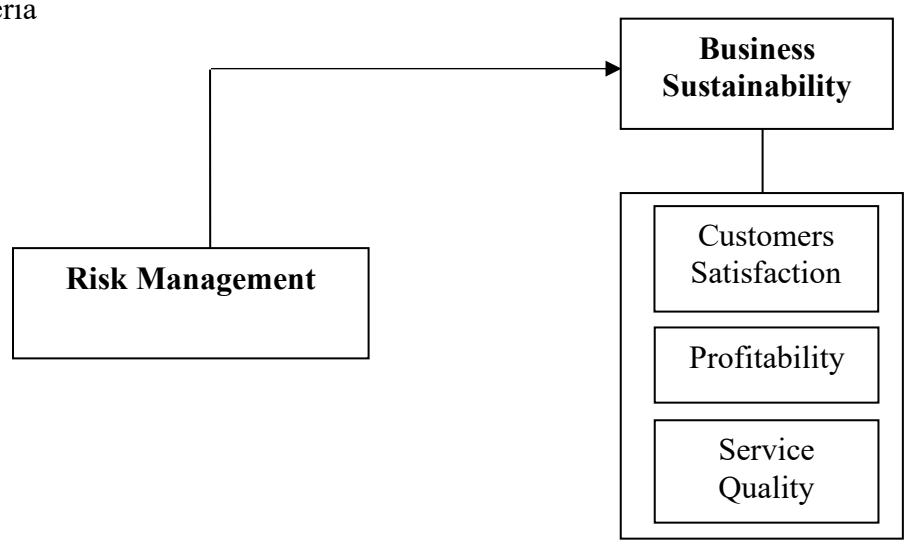

Figure 1: Conceptual framework for risk management and business sustainability

Research Questions

1. What extent does risk management relate to business sustainability of commercial banks in Rivers State, Nigeria?

Research Hypotheses

$H_{01:}$ There is no significant relationship between risk management and customers satisfaction of commercial banks in Rivers State, Nigeria

H_{02}: There is no significant relationship between risk management and profitability of commercial banks in Rivers State, Nigeria

H_{03}: There is no significant relationship between risk management and service quality of commercial banks in Rivers State, Nigeria

II REVIEW LITERATURE

Theoretical Foundation

Resource-Based Theory

The Resource-Based View (RBV) theory, pioneered by Wernerfelt (1984) and further developed by Barney (1991), has emerged as a fundamental theoretical framework in strategic management, particularly relevant to understanding how organizations achieve sustainable competitive advantage through their unique resources and capabilities. The theory posits that firms can attain and maintain competitive advantage by effectively leveraging their valuable, rare, inimitable, and non-substitutable (VRIN) resources (Barney, 1991). In the context of information security and business sustainability, RBV provides a robust theoretical foundation for examining how organizations can develop and deploy their security resources and capabilities to create sustainable business value. Penrose (1959), often credited with laying the groundwork for RBV, conceptualized firms as collections of productive resources, arguing that these resources and how they are utilized determine organizational performance and growth.

Risk Management: Risk management in the domain of strategic information security has evolved significantly over recent decades, reflecting the increasingly complex threat landscape organizations face in protecting their digital assets. Risk management within information security has been approached from various theoretical perspectives. Stoneburner, Goguen and Feringa (2022) define risk management as the process of identifying, assessing, and reducing risk to an acceptable level and implementing the right mechanisms to maintain that level of risk. This definition emphasizes risk management as a continuous process rather than a discrete event, highlighting the dynamic nature of security threats in contemporary digital environments. Building on this process-oriented approach, Straub and Welke (2021) defined risk management as the systematic application of management policies, procedures, and practices to the tasks of establishing the context, identifying, analyzing, evaluating, treating, monitoring, and communicating risk. Their definition acknowledges the organizational embeddedness of risk

management practices and the critical importance of communication channels in effective implementation.

Furthermore, the integration of risk management within broader organizational strategy has been emphasized by several scholars. Aven (2023) argues that risk management constitutes a comprehensive strategic framework that enables organizations to identify potential events that may affect the entity, manage the associated risks within its risk appetite, and provide reasonable assurance regarding the achievement of entity objectives. This conceptualization situates risk management as inherently strategic, aligning security practices with organizational goals. Similarly, Haimes and Yacov (2024) define risk management as a methodical approach to setting the best course of action under uncertainty by identifying, assessing, understanding, making decisions on, and communicating risk issues. Their definition emphasizes decision-making under conditions of uncertainty, a common characteristic of information security environments where threat actors continuously evolve their tactics. Also, Shedden, Ahmad, Smith and Tscherning (2022) define information security risk management as the totality of coordinated activities that direct and control an organization with regard to risk to its information assets. This definition focuses the centrality of information assets as the objects of protection within a risk management framework. Expanding on this asset-focused perspective, Fenz, Heurix, Neubauer and Pechstein (2021) conceptualize information security risk management as the continuous process of identifying, assessing, and responding to risk in accordance with organizational risk acceptance criteria, considering the potential impact on confidentiality, integrity, and availability of information assets. This explicitly incorporates the CIA triad (confidentiality, integrity, availability) that forms the foundation of information security objectives. Whitman and Mattord (2023), define it as the holistic and ongoing process through which organizations systematically address information security risks to achieve strategic objectives while protecting valuable information assets from a multiplicity of threats. This establishes a clear connection between risk management activities and organizational strategy. Webb, Ahmad, Maynard and Shanks (2024) further develop this strategic orientation, arguing that information security risk management constitutes a systematically structured approach to identifying, evaluating, and mitigating risks to information systems, enabling organizations to strike an optimal balance between realizing opportunities for gain and minimizing vulnerabilities. Their definition acknowledges the inherent tension between security imperatives and operational flexibility.

Recent scholars have increasingly emphasized the socio-technical perspective of information security risk management. Siponen and Willison (2022) define it as a context-sensitive process that integrates technical controls with organizational culture, human behaviour, and governance structures to comprehensively address uncertainties in the protection of information assets. This conceptualization highlights the interplay between technical and human factors in effective risk management. Similarly, Cram, D'Arcy and Proudfoot (2021) characterize information security risk management as the ongoing socio-technical process through which an organization identifies, analyzes, responds to, and monitors information security risks within a complex ecosystem of technological, human, and environmental factors. Their definition acknowledges the ecosystem perspective, recognizing that organizational boundaries in information security have become increasingly permeable. The integration of emerging technologies into risk management frameworks has catalyzed new definitional approaches. Singh and Margetts (2022) define information security risk management as an adaptive, intelligence-driven process that leverages

data analytics, artificial intelligence, and human expertise to anticipate, evaluate, and respond to evolving threats across interconnected digital ecosystems. This technology-enhanced perspective emphasizes proactive threat intelligence rather than merely reactive security measures. Extending this forward-looking approach, Chen and Vishwanath (2024) conceptualize information security risk management as the continuous cycle of identifying, assessing, and mitigating information security risks through both predictive analytics and established security frameworks to maintain organizational resilience against evolving cyber threats. Their position explicitly incorporates the concept of organizational resilience, reflecting a shift from prevention-focused to resilience-oriented security paradigms.

The increasing threat to organization information assets required effective rules compliance that regulate and guide against system vulnerability. In view of this the regulatory and compliance perspective, Karanja and Rosso (2023) define risk management as the structured approach to managing information security risks that satisfies both organizational objectives and external regulatory requirements through systematic identification, assessment, mitigation, and monitoring processes. This acknowledges the increasing influence of regulatory frameworks on organizational risk management practices. Similarly, Baskerville, Spagnoletti and Kim (2021) characterize information security risk management as the governance-aligned process through which organizations systematically evaluate information security threats and vulnerabilities against a backdrop of regulatory requirements, industry standards, and organizational risk tolerance. Drawing on these diverse scholarly perspectives, a synthesized definition of risk management in the context of strategic information security emerges. Therefore, in this study, we *defined risk management as the continuous, adaptive, and holistic process through which organizations systematically identify, assess, mitigate, and monitor potential threats to information assets, aligning technical controls, human factors, and governance structures to achieve an optimal balance between security imperatives and strategic objectives within the constraints of organizational risk tolerance and regulatory requirements.*

Business Sustainability: The construct of business sustainability emerged from broader discourses on sustainable development, which the Brundtland Commission defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). The translation of this macro-level concept to organizational contexts has generated considerable scholarly debate. Dyllick and Hockerts (2002) conceptualized corporate sustainability as meeting the needs of direct and indirect stakeholders without compromising the ability to meet future stakeholders' needs, thereby establishing the triple bottom line framework of economic, environmental, and social performance as fundamental dimensions of business sustainability. In the banking sector specifically, Jeucken (2010) argues that sustainability encompasses the provision of financial products and services that integrate ecological and social criteria into business operations while ensuring long-term profitability. This perspective emphasizes the dual role of banks as both practitioners of sustainability through their internal operations and as facilitators of sustainability through their lending and investment decisions. Scholtens (2009) extends this conceptualization by suggesting that banks' sustainability performance should be evaluated through their integration of social, ethical, and environmental aspects into policies and practices, their environmental management systems, and their responsible financial products.

Contemporary scholars have increasingly emphasized the strategic nature of sustainability in banking. Forcadell et al. (2022) define sustainable banking as the strategic integration of environmental, social, and governance (ESG) factors into core business processes, risk management frameworks, and stakeholder engagement practices. Their empirical investigation of European banks demonstrates that sustainability initiatives positively influence financial performance through enhanced reputation, stakeholder trust, and operational efficiency. Similarly, Wu and Shen (2023) characterize banking sustainability as a dynamic capability that enables financial institutions to simultaneously create economic value while addressing environmental degradation and social inequalities through innovative product offerings and responsible corporate governance. The concept of sustainable banking has been further refined through the lens of stakeholder theory. According to Nizam et al. (2019), banking sustainability represents a multidimensional construct that balances the interests of diverse stakeholders, including shareholders, depositors, borrowers, employees, regulators, communities, and the natural environment. This stakeholder-oriented conceptualization emphasizes the importance of transparent governance structures, ethical lending practices, and community investment initiatives in achieving sustainable outcomes. Weber (2021) reinforces this perspective by arguing that sustainable banks must develop robust stakeholder engagement mechanisms that facilitate continuous dialogue and collaborative problem-solving with diverse constituent groups.

Customers' Satisfaction: Customer satisfaction is a critical determinant of success in the increasingly competitive commercial banking industry. It represents a multifaceted construct that continues to evolve in all sectors of the economy. Khan and Fasih (2021) define customer satisfaction as a cumulative evaluation of a customer's purchasing and consumption experience with a bank's services over time. This perspective emphasizes the longitudinal nature of satisfaction formation rather than viewing it as a transaction-specific outcome. Similarly, Zhang et al. (2023) characterize customer satisfaction as the fulfillment response to the perceived gap between expectations and actual performance of banking services.

The expectancy-disconfirmation paradigm remains influential in conceptualizing customer satisfaction in banking contexts. According to Mbama and Ezepue (2022), satisfaction occurs when banking service performance matches or exceeds customer expectations, resulting in positive disconfirmation. This underscores the relational dynamics between expectations and perceived performance, where satisfaction emerges from favourable discrepancies. Extending this view, Hassan and Kashif (2020) propose that customer satisfaction in banking represents a positive affective state resulting from the evaluation of all aspects of a banking relationship, thereby incorporating both cognitive assessments and emotional reactions. Furthermore, the multidimensional nature of customer satisfaction in banking receives considerable attention in contemporary research. Olorunniwo and Maxwell (2024) define it as a customer's overall assessment of the extent to which banking services fulfill their utilitarian and hedonic needs. This conceptualization acknowledges that satisfaction stems from both functional benefits and experiential aspects. Building on this multidimensional perspective, Chen and Wilson (2022) describe customer satisfaction as the cumulative effect of service performance across multiple touchpoints throughout the banking customer journey.

Profitability: Profitability represents a fundamental metric for evaluating financial performance across all commercial entities, particularly within the banking sector where it serves as a critical

indicator of sustainable operations and economic viability. Berger and Bouwman (2023) define profitability as the financial outcome resulting from the effective deployment of assets to generate income in excess of associated operational and financial expenditures. This emphasizes the efficient utilization of capital resources as the fundamental driver of banking profitability. Expanding upon this perspective, Athanasoglou et al. (2021) conceptualize profitability as the resultant financial performance derived from operational effectiveness, strategic positioning, and optimal asset-liability management within competitive banking markets. The technical measurement of profitability within banking studies has traditionally employed various accounting-based metrics. According to Khan and Waheed (2022), profitability in commercial banking encompasses the capacity to generate sustainable returns as measured through standardized financial ratios including return on assets (ROA), return on equity (ROE), and net interest margin (NIM). This accounting-centric approach provides quantifiable parameters for comparative analysis across institutions and temporal periods. Conversely, Demirgüç-Kunt and Huizinga (2024) adopt a more market-oriented definition, characterizing profitability as the banking institution's ability to generate economic value that exceeds its cost of capital, thereby incorporating market-based performance indicators alongside traditional accounting metrics.

Service Quality: The conceptualization of service quality has undergone substantial evolution since its academic inception. Grönroos (1984) pioneered the formal theorization of service quality, proposing a dichotomous model distinguishing between technical quality (what is delivered) and functional quality (how it is delivered). This foundational conceptualization recognized the intrinsically subjective nature of service quality assessments, establishing that customer perceptions were central to quality determinations. Within the banking context, Grönroos's framework illuminated the importance of both outcome-based criteria and process-based criteria in shaping customer evaluations of service encounters. Parasuraman et al. (1985) significantly advanced the theoretical understanding of service quality through their seminal work developing the SERVQUAL framework, which conceptualized service quality as the discrepancy between customer expectations and perceptions across five dimensions: reliability, assurance, tangibles, empathy, and responsiveness. Defining service quality as the global judgment or attitude relating to the overall excellence or superiority of the service. Their work established the predominant paradigm through which service quality has been operationalized in subsequent banking studies (Khan & Fasih, 2014; Petnji Yaya et al., 2021). The SERVQUAL framework's enduring influence in commercial banking research demonstrates its conceptual robustness despite critiques regarding its contextual applicability across diverse service environments.

METHODS

The study adopted the quasi-experimental research design; taking cognizance of the cross-sectional approach. This approach is relevant where a study focuses on population that shares homogenous characteristics. Population of the study comprised of 26 commercial banks in Rivers State, Nigeria. Using a census approach the entire population was studied. However, sampling elements for the study were used from the study population as the study respondents comprises of four senior management staff of the banks which include: Branch Manager, Marketing Manager, IT Manager, and Customers service manager across the twenty-six (26) commercial banks in Rivers State, Nigeria, making the study sampling elements to be one hundred and four (104). The questionnaire was distributed to the respondents based on the study sample size of which 90 copies was retrieved and used for the study analysis. Descriptive statistics were also applied on a 4-point

Likert Scale. The hypotheses were tested using Spearman Rank Order Correlation Coefficient statistics and result presented through the Statistical package for social science (SPSS) version 23.0 to find the relationship between risk management and business sustainability of commercial banks in Rivers State, Nigeria.

Table 1: Descriptive Statistics for Risk Management

	N	Minimum	Maximum	Mean	Std. Deviation
To what extent do comprehensive risk management frameworks implemented by commercial banks influence customer satisfaction levels?	90	1	4	3.58	.703
To what extent does the sophistication and comprehensiveness of risk management systems implemented by commercial banks correlate with long-term profitability indicators, considering both direct cost implications of risk mitigation measures and indirect b	90	1	4	3.67	.703
To what extent do integrated risk management practices within commercial banks enhance service quality dimensions, particularly focusing on reliability, responsiveness, and security assurance, and how do these improvements manifest in measurable service d	90	1	4	3.52	.824
To what extent do commercial banks that demonstrate superior risk management capabilities simultaneously achieve enhanced performance across customer satisfaction, profitability, and service quality metrics?	90	1	4	3.59	.777
Valid N (listwise)	90				

Source: Field Data Report, 2025; SPSS 23.0

Table 1 presents the descriptive statistical analysis of risk management, operationalized through a four-item scale utilizing a four-point Likert response format. The distributional characteristics of respondent ratings demonstrated consistently elevated mean scores across all measurement items. Specifically, item one yielded a mean score of M = 3.54 (SD = 0.703), while item two recorded the highest central tendency with M = 3.67 (SD = 0.703). Item three exhibited a mean score of M = 3.52 (SD = 0.824), and item four demonstrated M = 3.59 (SD = 0.777). The observed standard deviations, ranging from 0.703 to 0.824, indicate relatively low variability in responses, suggesting moderate consensus among respondents regarding risk management practices. The concentration of responses within the upper quartile of the measurement scale (ranging from 3.52 to 3.67 on a four-point scale) provides empirical evidence of high perceived prevalence of risk management implementation among the surveyed population. These statistical findings substantiate the proposition that risk management constitutes a salient organizational phenomenon within the operational framework of strategic information security practices among commercial banking institutions in Rivers State, Nigeria. The consistently high mean values across all measurement dimensions suggest that risk management has achieved institutional salience as a critical component of information security governance within this specific banking sector context.

Table 2: Descriptive Statistics for Customers Satisfaction

	N	Minimum	Maximum	Mean	Std. Deviation
To what extent do you believe that your bank's risk management practices (including fraud detection systems, credit risk assessment procedures, and operational risk controls) contribute to your overall satisfaction with the banking services provided, and	90	1	4	3.59	.733
To what extent are you satisfied with the technology protection measures implemented by your bank (such as multi-factor authentication, encryption protocols, cybersecurity frameworks, and data privacy safeguards), and how do these technological safeguards	90	1	4	3.58	.618
To what extent do you believe that the integrated approach of risk management, technology protection, and system integrity collectively enhances your satisfaction as a banking customer, and how significantly does this comprehensive framework influence you	90	1	4	3.72	.687
To what extent do you experience satisfaction with your bank's system integrity performance (including system uptime, transaction processing accuracy, data consistency, and platform reliability), and how does the perceived robustness of these systems infl	90	1	4	3.62	.773
Valid N (listwise)	90				

Source: Field Data Report, 2025; SPSS 23.0

Table 2 presents the descriptive statistical analysis of customer satisfaction constructs, operationalized through a four-item measurement instrument utilizing a four-point Likert scale (1 = very low extent, 4 = very high extent). The psychometric properties of the customer satisfaction scale demonstrated consistently elevated central tendency measures across all observed variables. Specifically, the first item yielded a mean score of M = 3.59 (SD = 0.733), indicating above-average satisfaction levels with moderate variability in responses. The second item exhibited a comparable mean of M = 3.58 (SD = 0.618), demonstrating slightly reduced response variance. The third item achieved the highest mean value of M = 3.72 (SD = 0.687), suggesting particularly favorable customer perceptions within this dimension. The fourth item recorded a mean of M = 3.62 (SD = 0.773), displaying the greatest response variability among the measured constructs. The distribution of responses demonstrated a pronounced positive skew, with the preponderance of participant responses clustering within the upper quartiles of the measurement scale. This distributional pattern suggests that customer satisfaction represents a statistically significant construct within the operational framework of commercial banking institutions in Rivers State, Nigeria. The observed central tendency measures, consistently exceeding the theoretical midpoint of 3.0, provide empirical evidence supporting the hypothesis that customer satisfaction constitutes a critical determinant of business sustainability within the regional banking sector. These findings contribute to the theoretical understanding of customer satisfaction as a multidimensional construct and its empirical relationship with organizational sustainability metrics in developing market economies. The relatively low standard deviations across all measured items suggest convergent validity among respondents, indicating reliable measurement of the underlying satisfaction construct.

Table 3: Descriptive Statistics for Profitability

	N	Minimum	Maximum	Mean	Std. Deviation
To what extent do you perceive that comprehensive risk management frameworks implemented within your commercial bank have contributed to sustained profitability over the past three fiscal years, considering factors such as credit risk mitigation, operation	90	1	4	3.81	.517
To what extent has your institution's investment in cybersecurity infrastructure, data protection protocols, and technology risk management systems enhanced profitability through reduced operational losses, improved customer confidence, and competitive ad	90	1	4	3.62	.696
To what extent do you believe that maintaining high levels of system integrity, including core banking system reliability, transaction processing accuracy, and data consistency protocols, has directly influenced your bank's ability to generate sustainable	90	1	4	3.53	.782
To what extent has the implementation of an integrated framework that simultaneously addresses risk management protocols, technology protection measures, and system integrity standards resulted in optimized profitability metrics, including return on asset	90	1	4	3.64	.708
Valid N (listwise)	90				

Source: Field Data Report, 2025; SPSS 23.0; SPSS 23.0

Table 3 presents the descriptive statistical analysis of the profitability construct, operationalized through a four-item Likert-type scale employing a four-point response format. The distributional characteristics of the profitability indicators demonstrate consistently elevated central tendencies across all measurement items. The first indicator yielded a mean score of M = 3.81 (SD = 0.517), representing the highest observed central tendency within the construct. The second indicator demonstrated a mean value of M = 3.62 (SD = 0.696), while the third indicator exhibited a mean of M = 3.53 (SD = 0.782). The fourth indicator registered a mean score of M = 3.64 (SD = 0.708). The observed standard deviations across all four indicators suggest moderate variability in respondent perceptions, with coefficients of variation ranging from 13.5% to 22.1%, indicating reasonable consensus among participants regarding profitability assessments. The consistently high mean values, all exceeding the theoretical midpoint of 2.5 on the four-point scale, provide empirical evidence of respondents' predominantly positive evaluations of profitability dimensions. The distributional analysis reveals a pronounced positive skewness in responses, with the majority of observations clustering within the upper quartiles of the measurement scale. This pattern of response distribution suggests that profitability emerges as a salient and empirically substantiated construct within the broader framework of business sustainability among commercial banking institutions in Rivers State, Nigeria. The convergent evidence from all four measurement indicators supports the theoretical proposition that profitability constitutes a critical determinant in the operational sustainability paradigm of the examined financial institutions.

Table 4: Descriptive Statistics for Service Quality

	N	Minimum	Maximum	Mean	Std. Deviation
To what extent do you perceive that your bank's comprehensive risk management frameworks (including operational, credit, market, and liquidity risk mitigation strategies) enhance the overall quality of banking services delivered to customers?	90	1	4	3.67	.703
To what extent do you believe that your bank's technological protection mechanisms (encompassing cybersecurity protocols, data encryption systems, fraud detection algorithms, and digital infrastructure resilience measures) contribute to superior service q	90	1	4	3.76	.567
To what extent do you consider that your bank's system integrity protocols (including data accuracy verification, transaction processing controls, audit trail maintenance, and regulatory compliance monitoring) strengthen service quality dimensions such as	90	1	4	3.64	.659
To what extent do you perceive that the synergistic integration of risk management practices, technology protection systems, and system integrity controls within your bank creates a comprehensive service quality framework that enhances customer satisfaction	90	1	4	3.63	.726
Valid N (listwise)	90				

Source: Field Data Report, 2025; SPSS 23.0

Table 4 presents the descriptive statistics for the service quality construct, operationalized through a four-item measurement scale utilizing a four-point Likert-type response format. The distribution of responses across the four measurement items demonstrated consistently elevated mean scores, with Item 1 yielding M = 3.67 (SD = 0.703), Item 2 producing M = 3.76 (SD = 0.567), Item 3 generating M = 3.64 (SD = 0.659), and Item 4 recording M = 3.63 (SD = 0.726).The observed standard deviations, ranging from 0.567 to 0.726, indicate moderate variability around the respective means, suggesting reasonable dispersion in respondent perceptions while maintaining central tendency toward the upper quartile of the measurement scale. The concentration of responses within the higher range of the four-point continuum provides empirical evidence of positively skewed distributions across all service quality indicators. These findings substantiate the salience of service quality as a critical construct within the theoretical framework examining business sustainability among commercial banking institutions in Rivers State, Nigeria. The consistently elevated mean scores across all measurement items suggest that service quality emerges as a statistically and substantively significant phenomenon warranting further analytical consideration in the broader context of organizational sustainability within the Nigerian banking sector.

Table 5: Correlations Matrix of Risk Management and Business Sustainability Indicators

			Risk Management	Customers Satisfaction	Profitability	Service Quality
Spearman's rho	Risk Management	Correlation Coefficient	1.000	.956**	.985**	.949**
		Sig. (2-tailed)	.	.000	.000	.000
		N	90	90	90	90
	Customers Satisfaction	Correlation Coefficient	.956**	1.000	.966**	.911**
		Sig. (2-tailed)	.000	.	.000	.000
		N	90	90	90	90
	Profitability	Correlation Coefficient	.985**	.966**	1.000	.937**
		Sig. (2-tailed)	.000	.000	.	.000
		N	90	90	90	90
	Service Quality	Correlation Coefficient	.949**	.911**	.937**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	90	90	90	90

**. Correlation is significant at the 0.01 level (2-tailed).

Ho_1: There is no significant relationship between risk management and customers satisfaction of commercial banks in Rivers State, Nigeria

The empirical analysis presented in Table 5 demonstrates the bivariate relationship between risk management implementation and customer satisfaction utilizing Spearman's rank-order correlation coefficient methodology. The statistical examination revealed a substantially robust positive correlation between the constructs under investigation ($\rho = 0.956$, $p < 0.001$, $\alpha = 0.05$). Given that the computed p-value falls significantly below the predetermined significance threshold, the null hypothesis is formally rejected at the 5% level of significance. Consequently, the alternative hypothesis is accepted, establishing that a statistically significant and highly positive correlation exists between risk management practices and customer satisfaction among commercial banking institutions in Rivers State, Nigeria

Ho_2: There is no significant relationship between risk management and profitability of commercial banks in Rivers State, Nigeria

The correlational analysis documented in Table 5 examined the association between risk management implementation and organizational profitability employing Spearman's rank-order correlation statistical procedure. The empirical findings demonstrate an exceptionally strong positive correlation between risk management practices and profitability metrics ($\rho = 0.985$, $p < 0.001$, $\alpha = 0.05$). The statistical significance of this relationship, evidenced by the p-value substantially below the critical threshold of 0.05, necessitates the rejection of the null hypothesis. Therefore, the study concludes that a statistically significant and remarkably strong positive relationship exists between risk management implementation and profitability performance among commercial banks operating in Rivers State, Nigeria.

Ho_3: There is no significant relationship between risk management and service quality of commercial banks in Rivers State, Nigeria

The statistical analysis presented in Table 5 investigated the relationship between risk management practices and service quality dimensions through the application of Spearman's rank-order correlation coefficient. The empirical results indicate a highly significant positive correlation between the examined variables ($\rho = 0.949$, $p < 0.001$, $\alpha = 0.05$). The statistical evidence, characterized by a p-value considerably below the established significance level of 0.05, provides compelling grounds for rejecting the null hypothesis. Accordingly, the study establishes that a statistically significant and substantially positive relationship exists between risk management practices and service quality delivery among commercial banking institutions in Rivers State, Nigeria.

The comprehensive statistical analysis reveals consistently strong positive correlations across all three hypothesized relationships, as follows:

i. The statistical examination revealed a significantly robust positive correlation between risk management and customers satisfaction ($\rho = 0.956$, $p < 0.001$, $\alpha = 0.05$).

ii. The empirical findings demonstrate strong positive correlation between risk management practices and profitability metrics ($\rho = 0.985$, $p < 0.001$, $\alpha = 0.05$).

iii. The empirical results indicate a significant positive correlation between risk management implementation and service quality ($\rho = 0.949$, $p < 0.001$, $\alpha = 0.05$).

CONCLUSION

The empirical investigation has validated the theoretical premise that risk management constitute indispensable determinants of business sustainability in commercial banks in Rivers State, Nigeria. The convergent evidence from this comprehensive examination demonstrates that risk management form a robust predictor constellation that significantly influences business sustainability outcomes. The exceptionally high correlation coefficients observed across all tested relationships provide compelling evidence of the criticality of these security construct in contemporary banking operations. The study's findings challenge the traditional dichotomous conceptualization of security as merely a cost center, instead of positioning it as a strategic enabler of sustainable competitive advantage. The robust empirical relationships established between risk management and customer satisfaction, profitability, and service quality metrics provide substantive evidence for the business value proposition of comprehensive security investments within the financial services sector.

RECOMMENDATIONS

i.) Organizations should therefore establish dedicated risk management units with direct reporting lines to executive leadership, ensuring that risk considerations are embedded within strategic decision-making processes rather than treated as peripheral compliance activities.

ii.) Organizations should develop risk management protocols that explicitly consider customer experience implications, implementing feedback mechanisms that capture customer perceptions of organizational reliability and stability.

iii.) Organizations should establish quality assurance frameworks that are fundamentally grounded in risk management principles. This involves developing service delivery protocols that proactively identify and mitigate potential service disruptions, implementing redundancy systems for critical service components, and establishing continuous monitoring mechanisms that detect quality degradation before customer impact occurs.

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