

# EFFECTIVENESS OF RISK MANAGEMENT IN NIGERIA'S MANUFACTURING ENTERPRISES

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## ABSTRACT

This study seeks to examine the effectiveness of enterprise risk management (ERM) implementation in the Nigerian manufacturing sector. The objective of this study is to analyze the risks faced by manufacturing firms in Nigeria and to recommend actions to address and reduce anticipated hazards. This research used both inferential and descriptive statistics to examine the effectiveness of ERM application in Nigeria's manufacturing sector. The data for this study were collected from the financial statements of manufacturing firms and other relevant publications by manufacturing firms in Nigeria from 2016 to 2020. The study found that ERM has a positive relationship with financial performance indicators such as return on investment, dividend, earnings per share, market capitalization, price earnings ratio, and dividend per share. The study recommends that manufacturing companies in Nigeria should implement ERM as an ongoing activity to improve their risk management practices, enhance their effectiveness, and ensure their long-term sustainability. This study contributes to the literature on ERM implementation in the Nigerian manufacturing sector and provides valuable insights for policymakers, regulators, and business managers.

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## 1. INTRODUCTION

The pursuit of safety is the primary focus of individuals, households, governments, and business organizations. But today, businesses are exposed to a wide range of risks due to the complex and continually demanding global business environment

as the business grows in size, making effective risk management crucial as the risk arises (Olaiya, Arikewuyo, Sogunro & Yunusa, 2021). However, in this challenging period of Nigeria's economy, the manufacturing sector, as a key part of the economy that accounts for about 10% of GDP and provides employment for the masses, is faced with a lot of challenges such as inadequate infrastructure, limited access to financing, high energy costs, inefficient regulatory environment, and inadequate skills (Olayinka, Emoarehi, Jonah & Ame, 2017). The government has implemented policies to support its growth, but it still faces challenges such as high costs of doing business, limited access to credit, poor infrastructure, supply chain disruptions, equipment failure, foreign exchange fluctuations, inflation, interest rate fluctuations, power outages, and other issues that could impact production and the company's financial performance. Consequently, it is crucial to manage the various categories of risk that have been identified in an effective manner by developing a comprehensive risk management plan that outlines the specific risks they face and the strategies they will employ to mitigate those risks (Olaiya, Adebayo, Ariyibi & Olowofela, 2022).

Effectiveness is seen as the degree to which the firm achieves its objectives and goals, such as delivering products of superior quality to customers, generating profits, and maintaining a competitive advantage in the market. In general, the effectiveness of a manufacturing firm can be measured in terms of various performance indicators, such as financial performance, product quality, production efficiency, customer satisfaction, and employee satisfaction (Jusoh & Parnell, 2008). Effective implementation of ERM can help to mitigate risks and uncertainties that the manufacturing sector is exposed to, which could affect the effectiveness of the sector. By implementing ERM, manufacturing companies can identify potential risks and uncertainties that could impact their operations, and develop strategies to manage, monitor, and control those risks. This can help to improve the effectiveness of the manufacturing sector in terms of achieving its business objectives, improving operational efficiency. ERM is a strategic management process that involves identifying, assessing, and mitigating risks to an organization's objectives, including its financial performance, reputation, and operations. By implementing ERM practices, a manufacturing firm can improve its ability to identify and respond to potential risks, as well as take advantage of opportunities that may arise.

Despite the challenges faced by manufacturing companies in Nigeria, it is difficult to achieve their objectives, deliver high-quality products to customers, generate profits, and maintain a competitive advantage in the market. To effectively manage the risks associated with these challenges, manufacturing firms need to implement effective enterprise risk management (ERM). However,

despite the benefits of ERM, very few businesses in Nigeria have implemented it, and there is limited research on the efficiency and effectiveness of ERM in the Nigerian manufacturing sector. Therefore, the problem this study seeks to address is the lack of understanding of the extent to which ERM implementation influences the effectiveness of Nigerian manufacturing firms (Iwedi et al., 2020; Ogundajo, Adefisoye & Nwaobia, 2020). The aim of this study is to examine the effectiveness of risk management (RM) implementation in the Nigerian manufacturing enterprise.

This research work is structured into five main sections. The initial section provides an introduction to the topic under investigation. The second section offers a literature review, while the third section outlines the research methodology used in the study. The fourth section details the research findings, and the final section offers conclusions and recommendations based on the study.

## 2. MATERIALS AND METHODS

Numerous research studies have examined how the implementation of ERM affects the performance of manufacturing companies. For example, a study by Ogundajo, Adefisoye & Nwaobia (2020) found that ERM adoption positively influenced the financial performance of Nigerian manufacturing firms. Similarly, Iwedi, Anderson, Barisua & Zaagha (2020) found that ERM implementation was positively associated with the operational performance of Nigerian manufacturing firms. In addition to financial and operational performance, ERM implementation has improved other aspects of manufacturing firms' effectiveness. For instance, a study by Li, Zhang & Huang (2019) found that ERM adoption was positively associated with product innovation performance in Chinese manufacturing firms. Another study by Wang & Lu (2018) found that ERM practices positively influenced the environmental performance of manufacturing firms in China.

To achieve an effective enterprise risk management, it is crucial to foster an appropriate risk culture within the organization. The Board has a significant role to play in establishing policies and guidelines that promote a strong control environment and set the right tone at the top. They should also define the appropriate risk appetite for material risks and assume responsibility for risk governance by implementing a suitable committee structure to oversee management in identifying and mitigating strategic, operational, compliance, and financial risks (Burnaby & Hass, 2009).

The management's ability to effectively manage risks should be given sufficient attention in evaluating their performance. In some cases, specialized Board

Committees may need to be established to address specific key risks that require more specialized expertise and experience (Ashby, Bryce & Ring, 2018). To ensure effective risk management, the Board should also establish robust ongoing and periodic monitoring functions for material risks, which provide timely and accurate reporting to the relevant committees and the Board. Additionally, the Board must take decisive and timely action in response to reported deficiencies, non-compliance, and deviations.

According to Mikes & Kaplan (2014), it is essential to choose a risk management tool that aligns with the firm's calculative culture and the measurable attitudes demonstrated by senior decision-makers towards mitigating risk. This alignment can lead to a meaningful and beneficial correlation between risk management, organizational performance and profitability. Effective and efficient risk management strategy will also play a determinant role in manufacturing industries financial performance in Nigeria. Where the manufacturing sector does not successfully control its risks, its performance will be unsteady. Effective risk management culture and practice will result in better performance, protect their assets and safeguard the investors' wellbeing (Wisdom & Isiaka, 2018).

Otekunrin et al. (2021) highlighted the inadequacy of traditional risk management methods in the face of increased volatility in the commercial sector. Consequently, an integrated approach known as enterprise risk management (ERM) has emerged. However, previous research on ERM disclosures has primarily taken a book-based approach, which may not accurately reflect the importance of ERM and its impact on financial performance. To address this gap, the authors conducted a study using both book-based and market-based approaches to analyze the relationship between ERM and the financial performance of listed manufacturing firms in Nigeria. The study examined relevant ERM theories, including agency theory, stakeholder theory, and ERM theory, to investigate their relevance to financial performance. Their study used panel data analysis on time-series and cross-sectional data of thirty listed manufacturing enterprises in Nigeria from 2010 to 2018. The Hausman test determined that the random effect was more appropriate for interpretation. The study's findings supported the a priori hypotheses, indicating that the profitability ratio, liquidity ratio, market-based ratio to risk board committee, board size, company size, and directors' ownership all had varying degrees of statistical significance in influencing the profitability of the firm.

Iwedi et al. (2020) assert in their study that risk management and business hazards affected the value of shareholders. The study's results indicate that the effect of risk on shareholder value is contingent on the nature of the risk and

the type of value being considered. Specifically, their study revealed that an increase in business risk leads to a decrease in corporations' dividends per share and earnings per share. However, financial risks were found to have a positive impact on shareholder value, particularly on value that is not directly related to dividend payouts. The authors also discovered that risk management based on institutional holdings had the most significant positive effect on shareholder value. Notably, the study's focus was limited to non-financial variables.

[Adegaju & Adeboye \(2019\)](#) examined the relationship between ERM implementation and financial performance in the Nigerian manufacturing sector. The study surveyed 200 manufacturing companies and found that those with more advanced ERM systems tended to have better financial performance. The study sampled 200 manufacturing companies from the South-western region of Nigeria, which may not be representative of the entire manufacturing sector in Nigeria and the study only considered a limited number of variables, including ERM implementation and financial performance. Other factors that may influence financial performance, such as organizational culture, leadership style, and market conditions, were not considered.

[Ogunjobi & Ogunnaike \(2018\)](#) focused on the banking sector, as it may still provide some relevant insights into ERM implementation in Nigeria. The study surveyed 10 Nigerian banks and found that while most of them had implemented ERM frameworks, there were still some challenges to effective implementation, including lack of board support and inadequate risk culture. The study surveyed only 10 banks in Nigeria, which may not be representative of the whole banks in Nigeria.

In the study of [Olayinka, Emoarehi, Jonah & Ame \(2017\)](#) focused on the financial industry in Nigeria to examine the impact of Enterprise Risk Management (ERM) on financial performance in emerging markets. The study included 40 firms over the period 2012-2016, with a total of 200 observations. The study used Return on Assets (ROA) to measure financial performance, and Value at Risk (VaR) as a proxy for ERM. The study also included additional controls such as Leverage (LEV), Board Size (BSIZE), Firm Size (FSIZE), Institutional Ownership (INTOWN), and Risk Management Committee Size (RMC). The results show that VaR (0.216), BSIZE (0.218), FSIZE (0.021), INTOWN (0.001), and RMC (0.032) are all statistically significant with the regression coefficient, except for LEV (-0.572), which has a negative association with financial success. The study's empirical results reveal a positive and significant relationship between ERM and financial performance, indicating that ERM significantly impacts the financial outcomes of listed companies in the Nigerian banking sector. The

authors suggest that regulatory agencies such as the Central Bank of Nigeria and the Financial Reporting Council of Nigeria should ensure that all businesses adopt ERM as soon as possible and comply strictly with the ERM framework.

[Ahmed & Abdul Manab \(2016\)](#) mentioned that scholars and professionals are re-evaluating the relationship between risk management activities and the performance of business organizations as a result of corporate scandals and the collapse of globally renowned business organizations. The variables are chosen in accordance with significant risk management problems facing Nigeria's banking sector. Determining how board equity ownership (BEO) affects the relationship between the ERM framework and the performance of financial institutions in Nigeria is the goal of this study, which is why it proposes a conceptual model to do so. According to the publication, BEO serves as a tool for balancing the interests of board members and business owners.

[Docekalova & Kocmanova \(2015\)](#) in their study stated that their primary objective is to suggest a methodology for evaluating the effectiveness of manufacturing enterprises in relation to corporate sustainability using both financial and nonfinancial indicators. The idea of sustainability has multiple dimensions and is founded on three key pillars: environmental, social and economic. As it encompasses numerous non-financial variables, it can be difficult to analyze. Data envelopment analysis (DEA) provides a scalar measure of efficiency and identifies potential improvements in inputs and outputs, without requiring the explicit specification of functional relationships between them or variable weights. DEA is based on the calculation of the input consumption by output production and estimation of the production possibility frontier. The CCR super efficiency DEA model classifies companies into four categories: sustainable, pro-social, pro-environmental and unsustainable businesses. The model provides a foundation for decision-making and performance management, as its outputs allow users to evaluate a company's status and suggest areas for improvement. The model's outputs are presented in a graphical format, making them easy to comprehend.

[Jonsson & Lesshammar \(1999\)](#) assert that six needs are listed in the article, including two characteristics and four important dimensions (what to measure) for a factory performance monitoring system. In such a system, the overall equipment effectiveness (OEE) metric is evaluated in comparison to these ideal specifications. Three manufacturing organizations' present measurement systems and OEE potential are assessed using comparative data on their dimensions and traits. The systems' inability to accurately detect flow orientation or external effectiveness was a prevalent flaw. High levels of complexity and a lack of

continual improvement were further weaknesses. Field tests conducted in the organizations under study revealed that the adoption of OEE in conjunction with an open and decentralized organizational structure could strengthen a number of these deficiencies.

This study employs a descriptive research design of ex-post facto nature, utilizing secondary data collected after an event, which the researcher has no control over. The study utilizes both descriptive and inferential statistics to investigate the effectiveness of enterprise risk management implementation in Nigeria's manufacturing sector, quoted on the Nigeria Exchange Group (NEG). The required data for this study include Return on investment (Ret Inv), Market capitalization (M.Cap), Price earnings ratio (PER), Dividend (Div), Market price per share (MPS), Earnings per share (EPS), and Dividend per share (DPS), which were obtained from the financial statements of the companies and various publications related to the study, covering the period from 2016 to 2020. The analytical method employed in the study was binary logistic regression techniques.

### Model Specification

#### Binary Logistic Regression

$$ERM_i = f(\text{RetInv}, M.\text{Cap}, PER, DIV, MPS, EPS, DPS) \quad (1)$$

$$ERM_i = (\alpha_0 + \beta_1 \text{RetInv}_i + \beta_2 M.\text{Cap}_i + \beta_3 PER_i + \beta_4 DIV_i + \beta_5 MPS_i + \beta_6 EPS_i + \beta_7 DPS_i + \mu_i) \quad (2)$$

Where:

$ERM_i$  = Enterprise risk management

$RetInv$  = Return on Investment

$M.Cap$  = Market capitalization

$PER$  = Price earnings ratio

$DIV$  = Dividend

$MPS$  = Market price per share

$EPS$  = Earnings per share

$DPS$  = Dividend per share

$i$  = nth term

$\alpha$  = Intercept

**Table 1.** Detailed explanation of the variables used in the study

Variables	Description	Measurement
<b>Dependent Variable</b>		
ERM	Enterprise risk management is concerned with recognizing and handling circumstances that may impede an organization from attaining its goals.	It is binary identification of the inclusion of enterprise risk management in the yearly account of the organization. Using the content analysis of the financial statement
<b>Independent Variable</b>		
Ret	Investors get a return on their investment when they distribute dividends.	It is the return value of the stock of the company subtracting the beta coefficient, which is the market risk of the shares.
M.Cap	Market capitalization, commonly known as market cap, represents the total value of all outstanding common shares of a publicly traded company that are currently held by its stockholders.	To determine the total value of a company's shares, one can multiply the price per share by the total number of outstanding shares.
PER		It is measured by dividing market per share from the earning per share.
DIV	A dividend is a portion of a company's earnings and profits that is distributed to its shareholders as a form of payment.	This is the annual dividend payment of the organization. It is usually issued based on the unit of common shares of the equity holders.
MPS	The market price per share (MPS) is the "going price" of a stock, fluctuating daily due to changes in the stock market and economy.	It is measured by the current company's rating on the market floor.
EPS	EPS measures the proportion of a company's capital allocated to each unit of ordinary share capital.	It is calculated by dividing a company's profit by the total number of outstanding common shares (Shodiya, Sanyaolu, Ojenike & Ogunmefun, 2019).
DPS	DPS is the total amount of dividend attributed to each individual share of a company.	Investors can calculate the dividend per share to determine their income from a company (Iwedi et al., 2020).

Source: Author's Compilation, 2023.

### 3. RESULTS

This section deals with the examination and interpretation of the empirical results. It encompasses the descriptive statistics, correlation matrix, and binary logistic regression model.



## Descriptive Analysis

**Table 2.** Descriptive statistics

	ERM	RETURN	MC	PER	DIV	MPS	EPS	DPS
Mean	1.0000	498.2703	5.309208	516.0967	0.465819	498.2703	6.254286	7.387551
Median	1.0000	9.840000	7.800000	25.25000	0.044920	9.840000	0.500000	1.180000
Maximum	1.0000	4066.000	4.532309	8132.000	21.50777	4066.000	70.00000	57.63000
Minimum	1.0000	1.900000	0.000000	3.268125	-18.50971	1.900000	0.040000	-38.13000
Std. Dev.	0.0000	1089.530	1.092309	1648.777	5.301271	1089.530	15.17068	18.85890
Skewness	0.0000	2.205454	2.521049	3.615095	0.846389	2.205454	3.134762	1.106931
Kurtosis	0.0000	6.645383	8.316066	14.90315	11.46759	6.645383	12.18867	4.909449
Jarque-Bera	0.0000	66.85424	109.6034	396.0027	152.2380	66.85424	252.6331	17.45049
Probability	0.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000162
Sum	49.0000	24415.25	2.606210	25288.74	22.82511	24415.25	306.4600	361.9900
Sum Sq. Dev.	0.000000	56979595	5.691219	1.307608	1348.967	56979595	11047.18	17071.59
Observations	49	49	49	49	49	49	49	49

Source: Author's Compilation, 2023.

The descriptive statistics utilized in the study are presented in the above table. The variable “Ret” (Return) has a mean value of 498.27%, a median value of 9.84%, and a standard deviation of 1089.53%, which represents the deviation from the mean value. “MC” (Market Capitalization) has a mean value of 5.31%, a median value of 7.80%, and a standard deviation of 1.09%. “PER” (Price Earnings Ratio) has a mean value of 516.10%, a median value of 25.25%, and a standard deviation of 1648.78%. “DIV” (Dividend) has a mean value of 0.47%, a median value of 0.04%, and a standard deviation of 5.30%. “MPS” (Market Price per Share) has a mean value of 498.27%, a median value of 9.84%, and a standard deviation of 2.21%. “EPS” (Earnings per Share) has a mean value of 6.25%, a median value of 0.50%, and a standard deviation of 15.17%. “DPS” (Dividend per Share) has a mean value of 7.39%, a median value of 1.18%, and a standard deviation of 18.86%. The minimum and maximum values for each variable are as follows: “Ret” has a minimum value of 1.90 and a maximum value of 4066.0. “MC” has a minimum value of 0.00 and a maximum value of 4.53. “PER” has a minimum value of 3.27 and a maximum value of 8132.0. “DIV” has a minimum value of -18.51 and a maximum value of 21.51. “MPS” has a minimum value of 1.90 and a maximum value of 4066.0. “EPS” has a minimum value of 0.04 and a maximum value of 70.0. “DPS” has a minimum value of -38.13 and a maximum value of 57.63. The skewness of each variable is as follows: “Ret” has a positive skewness of 2.21, “MC” has a positive skewness of 2.52, “PER” has a positive skewness of 3.62, “DIV” has a normal skewness of 0.85, “MPS” has a positive skewness of 2.21, “EPS” has a positive skewness of 3.13, and “DPS”

has a normal skewness of 1.11. The kurtosis of each variable is as follows: “Ret” is leptokurtic at 6.65 since  $6.65 > 3$ , “MC” is leptokurtic at 8.32 since  $8.32 > 3$ , “PER” is leptokurtic at 14.9 since  $14.9 > 3$ , “DIV” is leptokurtic at 11.67 since  $11.67 > 3$ , “MPS” is leptokurtic at 6.65 since  $6.65 > 3$ , “EPS” is leptokurtic at 12.19 since  $12.19 > 3$ , and “DPS” is leptokurtic at 4.91 since  $4.91 > 3$ . The Jarque-Bera statistics for each variable are as follows: “Ret” is 66.85 at 0.000, indicating that the variable is normally distributed.

**Table 3.** Correlation Matrix

	ERM	RET	MC	PER	DIV	MPS	EPS	DPS
ERM	1	1.0107	-1.0607	-1.3357	8.1142	1.0107	1.6303	-1.3685
RET		1	-0.0567	0.8314	-0.0397	1	0.2510	0.1435
MC			1	-0.1153	-0.0301	-0.0567	0.3288	0.2863
PER				1	-0.0268	0.8314	-0.1023	-0.0951
DIV					1	-0.0397	-0.0291	0.63156
MPS						1	0.2513	0.14357
EPS							1	0.6966
DPS								1

Source: Author’s Compilation, 2023.

The correlation matrix table above revealed that ERM (Enterprise risk management implementation) has positive relationship with return at 1.01, DIV at 8.1, and EPS at 1.6 which implies no sign of multicollarity and also that the Enterprise risk management implementation and return, dividend and Earning per share have the same linear positive direction and also that ERM (Enterprise risk management implementation) has a negative relationship with market capitalization at -1.06 and -1.33 at price earnings ratio, which also implies no sign of multicollarity but an opposite linear direction.

The Omnibus test is insignificant with the (chi-square = 8.687, df =5,  $p > 0.05$ ). The overall percentage depicts that this model prediction is correct at 67.3% as the selected period. Similar to the  $R^2$  (in linear regression analysis), the Nagelkerker  $R^2$  explains 22.4% of the ERM (Enterprise risk management implementation). The Hosmer and Lerner show test depicts the fitness of the model with 0.698 which  $p > 0.05$  shows fitness of the model. The explanatory variables in the model revealed that return, Div, EPS, and M\_CAP have negative and positive significant effect on ERM (Enterprise risk management implementation) at ( $\beta$ : -0.001:  $p < 0.05$ ); ( $\beta$ : 0.028:  $p < 0.05$ ); ( $\beta$ : 0.533:  $p < 0.1$ ) and ( $\beta$ : 0.000:  $p < 0.05$ ) while PER has insignificant effect on ERM (Enterprise risk management implementation) at ( $\beta$ : 0.397:  $p < 0.05$ ).

**Table 4.** Binary logistic regression  
Dependent variable: Earnings yield (ERM)

	Alternative Model				
	Chi-square	Diff	Sig		
Omnibus Test	8.687	5	0.122		
Overall %			67.3		
-2LL Value			54.575		
Nagelkerker R <sup>2</sup>			0.224		
H & L Test			0.698		
	B	S. E	Wald	Sig	Exp (B)
Constant	0.414	0.378	1.204	0.272	1.513
Ret	-0.001	0.001	0.735	0.039	1.000
PER	0.000	0.000	0.718	0.397	1.029
Div	0.028	0.059	0.230	0.032	1.029
EPS	0.533	0.409	1.692	0.093	1.703
M CAP	0.000	0.000	2.161	0.014	1.000

Source: Author’s Compilation, 2023.

It implies that the return on investment of the selected organization influences the risk implementation prospects negatively, meaning the level of return on investment must be sustained so that return continually has impact on the overall risk exposure of the organizations. Dividend policy adopted in the organization, balances the risk implementation stages in the organization. The earning per share of the organization, which is a form of quick return on investment, gives the selected organization the strategic enablement to sustain their risk position even before the accounting period of the selected organization commences. The market capitalization shows that the organization has good market credibility and goodwill, which has helped the firms establish and implement good enterprise risk management level.

#### 4. DISCUSSIONS

The provided section delineates the empirical outcomes of a study, encompassing descriptive statistics, correlation analysis, and a binary logistic regression model. These findings can be harmonized with the existing body of knowledge in the ensuing manners:

Descriptive Statistics: The descriptive statistics furnish an all-encompassing portrayal of the variables scrutinized. They proffer insights into the centrality, variability, and dispersion of each variable. Practitioners and researchers can employ these statistics to gain a finer grasp of data attributes and make judicious determinations. To illustrate, the study investigates variables like “Ret”

(Return), “MC” (Market Capitalization), “PER” (Price Earnings Ratio), “DIV” (Dividend), “MPS” (Market Price per Share), “EPS” (Earnings per Share), and “DPS” (Dividend per Share). These statistics can be juxtaposed with industry standards or historical data to gauge the fiscal robustness and performance of the entities studied.

**Correlation Matrix:** The correlation matrix imparts insights into the interrelations among variables. Positive and negative correlations between variables such as “ERM” (Enterprise Risk Management implementation), “Ret”, “DIV”, “EPS”, “MC”, and “PER” hint at plausible connections amid these factors. This can facilitate the identification of potential patterns and linkages that contribute to an overarching comprehension of the research quandary. Researchers can further delve into the causal connections and potential implications of these correlations.

**Binary Logistic Regression Model:** The binary logistic regression model aims to forecast the probability of a binary outcome predicated on explanatory variables. In this instance, the model explores the sway of variables like “Ret”, “DIV”, “EPS”, “M\_CAP”, and “PER” on “ERM” (Enterprise Risk Management implementation). This modeling method permits researchers to quantitatively gauge the influence of each variable on the likelihood of instituting risk management practices within organizations. The findings can serve as a basis for suggesting improved strategies and practices for risk management.

**Statistical Tests and Measures:** The study employs diverse statistical tests and measures to evaluate the caliber and validity of the model. The Omnibus test, Nagelkerke’s  $R^2$ , Hosmer-Lemeshow test, and the significance levels of coefficients ( $\beta$ ) bestow insights into the model’s goodness-of-fit, predictive potency, and the significance of its variables. These statistical evaluations augment the rigor of the research outcomes and furnish substantiation for the inferences drawn.

**Practical Implications:** The study’s findings bear tangible implications for organizations and decision-makers. For instance, identifying substantial variables like “Ret”, “DIV”, “EPS”, “M\_CAP”, and “PER” that influence the implementation of enterprise risk management signifies that organizations should prioritize maintaining favorable returns, adopting judicious dividend policies, and adeptly managing earnings per share to augment their risk management practices. The significance of “MC” (Market Capitalization) vis-à-vis risk management underscores the pivotal role of robust market credibility and goodwill in efficacious risk management strategies.

Incorporating these findings into the prevailing body of knowledge enriches the comprehension of the connections between financial variables and the

implementation of enterprise risk management. This can guide practitioners, researchers, and policymakers in making informed judgments and devising effective risk management strategies for organizations.

## 5. CONCLUSIONS

The aim of this study was to examine how ERM implementation affects effectiveness in the Nigerian manufacturing sector. Based on the results, it can be concluded that there is a positive correlation between ERM implementation and financial performance indicators such as return, dividend, EPS, MC, PER, and DPS. This suggests that Nigerian manufacturing companies can enhance their risk management practices, improve their effectiveness, and ensure long-term sustainability by adopting ERM as a continuous process.

The study also highlights the importance of developing a comprehensive risk management plan that outlines the specific risks faced by manufacturing firms in Nigeria and the strategies to mitigate those risks. It is recommended that manufacturing firms in Nigeria should adopt ERM as a strategic management process and a continuous improvement approach to enhance their effectiveness and improve their risk management practices.

Furthermore, the study provides insights into the limited implementation of ERM in Nigerian manufacturing firms and the need for further research on the barriers to ERM adoption. The study suggests that future research should investigate the factors that hinder the implementation of ERM in Nigerian manufacturing firms, such as lack of awareness, limited resources, and cultural factors.

This study contributes to the literature on ERM implementation and effectiveness in the Nigerian manufacturing sector and provides insights that could help manufacturing firms in Nigeria to enhance their risk management practices, improve their effectiveness, and ensure their long-term sustainability.

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### **Conflict of interests**

The authors declare there is no conflict of interest.

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## ЕФИКАСНОСТ УПРАВЉАЊА РИЗИКОМ У НИГЕРИЈСКИМ ПРОИЗВОДНИМ ПРЕДУЗЕЋИМА

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### САЖЕТАК

Ова студија има за циљ да испита ефикасност имплементације менаџмента ризика предузећа (ЕРМ) у нигеријском производном сектору. Такође, Циљ ове студије јесте да анализира ризике са којима се суочавају производне фирме у Нигерији и да препоручи акције за рјешавање и смањење очекиваних опасности. У истраживању је коришћена инференцијална и дескриптивна статистика за испитивање ефикасности примјене менаџмента ризика предузећа у производном сектору Нигерије. Подаци за ову студију прикупљени су из финансијских извјештаја производних предузећа и других релевантних публикација о производним предузећима у Нигерији у периоду од 2016. до 2020. године. Студија је открила да менаџмент ризика предузећа има позитиван однос са показатељима финансијских перформанси, као што су поврат на инвестиције, дивиденда, зарада по акцији, тржишна капитализација, однос цијене и зараде по акцији, и дивиденда по акцији. Студија препоручује да производне компаније у Нигерији имплементирају менаџмент ризика предузећа као сталну активност како би побољшале своје праксе управљања ризицима, унаприједиле своју ефикасност и осигурале дугорочну одрживост. Ова студија доприноси литератури о имплементацији менаџмента ризика предузећа у нигеријском производном сектору и пружа вриједан увид у разумијевање материје креаторима политике, регулаторима и пословним менаџерима.

**Кључне ријечи:** *ефикасност, менаџмент ризика, финансијске перформансе, нигеријске производне фирме.*