

Original Research Article

Analyzing Financial Risk Management Practices in Small and Medium Enterprises: A Focus on Risk Identification and Mitigation

Abstract

Exposure to financial risks has made many Small and Medium Scale Enterprise vulnerable to financial instability and operational disruptions. Failure to effectively manage the risks have always resulted in unexpected losses, cash flow problems, and reduced that threaten SME sustenance. Hence, this study examined techniques for identifying, assessing and mitigating financial risk management in Small and Medium Enterprises. Cross-sectional survey strategy was implemented on a sample size of 120 SMEs purposively selected from Nigeria. Four-point Likert-scale questionnaire was used in gathering the primary data used in the study. The research questions were analysed using descriptive tools whereas the hypotheses were tested using Kendall Tua correlation. The findings revealed that SMEs in Nigeria significantly deploy financial audits, SWOT and PESTLE analyses, KPIs, and risk mapping for identifying financial risks, and such usage significantly improves financial risk identification at 5% level. Risk assessment tools such as risk scoring, sensitivity analysis, stress testing, and scenario analysis are also extensively utilized, and such usage significantly improves financial risk assessment at 5% level. Additionally, mitigation strategies such as collaboration networks, diversification, stakeholder management, and internal control oversight are effectively employed to manage and reduce financial risks in SMEs at 5% significance level. In conclusion, the adoption of these financial risk management practices positions SMEs to better manage potential financial challenges and reduces their vulnerability to economic disruptions. The study recommends that SME owners and financial managers should mandate regular reviews and updates to keep financial risk identification tools aligned with shifting market dynamics and financial domain to ensure that their financial risk identification practices remain proactive and responsive to emerging risks.

Keywords: Financial Risk Management, Financial Risk Identification, Financial Risk Assessment, Financial Risk Mitigation

1.0 Introduction

SMEs are burdened with peculiar vulnerabilities that palpably affect continuity and growth prospects in the complex and turbulent present business environment. These companies, representing a tectonic portion of the global economy, are usually prone to financial risks threatening their operational viability [1]. The financial risk management of SMEs is considerably important within the contextual setting, characterized by limited resources, market exposure, and increased sensitivity to economic fluctuations [2]. This essentially makes financial risk management a prime factor that can enable these firms to survive and perform

well in the competitive marketplace, such as Nigeria. SMEs in Nigeria face significant financial risks that threaten their sustainability and growth [3]. These risks include liquidity challenges, high-interest rates, exchange rate volatility, and limited access to financing, which collectively create a precarious operating environment. For instance, a substantial portion of SMEs struggles to secure loans due to stringent collateral requirements and unfavorable lending conditions [31], forcing many to rely on self-funding. This lack of financial resources hampers their ability to invest in growth opportunities and manage day-to-day operations effectively. Consequently, the pervasive nature of these financial risks not only undermines the profitability of SMEs but also endangers their long-term viability, highlighting the urgent need for improved financial risk management strategies within this critical sector of the Nigerian economy [1].

According to Ezekiel, Olufemi, and Olayinka [3], effective management of financial risks has been one of the most significant issues in contemporary times. The external environment wherein small and medium enterprises operate is ever-changing; fast-moving, volatile, with uncertain economic trends, shifting regulatory requirements, and rapid technological developments mark this era [4]. This could be in the form of financial loss due to unexpected market decline, supply chain disruption, or changes in consumer behavior. Of course, this necessitates sound financial risk management practices. Strong risk management enables the SMEs to make informed decisions, optimize the use of scarce resources, and protect their financial well-being [5]. Besides, proactive management of financial risks increases the resilience of these enterprises, boosts investor confidence in them, and is one way of ensuring better access to capital. In this competitive environment, where SMEs have to innovate and adapt constantly, the adept handling of financial risk acts as their critical determinant of success.

Risk management in finance involves practices that describe the identification, assessment, and mitigation of risks that could negatively impact an organization's financial performance [6-7]. Financial risks come in multiple forms that involve market risk, credit risk, liquidity risk, and operational risk. It involves the systematic assessment, in this view, of all possible risks; thereafter, strategies that can mitigate such risks are adopted, with regular monitoring to ensure that those strategies remain effective [8]. Several techniques and a host of frameworks promote a systematic approach towards the identification, evaluation, and mitigation of financial risk in SMEs [1]. The identification of financial risks for SMEs can be facilitated by the use of financial audits, SWOT and PESTLE matrices, key performance indicators, and risk mapping. Financial audits provide hint into the veracity and reliability of financial statements, while SWOT and PESTLE analyses enable the organization to understand both its internal and external environment. KPIs are quantifiable indicators that reveal the performance of an SME with regard to financial health, and through KPIs, top management will be in a position to monitor business performances and take action toward mitigating foreseen risks in advance. Risk mapping pictorially depicts the probability and impact of the identified risks, giving a better overview of the risk profile [9].

After identifying the risks, it is of essence that one determines the potential impact of the same, through a framework called risk assessment [10-11]. Some of the possible techniques that could be used to take the financial risk properly include risk scoring and ranking, sensitivity analysis, stress testing, and scenario analysis. Risk scoring and ranking identify the prioritization of identified risks based on likelihood and potential impact and allow SMEs to focus and channel

their resources on the most significant threats [12]. Sensitivity analysis reflects the changes that might occur in key variables, which, in turn, affect financial outcomes by providing ways to understand the vulnerabilities of the business model. Stress testing simulates extreme but plausible scenarios to test the resilience of SMEs under adverse conditions, while scenario analysis allows the organization to consider various future scenarios, project their implications for financial performance, and develop appropriate action plans according to the projected scenario [13]. These valuation methods enable the SME to gain a better vision of its risk exposure and, thus, make better-informed decisions for its mitigation or evasion of loss [11].

Financial risk mitigation in SMEs encapsulates a broad range of strategies to be proactive in adoption within the enterprise [14]. Such collaboration and networking with the stakeholders can further spread its risk-sharing capability, accessing additional resources and expertise [5]. It can also be achieved through diversification into a wide range of products or new markets to decrease the dependency on one source, spreading the financial risk into multiple areas. By managing the stakeholders well, there is good relations between investors, suppliers, and customers; thus, when there is a financial problem, it will be easy to handle. Besides, robust internal control mechanisms ensure that financial practices are transparent and accountable, which prohibits the possibility of financial mismanagement or fraud. These strategies incorporated into the financial risk management frameworks of SMEs would result in more resilience and adaptability, hence positioning them for continued growth and success.

However, despite the fact that financial risk management can reap many advantages, most of these enterprises cannot set up appropriate risk management [15]. For a lot of reasons, ranging from scarce resources and lack of expertise to poor knowledge about the tools at their disposal, identification and proper evaluation of financial risks turn out to be an activity far beyond their reach. SMEs mostly fall into the use of informal or ad-hoc methods for managing risks. As a result of this, such businesses can miss important risks or make underestimations of their impacts, which leaves them so vulnerable to financial instability and operational disruptions [16-17]. The impact of poor financial risk management can be extreme, leading to serious consequences for the SME. If financial risks are not identified or assessed, this situation may result in unexpected losses, cash flow problems, and reduced profitability. Moreover, the incapacity to mitigate financial risks will finally undermine stakeholders' confidence and further limit access to capital, hindering long-term growth prospects for companies. In extreme cases, the SMEs might go into insolvency or closure due to their inability to cope with financial pressure. Not only will a lack of effective risk management compromise the sustainability of individual enterprises, but this situation also has wider implications: SMEs are typically a key driver in many countries for innovation, job creation, and economic development. For that reason, an improvement in financial risk management practices among SMEs is essential to their resilience and, by extension, their contributions to the economy.

1.1 Objectives of the Study

The main aim of the study is to examine techniques for identifying, assessing and mitigating financial risk management in Small and Medium Enterprises. The specific objectives are as follows:

- 1) To ascertain the extent to which financial audit, SWOT and PESTLE matrix, key performance indicators, and risk mapping are deployed to identify financial risks in SMEs.

- 2) To determine the degree to which risk scoring and ranking, sensitivity analysis, stress testing, and scenario analysis are deployed to assess financial risks in SMEs.
- 3) To examine the magnitude to which network of collaboration, diversification, stakeholder management and internal control oversight are used to mitigate financial risks in SMEs.

1.2 Research Questions

- 1) To what extent are financial audit, SWOT and PESTLE matrix, key performance indicators, and risk mapping deployed to identify financial risks in SMEs?
- 2) To what degree are risk scoring and ranking, sensitivity analysis, stress testing, and scenario analysis deployed to assess financial risks in SMEs?
- 3) To what magnitude are network of collaboration, diversification, stakeholder management and internal control oversight used to mitigate financial risks in SMEs?

2.0 Literature Review

2.1 Conceptual Clarifications

2.1.1 Application of Financial Audit, SWOT and PESTLE Matrix, Key Performance Indicators, and Risk Mapping for Financial Risk Identification in SMEs

Identification of financial risk within a small and medium-sized enterprise is a significant procedure that allows an organization to disclose the potential threats to its financial well-being [17]. For such purposes, the most applicable tool will be the financial audit. A financial audit can be described as the methodical process of performing an investigation of the financial statements and related operations of an institution in relation to whether those statements are presented in a proper manner and follow standards already set [18]. With such audits, SMEs will be able to discover inconsistencies, inadequacies, or misstatements in their financial reporting, thus being assured of specific areas where financial risks could emanate from. In this regard, a proactive approach not only assists in the detection of potential financial pitfalls but also serves to enhance overall financial transparency and accountability.

The SWOT analysis, together with financial audits, is a very useful tool in the identification of risks. In strategic planning, this enables the SMEs to take into consideration internal and external factors that could impact on financial stability. In providing an assessment of strengths and weaknesses, enterprises are able to identify inherent vulnerabilities that expose them to financial risk. In tandem, the analysis of opportunities and threats allows SMEs to understand external market conditions, dynamics of competitors, and changes in regulations that may place them in financial distress. In this regard, SWOT analysis acts as an extended mechanism through which identification of financial risk factors is possible, sometimes even when not readily apparent [19].

The PESTLE matrix, on its part, enriches this process of financial risk identification: Political, Economic, Social, Technological, Legal, and Environmental. The tool, by nature, allows SMEs

to systematically study the broader, relevant macro-environmental elements that may affect its financial performance. SMEs will, therefore, be better informed of possible risks from these external factors through the analysis of political stability, economic trends, social dynamics, technology trends, legal and regulatory requirements, and concerns for environmental protection. For instance, changes in the regulatory policy or economic decline obviously carry serious consequences for financial planning and risk exposure. Therefore, the PESTLE matrix gives a wide view of the external environment in which SMEs are able to realize financial risks from the environment [19].

Another requirement for identifying financial risk in SMEs is key performance indicators. These are measurable variables through which an organization is able to observe or monitor its financial performance for the period under consideration [20]. Setting specific KPIs relevant to their industry can help SMEs indicate various trends in their financial data that may point to potential risks. For instance, declining profit margins, increasing debt-to-equity ratio, and poor cash flow management may indicate impending financial troubles. Observations of such KPIs at regular intervals may provide early warning signs of financial crisis and thus would enable timely interventions and risk management strategies.

Risk mapping is also an important technique for visualization and grasping the financial risks an SME is likely to face [9]. This process involves the realization of a diagram with identified risks plotted against a matrix, considering likelihood of occurrence and potential impact on the organization. The risks so categorized may then be treated according to priority and resources allocated accordingly by the SMEs. It offers not only wider visibility to the potential financial threats but also forms a very valid basis for the creation of risk management strategies in the specific context in which each SME finds themselves situated.

2.1.2 Applying Risk Scoring and Ranking, Sensitivity Analysis, Stress Testing, and Scenario Analysis to Financial Risk Assessment in SMEs

Risk assessment is one of the important aspects of financial risk management in SMEs; it allows them to assess the probability and possible impact of the identified financial risks [17]. Among the primary methods used in this regard, risk scoring and ranking come first. This is a technique of assigning numbers against various risks based on the severity and likelihood of their occurrence. In this way, quantified risks give SMEs the opportunity to establish some priorities that point out which the immediate financial threats are, and which can be continuously monitored [12]. This due process allows an organization to better concentrate its resources and establish special strategies to cope with big risks standing in the way of their financial stability.

Besides risk scoring, another important technique supporting the assessment of financial risks in SMEs is sensitivity analysis. It is a method of analysis that ascertains the sensitivity of a change in key financial variables-interest rates, sales volume, or costs-on the overall financial performance of an organization [21]. Sensitivity analysis scenario modeling can enable SMEs to determine those factors that most affect their financial outcomes. For instance, a small firm may conduct sensitivity analysis to determine how changes in raw material costs can affect profitability. This information turns into gold when one has to make informed decisions about

pricing, budgeting, and investment strategies that would eventually help SMEs get through uncertainties and build financial resilience.

Another useful financial risk assessment arsenal would be that of stress testing. It is an analytical method for determining how an SME would fare when its finances are highly distressed under conditions of extreme but very plausible adverse conditions [22]. A business may, for instance, run stress tests on the sudden shrinkage of the economy, the loss of a major client, or a sudden increase in operational costs. By comprehending how such stressors can affect their financial position, a small and medium enterprise will be in a position to notice defects within its financial structure and make contingency plans to cushion it from the impact of such economic factors. Stress testing not only serves to assess the present financial condition but also builds a forward-looking perspective toward preparation for future uncertainties [22].

Scenario analysis is an extension of these assessment techniques, which allows SMEs to consider a range of possible future states based on variations in assumptions and conditions [11]. This approach therefore encompasses the development of multiple hypothetical scenarios representing variant external factors, such as market demand, regulatory environment, or competitive pressures. In analyzing how each of these scenarios may affect their financial performances, SMEs gain helpful knowledge on possible risks and opportunities [13]. Such foresight makes an organization capable of making strategic plans for various eventualities, thereby being highly responsive and strong in dynamic business situations.

Therefore, risk scoring and ranking, sensitivity analysis, stress testing, and scenario analysis are some of the assessment techniques that then go together to provide a strong framework for the evaluation of financial risks in SMEs. Such techniques offer systematic identification, quantification, and simulation of threats that give an enabling environment for informed decisions aimed at enhancing financial stability and sustainability within an organization. Efficient risk assessment will not only protect the SME from unexpected trials but will also present an opportunity for growth and innovation.

2.1.3. Utilization of Network of Collaboration, Diversification, Stakeholder Management, and Internal Control Oversight for Mitigation of Financial Risks in SMEs

The mitigation of financial risk is one of the most important aspects of proper and efficient financial management for small and medium enterprises [17]. It mainly involves practices aimed at decreasing the probability and consequences of the identified financial risks [14]. The establishment of a network of collaboration among different shareholders is one of the main methods of mitigating financial risk. By working with suppliers, customers, financial institutions, and other business associates, the SMEs are able to share knowledge, resources, and best practices that may be of benefit in improving overall resilience against negative factors. A network of collaborative people provides a sense of community and support to help the SMEs overcome the challenges brought about by financial uncertainty [14]. For example, strategic alliance investments can enable the SMEs to co-finance specific activities with other firms, which, in turn, implies that they could reduce individual risk exposure while accumulating collective strength in the process.

Another important strategy for the financial threats is diversification. Diversification is defined as the "expansion of the circle of products, services, or markets which aims at reducing dependence on one major source of income [14]". This would help the SMEs insulate themselves from unfavorable market fluctuations that might occur in their core business. For instance, a small manufacturer who always produced one type of product could now expand to a new market or new variations of their product to distribute their risk across several streams. Diversification helps in stabilizing revenue and provides room for the emergence of revenue streams to help strengthen the financial position of the SMEs.

Effective stakeholder management is another major way for SMEs to reduce their financial risks [23]. With proactive communication from stakeholders-employees, investors, customers, and the community-strong relational links can be developed based on mutual loyalty and support. Open communication and combined efforts with the stakeholders enable the company to identify in due time the problems which may create risks and take appropriate measures in time to adjust the business strategy. For instance, frequent communication with consumers can be very helpful in understanding how tastes and preferences change and at the same time market trends, therefore allowing the SME to change its products and reduce the risk of financial decline.

Internal control checks are also an important avenue for reducing financial risk. Putting in place good internal controls guarantees the SME that its financial activities are well regulated and any subject of theft, fraud, and mismanagement are quickly addressed [24]. These controls include periodic audits, definitive financial reporting procedures, and well-stated approval procedures for expenditures. Strong internal controls will protect the assets and make sure that the financial reporting is accurate to eliminate or minimize the financial risk exposure. Such monitoring strengthens not just an organization's accountability but also nurtures confidence among various stakeholders in reinstating the credibility of SMEs in the marketplace.

In short, this would include collaboration, diversification, stakeholder management, and internal control oversight as the strategies for comprehensive management of financial risk in SMEs. This might allow small and medium enterprises to understand better the intricacies involved in financial risk management, hence securing financial health and long-term sustainability within a constantly changing business environment.

2.2 Theoretical Framework

2.2.1 Risk Management Theory

Risk Management Theory emerged in the mid-20th century as a formal discipline, with significant contributions from various scholars and practitioners in the fields of finance, economics, and business management. One of the foundational texts in this area is the work of H. William Wiggins and others in the 1970s, who sought to systematically identify and mitigate risks in organizational contexts [25]. The theory has evolved over the decades, particularly with the rise of sophisticated financial instruments and the increasing complexity of business operations in a globalized economy. In the 1990s, the development of formal risk management frameworks, such as the Committee of Sponsoring Organizations of the Treadway Commission

(COSO) framework, further solidified the theory's importance in both corporate and small to medium-sized enterprise (SME) environments.

In essence, Risk Management Theory posits that organizations should proactively identify, assess, and manage risks to achieve their strategic objectives [26]. The theory emphasizes a systematic and structured approach to risk management, involving the identification of potential risks, analysis of their impact and likelihood, and implementation of measures to mitigate those risks [27]. Key postulations of the theory include the necessity of creating a risk-aware culture within organizations, the importance of continuous monitoring and evaluation of risks, and the need for effective communication and reporting mechanisms. This holistic approach aims to protect organizational assets, ensure operational continuity, and enhance decision-making processes.

In the context of financial risk management in SMEs, Risk Management Theory is particularly relevant as it provides a comprehensive framework for understanding how these enterprises can effectively identify, assess, and mitigate financial risks. SMEs often face unique challenges, such as limited resources and exposure to market volatility, which necessitate tailored risk management strategies [28-29]. By applying the principles of Risk Management Theory, SMEs can adopt techniques like financial audits, risk mapping, and performance indicators to identify financial risks early on [17]. Additionally, the theory supports the implementation of assessment methods such as sensitivity analysis and scenario planning, enabling SMEs to evaluate potential impacts on their financial health. Ultimately, this theoretical framework highlights the importance of proactive risk management in fostering resilience and sustainability in the increasingly competitive and uncertain business landscape faced by SMEs.

2.3 Synthesis of Existing Empirical Findings

Ezekiel, Olufemi, and Olayinka [3] highlighted the importance of risk management in entrepreneurship development, revealing that effective risk management is crucial for SMEs facing uncertainties. The study demonstrated that various techniques, including financial audits and SWOT analyses, are employed to identify risks. Ajimuse and Bankole [6] confirmed the positive correlation between risk identification techniques and entrepreneurial success, emphasizing the necessity for entrepreneurs to recognize potential threats. Similarly, Ajayi and Osasona [1] reported that risk diversification and transfer enhance performance among SMEs, indicating that risk identification is a precursor to these techniques. The collective hints suggest that financial audits, SWOT, and other frameworks are pivotal in recognizing risks within SMEs.

Various studies examined the assessment of financial risks within SMEs. Ajemunigbohun [7] emphasized the significance of risk retention and transfer in enhancing SME performance, highlighting techniques like risk scoring and sensitivity analysis. Nurjannah et al. [8] employed Structural Equation Modeling to assess how risk management affects MSME sustainability, confirming that structured assessment techniques are integral to understanding risk implications. Moreover, Mwanza and Tshuma [5] provided evidence that both formal and informal risk management strategies are utilized in assessing risks, underscoring the relevance of scenario analysis and stress testing in the process. These findings collectively affirm that robust assessment strategies are critical for SMEs to navigate financial risks effectively.

The mitigation of financial risks involves diverse strategies as reported across several studies. Odukomaiya [23] identified that SMEs engage in various risk management activities, such as stakeholder management and insurance, which are essential for minimizing financial risks. Apaloo and Bright [26] further elaborated that despite a low understanding of risk management, the proper implementation of these techniques positively influences SME performance. Mumassabba, Mukulu, and Atikiya [27] underscored the role of collaborations and technological adoption as key strategies for enhancing competitiveness, thus highlighting the effectiveness of diversification and internal controls in mitigating risks. Banjo [28] echoed these sentiments, finding that although risk mitigation strategies are employed, their effectiveness varies significantly across SMEs, often dependent on the operators' crisis management capabilities. This suggests that while many SMEs recognize the importance of mitigation, the execution of these strategies remains inconsistent.

The studies also shed light on the geographical disparities in risk management practices. Bugarová et al. [15] explored risk management among SMEs in Slovakia, noting that while larger SMEs are more engaged in risk management, a significant portion of small businesses remains unaware of effective practices. Fadun [16] and Adeyele and Osemene [17] focused on Nigerian SMEs, finding that risk management challenges are prevalent, with strategies like credit scorecards being most common. These studies highlight that, despite regional differences, the challenges and techniques for risk management bear similarities, emphasizing the universal need for enhanced education and structured approaches to financial risk management.

The synthesized reviews suggest that financial risk management in SMEs is multifaceted, encompassing techniques for identification, assessment, and mitigation. Effective practices such as financial audits, SWOT analyses, risk scoring, and diversification strategies are crucial for enhancing SME performance and sustainability. However, the execution of these practices is often hindered by a lack of understanding and resources, indicating a need for targeted training and support systems. A major gap exists in literature as no extant study has attempted to determine the degree to which risk scoring and ranking, sensitivity analysis, stress testing, scenario analysis are deployed to assess financial risks in SMEs, using SMEs in Nigeria as a case of evidence, hence the justification for this study.

3.0 Methodology

This study adopted a cross-sectional survey design to examine the financial risk management techniques used for identifying, assessing, and mitigating risks in small and medium-sized enterprises (SMEs) in Nigeria. The cross-sectional nature of this research allowed for the collection of data at a single point in time [30] from a representative sample of SMEs across Nigeria, providing a snapshot of current practices. This design is appropriate for identifying patterns, relationships, and the extent to which various financial risk management techniques are employed across different regions and industries. The research aimed to capture hints that reflect the broader experiences and strategies of SMEs in financial risk management.

The population for this study comprised SMEs operating within Nigeria, selected from the six geopolitical zones to ensure regional representation and diversity in the sample. A sample size of 120 SMEs was chosen for this research, with 20 SMEs drawn from each zone to achieve a balanced distribution. The criterion for being included was that the SME must have been in

existent for at least 5 years. This was to ensure that only businesses with a relatively established presence and operational history are included, as they are more likely to have developed and implemented financial risk management practices. SMEs from diverse sectors, including manufacturing, retail, services, and agriculture, are included to provide a comprehensive understanding of risk management across different industries. Primary data were collected using a structured questionnaire, designed to capture responses based on a Likert scale with options ranging from "high extent (4)," "moderate extent (3)," "low extent (2)," to "no extent (1)." This structured approach facilitated the collection of standardized data, allowing for comparisons across different variables and ensuring that participants' perspectives on financial risk management practices are systematically captured. The researcher developed the questionnaire tailored to assess financial risk management practices in SMEs, and the questionnaire was validated by two experts in the field to ensure its content and construct validity. To establish the reliability of the questionnaire, a Cronbach's Alpha test was conducted, yielding a coefficient exceeding the 0.7 threshold, indicating good internal consistency and reliability of the instrument for the study. This validation and reliability testing process ensured that the questionnaire was robust enough for capturing the necessary data on financial risk management techniques.

For data analysis, frequency distribution and mean were employed to summarize and interpret the extent of responses related to the techniques used in financial risk identification, assessment, and mitigation. To test the hypotheses, Kendall's tau-b correlation was applied to measure the strength and direction of associations between different risk management practices and their deployment levels within SMEs. This non-parametric statistical method is well-suited for ordinal data, aligning with the use of a Likert scale. Through these analytical techniques, the study drew meaningful conclusions about the effectiveness and extent of financial risk management practices employed by SMEs in Nigeria, thereby contributing to a deeper understanding of their financial risk management landscape.

4.0 Data Analysis

4.1 Analysis of Research Questions

Primary data will be collected using a structured questionnaire, designed to capture responses based on a Likert scale with options ranging from "high extent (4)," "moderate extent (3)," "low extent (2)," to "no extent (1)." Table 1 shows the responses to the research questions.

Table 1 Analysis of Research Questions

S/N	Financial Risk Identification	HE	ME	LE	NE	Mean	Decision
1	Financial audits are regularly conducted in our SME to identify potential financial risks	90	16	10	4	3.60	Accept
2	We regularly conduct SWOT and PESTLE analyses to identify factors that might pose financial risks.	98	16	4	2	3.75	Accept

3	We use key performance indicators (KPIs) to track financial health and identify risk areas early.	99	14	5	2	3.75	Accept
4.	Risk mapping is regularly used in our SME to identify areas of financial vulnerability.	92	17	7	4	3.64	Accept
S/N	Financial Risk Assessment	HE	ME	LE	NE	Mean	Decision
5	Our SME uses risk scoring to assess the importance of different financial risks and apply risk ranking to prioritize which financial risks require immediate attention.	90	22	6	2	3.67	Accept
6	Sensitivity analysis is used in our SME to quantify the potential impact of specific financial risks factors on overall performance.	95	17	4	4	3.69	Accept
7	We conduct stress tests to assess how well we can withstand economic downturns.	91	18	6	5	3.63	Accept
8	Our SME conducts scenario analysis to evaluate risk factors in different operational scenarios.	99	12	7	2	3.73	Accept
S/N	Financial Risk Mitigation	HE	ME	LE	NE	Mean	Decision
9	Collaborating with other SMEs helps us manage financial risks more effectively.	90	20	7	3	3.64	Accept
10	Through diversification, our SME invests in different areas to reduce exposure to financial risk.	107	7	4	2	3.82	Accept
11	Effective stakeholder management helps us address financial concerns collaboratively to minimize financial risks.	106	11	2	1	3.85	Accept
12	Internal control oversight in our SME includes robust preventive measures to identify potential financial weaknesses and ensure financial risk management.	94	17	5	4	3.68	Accept

Source: Survey Findings (2024)

Table 1 provides a detailed analysis of how SMEs approach financial risk management practices, as captured through a structured questionnaire. The responses indicate the extent to which SMEs in Nigeria use various techniques to identify, assess, and mitigate financial risks. Each item in the table reflects the collective input of respondents across different levels of engagement, from "high extent" (HE) to "no extent" (NE), with a corresponding mean score that informs the decision to either accept or reject the practice's deployment level.

The first item on financial risk identification, which states that “financial audits are regularly conducted in our SME to identify potential financial risks,” received 90 responses at the "high extent" level, followed by 16 at the "moderate extent," 10 at "low extent," and 4 at "no extent." The mean score of 3.60 shows a strong tendency among SMEs to conduct financial audits, indicating that regular auditing is a common and accepted practice for identifying potential financial risks.

The second item, “we regularly conduct SWOT and PESTLE analyses to identify factors that might pose financial risks,” yielded 98 responses at "high extent" and 16 at "moderate extent," with very few at "low extent" and "no extent." This resulted in a mean score of 3.75, demonstrating that SWOT and PESTLE analyses are widely used tools among SMEs for comprehensive risk identification. The high acceptance rate signifies that these analyses are crucial for understanding both internal and external risk factors.

The use of key performance indicators (KPIs) to track financial health and identify risk areas early was explored in the third item. A significant 99 respondents reported using KPIs to a "high extent," with 14 at "moderate extent," and minimal representation at lower levels. This led to a mean score of 3.75, which supports the decision to accept that KPIs play an essential role in proactively managing financial risks within SMEs.

The fourth item discusses the use of risk mapping in identifying financial vulnerabilities. Here, 92 participants indicated a "high extent" usage, with 17 at "moderate extent." The mean score of 3.64 suggests that risk mapping is also a recognized and implemented strategy in SMEs, though slightly less widespread than audits or SWOT/PESTLE analyses.

For financial risk assessment, Table 1 reveals that the use of risk scoring and ranking is significant, with 90 respondents indicating a "high extent" and 22 at "moderate extent." The mean score of 3.67 supports the practice's acceptance, highlighting its importance in prioritizing financial risks for immediate action.

Sensitivity analysis as a tool for quantifying the impact of financial risk factors was affirmed by 95 respondents at "high extent," and 17 at "moderate extent," achieving a mean of 3.69. This indicates that SMEs actively use sensitivity analysis to understand potential financial outcomes, reinforcing its role in financial risk assessment.

Conducting stress tests to assess resilience to economic downturns was another focus, with 91 respondents indicating a "high extent" and 18 at "moderate extent." A mean score of 3.63 shows that while stress testing is employed, its prevalence is slightly lower compared to risk scoring or sensitivity analysis, yet still considered an essential practice for assessing financial risk resilience.

Scenario analysis, the final assessment item, was rated with 99 responses at "high extent" and 12 at "moderate extent," resulting in a mean score of 3.73. This high score reflects the common usage of scenario analysis in evaluating risks across different potential operational landscapes, affirming its effectiveness in preparing for various financial conditions.

The mitigation strategies presented in Table 1 start with collaboration among SMEs. A mean score of 3.64, supported by 90 responses at "high extent" and 20 at "moderate extent," illustrates that many SMEs consider collaboration a vital strategy for sharing knowledge and mitigating risks.

Diversification as a financial risk mitigation technique yielded a mean score of 3.82, with 107 responses at "high extent." This indicates a strong consensus that investing across various areas is an effective way to spread risk and protect the financial health of SMEs.

Stakeholder management's role in financial risk mitigation was highly rated, with 106 respondents indicating a "high extent," yielding a mean of 3.85, the highest in this section. This underscores the belief that engaging with stakeholders to collaboratively address financial concerns is crucial for risk reduction.

Lastly, internal control oversight, focusing on preventive measures for financial weaknesses, received a mean score of 3.68. With 94 responses at "high extent" and 17 at "moderate extent," this shows that robust internal controls are widely viewed as an important component of financial risk management within SMEs, ensuring proactive risk identification and mitigation.

4.2 Test of hypothesis I

H01) Financial audit, SWOT and PESTLE matrix, key performance indicators, and risk mapping are not significantly deployed to identify financial risks in SMEs.

Table 2 Test of Hypothesis I

		Financial Risk Identification	
Kendall's tau_b	Financial Audit	Correlation Coefficient	.733**
		Sig. (2-tailed)	.000
		N	120
	SWOT and PESTLE Matrix	Correlation Coefficient	.649**
		Sig. (2-tailed)	.000
		N	120
	Key Performance Indicators	Correlation Coefficient	.592**
		Sig. (2-tailed)	.000
		N	120
	Risk Mapping	Correlation Coefficient	.740**
		Sig. (2-tailed)	.000
		N	120

Source: Output from SPSS Version 26 (2024)

Table 2 presents the results of Hypothesis I, which investigates whether financial audits, SWOT and PESTLE matrix analyses, key performance indicators (KPIs), and risk mapping are significantly used to identify financial risks in SMEs. The table indicates a strong, positive correlation for financial audits, with a coefficient of 0.733 and a significance value of 0.000. This suggests that financial audits are extensively deployed by SMEs as a tool for financial risk identification. SWOT and PESTLE matrix analyses also show a positive correlation of 0.649 with a p-value of 0.000, indicating significant use in the identification process. KPIs, with a correlation coefficient of 0.592 and a significance level of 0.000, highlight their moderate but significant role in risk identification. Risk mapping has the highest correlation coefficient at 0.740, which is statistically significant at the 0.000 level. These results imply that SMEs rely

significantly on these tools for identifying financial risks, leading to the rejection of the null hypothesis (H01) and confirming that these practices are deployed to a notable extent.

4.3 Test of Hypothesis II

H02) Risk scoring and ranking, sensitivity analysis, stress testing, and scenario analysis are not significantly deployed to assess financial risks in SMEs.

Table 3 Test of Hypothesis II

			Financial Risk Assessment
Kendall's tau_b	Risk Scoring and Ranking	Correlation Coefficient	.728**
		Sig. (2-tailed)	.000
		N	120
	Sensitivity Analysis	Correlation Coefficient	.674**
		Sig. (2-tailed)	.000
		N	120
	Stress Testing	Correlation Coefficient	.719**
		Sig. (2-tailed)	.000
		N	120
	Scenario Analysis	Correlation Coefficient	.638**
		Sig. (2-tailed)	.000
		N	120

Source: Output from SPSS Version 26 (2024)

Table 3 addresses Hypothesis II, which assesses whether risk scoring and ranking, sensitivity analysis, stress testing, and scenario analysis are significantly utilized for financial risk assessment in SMEs. The results show that risk scoring and ranking have a strong correlation of 0.728 with a significance value of 0.000, underscoring their significant use in assessing financial risks. Sensitivity analysis follows closely with a correlation coefficient of 0.674 and a p-value of 0.000, demonstrating that it is widely implemented in SMEs. Stress testing also shows a robust correlation of 0.719, significant at the 0.000 level, indicating that SMEs frequently use this tool to measure their capacity to withstand financial disruptions. Scenario analysis has a slightly lower correlation of 0.638 but remains statistically significant, implying that SMEs consider various potential future conditions when assessing risks. These findings collectively lead to the rejection of the null hypothesis (H02), proving that these assessment methods are significantly used by SMEs.

4.4 Test of Hypothesis III

H03) Network of collaboration, diversification, stakeholder management and internal control oversight are not significantly used to mitigate financial risks in SMEs.

Table 4 Test of Hypothesis III

			Financial Risk Mitigation
Kendall's tau_b	Network of Collaboration	Correlation Coefficient	.710**

	Sig. (2-tailed)	.000
	N	120
Diversification	Correlation Coefficient	.510**
	Sig. (2-tailed)	.000
	N	120
Stakeholder Management	Correlation Coefficient	.440**
	Sig. (2-tailed)	.000
	N	120
Internal Control Oversight	Correlation Coefficient	.640**
	Sig. (2-tailed)	.000
	N	120

Source: Output from SPSS Version 26 (2024)

Table 4 presents the results for Hypothesis III, focusing on the significance of using a network of collaboration, diversification, stakeholder management, and internal control oversight for mitigating financial risks in SMEs. The data shows a strong correlation of 0.710 for a network of collaboration, with a significance level of 0.000, indicating that SMEs actively leverage partnerships and collaborative efforts as a risk mitigation strategy. Diversification displays a moderate correlation of 0.510, also significant at the 0.000 level, suggesting that SMEs invest across various sectors or products to spread risk. Stakeholder management shows a lower correlation of 0.440 but is still statistically significant, highlighting its role in involving relevant parties to manage financial challenges. Internal control oversight shows a correlation coefficient of 0.640 with a significance value of 0.000, revealing its importance in maintaining checks and preventive measures to mitigate financial risks. These results lead to the rejection of the null hypothesis (H03), confirming that these techniques are indeed deployed to a significant extent for risk mitigation in SMEs.

4.5 Discussion of Findings

The first finding shows that SMEs in Nigeria use comprehensive risk identification techniques, including financial audits and analyses like SWOT and PESTLE, to uncover financial risks. This result suggests that SMEs in Nigeria are becoming increasingly aware of the importance of proactive risk identification. The application of financial audits allows for a systematic review of the financial health of the business, while SWOT and PESTLE analyses help SMEs recognize both internal and external factors that could impact financial stability. KPIs, on the other hand, provide quantifiable metrics that track financial performance, and risk mapping visually highlights potential financial threats. The significance of these methods reflects a growing recognition among Nigerian SMEs of the need for comprehensive risk identification strategies to anticipate and mitigate future financial challenges. Ezekiel, Olufemi, and Olayinka [3] support this outcome, emphasizing that risk management is crucial for entrepreneurship development and economic resilience. Ajimuse and Bankole [6] similarly found that risk identification techniques are directly correlated with entrepreneurial success in Ekiti State, illustrating their widespread importance. Contrasting these results, Apaloo and Bright [26] observed that many SME owners have low levels of knowledge regarding risk identification,

leading to poor implementation. This discrepancy indicates that while awareness and utilization of risk identification methods exist, they may not be uniformly practiced across all SMEs due to varying levels of education and expertise. Odukomaiya [23] adds that while many SMEs engage in risk management, they often do so informally without sophisticated tools, suggesting an awareness that is not always matched by structured practices.

The use of tools like risk scoring, sensitivity analysis, and stress testing highlights a robust approach to evaluating financial risk exposure among SMEs. The use of such assessment techniques indicates that SMEs are not only identifying risks but are also focusing on understanding the potential impact and likelihood of those risks. Risk scoring allows businesses to prioritize risks based on their severity, while sensitivity analysis helps SMEs measure the potential changes in financial performance based on varying economic or operational conditions. Stress testing simulates extreme adverse conditions to test the resilience of SMEs' financial strategies, and scenario analysis helps forecast different future outcomes based on specific risk factors. This finding aligns with Ajayi and Osasona [1], who reported that risk control techniques such as risk diversification significantly enhance business performance. Similarly, Ajemunigbohun [7] found that risk retention and transfer are critical in supporting the financial stability of SMEs in Lagos. Contrastingly, Banjo [28] noted that many SMEs face limitations in effectively addressing risk exposures due to inadequate crisis management capacity. This finding highlights a gap between the use of sophisticated risk assessment tools and the operational capacity of SMEs to utilize them effectively. The research by Adeyele and Osemene (2018) reinforces this, showing that understanding and systematic application of risk management strategies are not consistent, often depending on the SME's management expertise and resource availability.

The third finding highlights that SMEs in Nigeria employ various risk mitigation strategies, including collaboration networks, diversification, stakeholder management, and internal control oversight, to manage and reduce financial risks. These strategies are used effectively, with their impact on risk reduction being statistically significant at the 5% level. The application of these mitigation strategies is a response to the unique challenges SMEs face, such as limited access to capital, market volatility, and operational uncertainties. Collaboration networks, such as partnerships with other businesses or financial institutions, enable SMEs to share resources, access new markets, and distribute risks. Diversification, both in product offerings and revenue streams, helps spread financial risks across different sectors, reducing reliance on any single income source. Stakeholder management ensures that key partners, investors, and employees are aligned with the business's financial goals, fostering stability and mutual support during times of financial strain. Finally, internal control oversight strengthens organizational structures, processes, and compliance, ensuring that financial risks are mitigated through better management and accountability. The study's revelation that Nigerian SMEs employ strategies like collaboration networks, diversification, and stakeholder management is supported by Mwanza and Tshuma [5], who documented similar practices among manufacturing SMEs in Bulawayo. Their findings demonstrated that both formal and informal risk mitigation techniques, including partnerships and innovation, are essential for business resilience. Nurjannah et al. [8] also confirmed that effective risk mitigation directly supports sustainability among MSMEs. Conversely, Fadun [16] found that while strategies like diversification and collaboration were commonly used, others, such as insurance, were underutilized due to high costs or limited understanding. This implies that while SMEs adopt

risk mitigation practices that align with their resources and needs, their approach may vary in sophistication and scope. Buganová et al. [15] also highlighted disparities in risk management among SMEs, noting that medium-sized enterprises tend to employ more comprehensive strategies compared to microenterprises. This supports the finding that mitigation efforts can be shaped by the size and capacity of the SME.

5.0 Conclusion and Recommendations

The findings reveal that SMEs in Nigeria significantly deploy financial audits, SWOT and PESTLE analyses, KPIs, and risk mapping for identifying financial risks, and such usage significantly improves financial risk identification at 5% level. Risk assessment tools such as risk scoring, sensitivity analysis, stress testing, and scenario analysis are also extensively utilized, and such usage significantly improves financial risk assessment at 5% level. Additionally, mitigation strategies such as collaboration networks, diversification, stakeholder management, and internal control oversight are effectively employed to manage and reduce financial risks in SMEs at 5% significance level.

By implication, a proactive approach towards financial risk management allows SMEs to go through the complexities of the market with confidence, ensuring that they can seize growth opportunities while safeguarding their financial health. By utilizing robust tools such as financial audits, SWOT and PESTLE analyses, risk mapping, and various assessment techniques like scenario analysis and stress testing, SMEs become well-positioned to maintain stability and achieve sustainable growth. In this optimal scenario, effective risk management would not only protect SMEs from financial uncertainties but also contribute to their overall success and resilience in a competitive domain. Thus, the importance of financial risk management in SMEs is underscored by the need for effective strategies to go through an increasingly complex business environment. Through the identification, assessment, and mitigation of financial risks, SMEs can safeguard their financial health and enhance their competitive advantage. In conclusion, the adoption of these financial risk management practices positions SMEs to better manage potential financial challenges and reduces their vulnerability to economic disruptions. The study recommends that:

- 1) SME owners and financial managers should mandate regular reviews and updates to keep financial risk identification tools aligned with shifting market dynamics and financial domain to ensure that their financial risk identification practices remain proactive and responsive to emerging risks.
- 2) Business consultants and risk analysts should actively promote the adoption of sophisticated risk assessment tools through dedicated training programs and resources that offer practical, hands-on guidance on using these tools effectively. Such initiatives will strengthen the culture of data-driven decision-making within SMEs, enabling them to evaluate financial vulnerabilities accurately and develop adaptive strategies for financial resilience.
- 3) Business associations should organise tailored workshops, mentorship programs, and networking events that highlight best practices and real-life success stories concerning strategies for mitigating financial risks. By creating platforms for shared learning, business associations can empower SMEs to integrate these strategies effectively, improving their capacity to withstand financial disruptions and safeguard long-term stability.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

References

1. Ajayi Lb, Osasona Av. Effects Of Risk Control Techniques On Smes' performance In Ekiti State, Nigeria. Nigerian Journal of Banking and Financial Issues (NJBFI)- Vol. 2023 Mar;9(1).
2. Jiménez A, Arrieta Y, Nuñez MA, Villanueva E. Management of Strategic Risks for the Sustainability of SMEs in the Manufacturing Sector in Antioquia. Sustainability. 2024 Mar 2;16(5):2094.
3. Ezekiel Bo, Olufemi Ai, Olayinka Ab. Entrepreneurship Development And Risk Management Approaches To Selected Small And Medium Enterprises (Smes) In Kwara State, Nigeria. Journal of Management Science and Entrepreneurship. 2024 Mar 31.
4. Wecken L, Heinen T, Nyhuis P. An Approach Towards Securing Future Viability Of SMEs In A VUCA World Using Artificial Intelligence To Increase Resilience. ESSN: 2701-6277. 2023;489-98.
5. Mwanza J, Tshuma N. Mitigating Business Risk in Manufacturing SMEs: A nexus between informal and formal business risk management: A case of Bulawayo, Zimbabwe. International Journal of Research and Innovation in Social Science. 2023;7(1):1107-38.
6. Ajimuse Ms, Bankole O. Business Risk Identification Techniques and Entrepreneurial Success: Evidence from selected Tertiary Institutions' Students in Ekiti State Nigeria. Fuoye Journal Of Educational Management. 2024 Apr 28;1(1).
7. Ajemunigbohun Ss. Risk Financing Techniques And Smes Performance: Empirical Evidence From Nigeria. Annals of Spiru Haret University. Economic Series. 2023 Sep 7;23(1).
8. Nurjannah D, Wardhana ET, Handayati P, Winarno A, Jihadi M. The Influence of Managerial Capabilities, Financial Literacy, and Risk Mitigation On Msmes Business Sustainability. Journal of Law and Sustainable Development. 2023 Aug 14;11(4):e520-
9. Jordan S, Jørgensen L, Mitterhofer H. Performing risk and the project: Risk maps as mediating instruments. Management Accounting Research. 2013 Jun 1;24(2):156-74.
10. Apaloo S, Bright D. The effect of risk management practices on performance of small and medium scale enterprises. Enterprise Risk Management. 2022;7(1):1-6.
11. Piper J. Risk Management Framework: Qualitative Risk Assessment through Risk Scenario Analysis. NATO Science and Technology Organization. MP-IST-166-07. 2018.
12. Fischhoff B, Morgan G. The science and practice of risk ranking. In Risk analysis and human behavior 2013 Jun 17 (pp. 393-403). Routledge.
13. Fanto J. Stress Testing and Scenario Analysis in Risk Management: Preparing for the Worst. In The Panic of 2008 2010 Oct 29. Edward Elgar Publishing.

14. Mamai M, Yinghua S. Managing risks through mitigation strategies: evidence from cameronian small and medium enterprises. *International Journal of Business and Management*. 2017;12(1):219-27.
15. Bugarová K, Hudáková M, Šimičková J, Mošková E. Disparities in the Implementation of Risk Management in the SMEs. *Systems*. 2023 Jan 30;11(2):71.
16. Fadun OS. Risk factors and risk management strategies as correlates of profitability and survival of selected small and medium enterprises (SMEs) in Nigeria. *Nigerian Journal of Management Studies*. 2018;18(2):12-26.
17. Adeyele JS, Osemene OF. Small and medium enterprises' risk exposures and mitigation approaches in Nigeria. *The Journal of Entrepreneurial Finance*. 2018;20(1): 1-12.
18. Mroueh HA. The Role of Financial Audit in the Corporate Governance Process: An In-depth Analysis. *Annals of the University Dunarea de Jos of Galati: Fascicle: I, Economics & Applied Informatics*. 2024 Jan 1;30(1).
19. Božić V. Objectifying SWOT and PESTLE Analysis in Hospital. Доступно на: [https://www. Researchgate. Net/Publication/372166219](https://www.researchgate.net/publication/372166219) doi.;10.
20. Parmenter D. *Key performance indicators: developing, implementing, and using winning KPIs*. John Wiley & Sons; 2015 Apr 13.
21. Ketabdari M, Giustozzi F, Crispino M. Sensitivity analysis of influencing factors in probabilistic risk assessment for airports. *Safety science*. 2018 Aug 1;107:173-87.
22. Negrilă A. The Role of Stress-test Scenarios in Risk Management Activities and in the Avoidance of a New Crisis. *Theoretical & Applied Economics*. 2010 Feb 1;17(2).
23. Odukomaiya AO. Risk management practices among SMEs in Nigeria: contribution to business success (Doctoral dissertation, Heriot-Watt University, 2023).
24. Piskunov VA, Manyayeva VA, Tatarovskaya TE, Bychkova EY. Risk-oriented internal control: the essence, management methods at small enterprises. *International Electronic Journal of Mathematics Education*. 2016 Sep 5;11(7):2710-31.
25. Twigg J, Christie N, Haworth J, Osuteye E, Skarlatidou A. Improved methods for fire risk assessment in low-income and informal settlements. *International journal of environmental research and public health*. 2017 Feb;14(2):139.
26. Apaloo S, Bright D. The effect of risk management practices on performance of small and medium scale enterprises. *Enterprise Risk Management*. 2022;7(1):1-6.
27. Mumassabba J, Mukulu E, Atikiya R. Risk mitigation strategy and competitiveness of small and medium enterprises in Kenya. *Reviewed Journal International of Business Management [ISSN 2663-127X]*. 2022 Nov 17;3(1):145-54.
28. Banjo Ka. Risk Exposures In The 21th Century And Mitigation Strategies By Nigerian Small And Medium-Sized Enterprises. *Nigerian Journal Of Management Sciences Vol*. 2022 Aug;23(2).
29. Virglerova Z, Panic M, Voza D, Velickovic M. Model of business risks and their impact on operational performance of SMEs. *Economic Research-Ekonomska Istraživanja*. 2022;35(1):4047-64.
30. Nworie GO, Odah U. Social Media Role in Shaping the Reading Culture of Undergraduate Accounting Students in Nigeria. *International Journal of Academic Management Science Research(IJAMSR)*. 2024;8(7):363-73.
31. Nworie GO, Onochie CC. Fuelling entrepreneurial productivity in Nigeria: the contribution of bank loans. *Int J Entrep Bus Innov*. 2024;7(3):92-109. doi:10.52589/IJEBIXQGMW7DI