

Impact of Market Risk on the Financial Performance of Oil and Gas Servicing Firms in Nigeria, 2012-2024

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Abstract

The oil and gas sector play a pivotal function in Nigeria's economic development, yet it remains highly exposed to diverse market risks that influence its financial performance. This study investigates the effect of market risk which is represented by, interest rate risk, and on the financial performance of selected oil and gas firms in Nigeria from 2012 to 2024. An ex-post facto and analytical research design was employed, using secondary data obtained from the published financial statements of five purposively selected firms. Data were analyzed using descriptive and inferential statistics with the aid of STATA 15, incorporating tests for model robustness through the Ordinary Least Square (OLS) regression technique. The empirical results reveal that interest rate exerts a significant positive effect on firms' return on assets (ROA). These findings underscore the critical influence of market dynamics on firm performance in Nigeria's oil and gas industry. The study recommends that firms adopt comprehensive risk management strategies, including effective foreign exchange hedging and prudent capital structuring, to mitigate exposure to adverse market movements. Furthermore, transparent financial reporting, stable monetary policies, and deeper capital market reforms are essential to enhance resilience, investor confidence, and sustainable growth within the oil and gas sector.

Key words: market risk, economic development, return on assets, financial performance, monetary policies, investor confidence

Introduction

1.1 Background to the Study

In recent years, there has been significant progress in promoting local content development through the creation of the Nigeria Content Development and Monitoring Board (NCDMB). This body has championed greater involvement of local enterprises and the development of skills within the sector (Agboola&Oladipo, 2021). This initiative has led to the rise of several

Nigerian-owned oil and gas companies, such as Oando, Seplat Energy, and Aiteo, fostering job creation and strengthening local expertise. However, the future of Nigeria's oil and gas industry remains closely tied to global energy transitions and the growing need for decarbonization. Consequently, Nigerian oil and gas companies are increasingly focusing on energy diversification and making investments in cleaner, alternative energy sources (Eze&Nwachukwu, 2022). In summation, risks may be categorized into three distinct types: financial risks, operational risks, and market risks (Odubuasi *et al.*, 2020). Market risk is identified as the risk that warrants the most considerable attention within this study. With respect to the extent to which market risk influences the performance of business enterprises, a rhetorical question was posed regarding the mechanisms through which this risk is enacted. In scenarios characterized by volatile market conditions, the risk possesses the capacity to precipitate rapid financial losses. The operations of the oil and gas sector in Nigeria are not exempt from market risk; instead, they are intricately linked to it. Reports indicate that the net profit of the Nigerian oil and gas sector experienced a decline of 27.08% during the second quarter of the fiscal year 2023 (The Cable, 2023). This decline occurred notwithstanding the execution of a comprehensive analysis concerning the implications of market risk on the financial performance of oil and gas firms listed on the Nigeria Exchange Group, along with the subsequent recommendations issued in this regard.

1.2 Statement of the Problem

The oil and gas sector remain the center of Nigeria's economy, accounting for the majority of government revenue and foreign exchange earnings. However, firms in the industry are always exposed to market risks interest rate risk, that affect their performance, particularly return on assets (ROA). Interest Rate Risk: Fluctuations in interest rates exacerbate the cost of borrowing for oil and gas enterprises in Nigeria, thereby impeding their capacity to finance capital-intensive initiatives. This phenomenon diminishes profitability and deters long-term investments within the sector. Furthermore, the unpredictability of interest rates complicates financial planning and heightens exposure to debt-related risks. Interest rate risk is a problem since continuous adjustments in the Central Bank of Nigeria's Monetary Policy Rate (MPR) increase borrowing costs, which makes it challenging for firms to invest in exploration and infrastructure activities. Higher lending rates have reduced access to low-cost credit, constraining the ability of oil and gas firms to generate returns.

The market risk constrains the efficient allocation of resources, decrease asset productivity, and exert negative effects on ROA for oil and gas firms. Thus, the study evaluates the effect of market risk on the financial performance of oil and gas firms in Nigeria from 2012-2024.

1.3 Objectives of the Study

(i)The study is set to ascertain the effect of interest rate risk on the financial performance of oil and gas industry in Nigeria,

1.4 Research Questions

The study has formulated the question in synchronization with the objective;

(i) How does interest rate risk affect financial performance of firms listed on oil and gas sector of Nigeria?

1.5 Statement of Hypotheses

The study tested the following hypothesis,

H₀₁: interest rate risk does not have significant effect on the financial performance of oil and gas firms listed on Nigeria exchange group plc.

1.6 Scope of the Study

The study dwells on the relationship between market risk and financial performance of oil & gas firms listed on Nigeria exchange group which is meant to cover oil and gas firms alone. The study is skewed to cover the financial years from 2012 to 2024 and used interest rate risk, and inflation rate risk to represent market risk while return on assets measured financial performance of firms. The study purposively selected five oil and gas firms base on the firms that had the highest average profits over the period under study. The selected firms are Eterna Plc, Royal Dutch Shell, ExxonMobil, Chevron and Total Energies.

The study adopts 2012 as the base year because it marks a significant turning point in Nigeria's petroleum sector and the broader economy.

Review of Related Literature

2.1.0 Firm Characteristic

Overview of firms in the industry

(i) The Nigerian National Petroleum Company Limited, formerly referred to as the Nigerian National Petroleum Corporation (NNPC) prior to the reforms instituted in 2021, is entirely owned by the Federal Government of Nigeria and has been restructured to operate on a commercial basis since July 2022. Established in 1977, the organization underwent a transformation into a limited liability company during the years 2021 and 2022. Its principal office is situated in Abuja, Nigeria, and it is engaged in fundamental activities including the exploration and production of oil and gas, refining, petrochemical development, gas commercialization, as well as the retailing and marketing of petroleum products.

(ii) Royal Dutch Shell (currently designated as "Shell plc"): Royal Dutch Shell has undergone rebranding to become Shell plc following its restructuring process in 2022. This publicly listed entity has its shares traded on the London Stock Exchange, as well as on exchanges in Amsterdam and New York. The firm was established in 1907 through the amalgamation of the Royal Dutch Petroleum Company and the Shell Transport and Trading Company. Its headquarters is located in London, United Kingdom.

(iii) ExxonMobil Corporation: ExxonMobil Corporation represents a publicly listed entity on the New York Stock Exchange, identified by the ticker symbol NYSE: XOM. The establishment of the firm occurred in 1999, subsequent to the amalgamation of Exxon and Mobil, both of which trace their lineage back to Standard Oil. Its corporate headquarters is situated in Irving, Texas, USA. The organization's primary operations encompass oil and gas exploration and production (Upstream), refining and chemicals (Downstream), in addition to technological advancement centered on carbon capture and low-emission fuels. Its operational segments include Upstream, Product Solutions (Downstream and Chemicals), and Low Carbon Solutions. According to data from 2024, the workforce comprises approximately 62,000 employees.

(iv) Chevron Corporation: Chevron Corporation constitutes a publicly listed entity on the New York Stock Exchange, recognized by the ticker symbol CVX. Originating in 1879 as the Pacific Coast Oil Company, it subsequently adopted the designation Chevron following a series of strategic mergers. The corporate headquarters is located in San Ramon, California, USA. The principal operations include the exploration and extraction of crude oil and natural gas, along with the refining, transportation, and commercialization of petroleum derivatives. Furthermore, the corporation is engaged in the production and sale of petrochemicals and provides renewable energy solutions, such as bio-fuels and hydrogen.

(v) Total Energies SE: Total Energies SE, formerly known as Total S.A., underwent a rebranding in 2021 to better represent its expansive focus on energy. The corporation is publicly traded, with listings on both Euronext Paris and the New York Stock Exchange under the ticker symbol TTE. Established in 1924 as Compagnie Française des Pétroles, the

corporation's headquarters are located in Courbevoie, France. Its primary operations encompass oil and gas exploration and production, as well as refining and petrochemicals.

2.1.1 Market Risk

Market risks encapsulate the prospective financial losses that institutions or investors may face because of market determinants fluctuations, like equity valuations, interest rates, and foreign exchange rates. In the current milieu of a globalized and technologically sophisticated financial landscape, these risks have become increasingly complex and inter related. Market risk is defined as the probability that an organization may experience financial detriments due to fluctuations in the valuation of its assets, instigated by alterations in commodity prices, foreign exchange rates, interest rates, securities, and other market risk-associated variables (Odubuasi et al., 2020).

2.1.2 Interest Rate Risk

Interest rate risk arises from fluctuations in market interest rates that affect the valuation of financial instruments and the costs associated with borrowing. For financial institutions and corporate entities, modifications in interest rates can significantly influence loan portfolios, investment evaluations, and projected cash flows. A salient conceptual dilemma currently is the unpredictability of interest rate policies across major economies, intensified by inflationary trends and macroeconomic disturbances, such as those instigated by the COVID-19 pandemic and the subsequent monetary tightening implemented by central banking authorities (Borio et al., 2022).

2.1.5 Inflation Rate

It is fundamentally challenging to encompass all variables that may potentially impact the outcomes of our experimental investigation. Consequently, the establishment of a control group may be imperative. The control group is expected to incorporate additional variables that were excluded from the specific research objectives yet may exert an influence on indicators of real sector growth. Therefore, our analysis will incorporate control variables, specifically the inflation rate, in accordance with the works of Dima & Buthiena (2016); Fantessi and Kiprop (2015);

2.1.7 Financial Performance

The financial performance of an enterprise is an evaluative action executed subsequent to the business's operational period to ascertain its economic success or profitability over a defined timeframe. In other terms, financial performance denotes the extent to which a corporation is capable of meeting its financial commitments or objectives. As articulated by Irungu (2013), the primary aim of conducting a financial performance analysis is to determine the financial standing of an organization for the identification of its financial strengths and vulnerabilities. This is achieved through the utilization and establishment of relationships between the elements constituting the financial position and the income statement.

2.1.7.1 Return on Assets

Return on Assets (ROA) constitutes a financial metric that elucidates the efficiency with which an organization harnesses its total assets to produce profit. The calculation of ROA is derived from the division of Net Income by Total Assets. This ratio quantifies the returns generated for each unit of asset utilized within the entity, functioning as a measure of overall operational efficacy (Ross et al., 2008). A heightened ROA indicates a more adept management strategy in the utilization of the organization's assets to generate revenue. In the context of Small and Medium Enterprises (SMEs), ROA acts as a barometer of the firm's

proficiency in converting its resources into profit. Aremu et al. (2013) employed ROA as a metric to assess the performance of SMEs in Nigeria and to explore the impact of financial structure on profitability. Ogbo and Ukpere (2013) utilized ROA as a dependent variable to investigate the implications of bank financing on SME performance.

2.3 Theoretical Review

2.3.1 Risk Management Theory –Harry Markowitz (1952)

This research is underpinned by Risk Management Theory propounded by Harry Markowitz 1952, which serves as an appropriate framework for examining the impact of market-related risks namely interest rate risk on the performance metrics of oil and gas enterprises in Nigeria. Risk Management Theory asserts that organizations must identify, quantify, and address potential financial threats to safeguard value and enhance operational efficacy (Stulz, 1996). This theoretical construct underscores the necessity of proactive and strategic methodologies in risk management, acknowledging that risks that remain unmanaged or inadequately addressed can detrimentally influence firm performance, stakeholder value, and sustainability in the long term.

2.4 Empirical Review

A growing body of empirical research has explored the impact of market risk on the financial performance of oil and gas firms in Nigeria between 2012 and 2023.

Raheem, *et al.* (2023) investigated stock return volatility in Nigerian oil and gas sector using the ARCH/GARCH model, finding that EGARCH with a Generalized Error Distribution best captured volatility. The study adopted a quantitative research design to investigate stock return volatility within the Nigerian oil and gas sector. Secondary data was utilized, comprising daily stock prices of selected oil and gas firms listed on the Nigerian Exchange Group (NGX). The data covered a period spanning January 2010 to December 2022, providing a robust timeframe to assess volatility patterns in the sector. Data were sourced from the Nigerian Exchange's historical data repository and validated with Bloomberg to ensure accuracy. The daily returns were computed as the natural logarithmic differences of stock prices, they noted in their empirical observation that positive shocks had a stronger effect on returns than negative ones. They recommend that in Oil and gas firms, financial analysts in Nigeria should employ asymmetric models like EGARCH in their risk management frameworks to better capture the distinct impact of positive and negative market shocks on stock returns. Similarly, Irene, *et al.* (2025) studied capital structure components on firm's performance in selected oil and gas firms in Ghana. The study adopted a panel data research design to analyze the relationship between capital structure components and firm performance. The sample comprised eight (8) oil and gas firms operating in Ghana, both locally listed and foreign firms with subsidiaries in Ghana, covering a ten-year period from 2012 to 2021. Data were extracted from audited financial statements of the sampled firms, sourced from the Ghana Stock Exchange (GSE) and Ghana's Registrar General's Department. Key financial indicators were computed to serve as variables for the empirical model. The researchers employed a panel regression model, specifically using both Fixed Effects (FE) and Random Effects (RE) models. To determine the appropriate estimator, the Hausman test was applied. The main empirical findings of the study are summarized as follows: A **negative** and statistically significant relationship was found between DER and firm performance, indicating that higher debt levels reduce profitability in Ghana's oil and gas firms. The LDR showed an insignificant relationship with firm performance, suggesting that long-term obligations may not exert immediate performance implications in the Ghanaian context. The equity component showed a positive and significant effect on both ROA and ROE, affirming that firms relying more on equity financing tended to perform better. Based on the findings,

the authors provided the following recommendations: Managers of oil and gas firms should strive to maintain a balanced capital structure, reducing reliance on debt in favor of internally generated funds and equity financing. Firms should adopt capital budgeting policies that prioritize low-leverage investment strategies, especially in volatile sectors like oil and gas. The Ghanaian government should offer fiscal incentives for equity financing to encourage firms to reduce dependency on costly debt.

In a related study, Aribabaet (2022) examined firm characteristics and financial performance of Nigerian oil and gas firms from 2012 to 2021, as they employed a quantitative research design using panel data analysis to explore the effect of firm-specific characteristics on the financial performance of listed oil and gas companies in Nigeria. The study covered a 10-year period from 2012 to 2021, with annual data sourced from the financial statements of listed firms and publications by the Nigerian Exchange Group (NGX). The study utilized descriptive statistics, correlation analysis, and panel regression techniques. Pre-estimation diagnostics such as multi-collinearity tests (Variance Inflation Factor - VIF) and unit root tests were also performed to ensure the validity and reliability of the data. The authors specified a linear panel regression model, adopting both Fixed Effects (FE) and Random Effects (RE) models to assess the relationship between firm characteristics and financial performance. The Hausman test was used to select the more appropriate model. There was a positive and significant relationship between firm size and financial performance, implying that larger firms enjoyed economies of scale and better access to capital, which enhanced profitability. Firm age was found to be positively associated with performance, suggesting that more established firms had greater operational experience and stability. The growth variable showed a positive but statistically insignificant relationship with performance, indicating that expansion alone may not guarantee improved returns. Based on the empirical findings, they made the following recommendations: Oil and gas firms should focus on organic and strategic growth, ensuring that expansion plans are aligned with operational capacity and capital structure efficiency. Companies are advised to minimize reliance on debt financing and instead optimize internal funding or equity issuance to enhance long-term profitability. Policy interventions should support smaller or younger firms in accessing capital and managerial expertise to improve competitiveness and profitability.

Emovon and Izedonmi (2023) explored the effects of sustainability disclosures as they employed a quantitative, ex post facto research design to assess the influence of sustainability disclosures on the market value of listed firms in Nigeria. The study used secondary data collected from the annual financial reports and sustainability reports of a sample of 20 firms listed on the Nigerian Exchange Group (NGX). The study covered a period of six years (2014–2019). To measure sustainability disclosure; a content analysis method was used to construct a Sustainability Disclosure Index (SDI) with specific focus on environmental cost disclosures. The market value of firms was proxied by Tobin's Q, calculated as the ratio of market value to total assets. The study used panel regression analysis, employ in (OLS) within a panel data framework, and validated the results using Fixed Effects and Random Effects models, with model selection based on the Hausman test. Firms should be strategic and cautious in disclosing environmental costs to avoid adverse market reactions, especially when such disclosures could be misinterpreted as financial weaknesses. Regulatory bodies like the Financial Reporting Council of Nigeria (FRCN) and the Nigerian Exchange Group should educate investors about the long-term benefits of sustainability practices, to prevent mispricing of firms that are socially and environmentally responsible.

Erinoso and Oyedokun (2022) assessed environmental disclosure effect and auditing on the performance of 11 listed oil and gas firms in Nigeria from 2011 to 2020. Using panel data regression, they found that environmental disclosure significantly improved ROA, ROE, and PAT, while environmental audits had no effect on ROA and PAT but positively influenced

ROE. The study recommended stronger environmental reporting, regulatory enforcement, and the integration of environmentally responsible strategies to boost profitability and sustainability. The findings emphasize the value of transparency and disclosure in enhancing firm performance and attracting stakeholder confidence.

Agbasiet *et al.* (2023) analyzed the relationship between market risk and financial performance of listed oil and gas firms in Nigeria using (OLS) regression. The study focused on selected financial indicators, revealing that market risk had a significant negative impact on firm performance, particularly on return on equity and profit margins. The findings suggest that higher market volatility reduces financial stability and profitability. The authors recommended effective risk management strategies and policy frameworks to mitigate market risk exposure and enhance firm resilience. Emphasis was placed on proactive financial planning to navigate uncertainties in Nigeria's business environment.

2.6 The Research Gap:

Notable gap lies in the limited consideration of Nigeria's unique economic and political context. The Nigerian oil and gas industry have experienced several major economic disruptions and policy shifts, including the 2016 economic recession, the COVID-19 pandemic, foreign exchange market instability, persistent inflationary pressures, and fuel subsidy reforms. These events significantly altered the risk environment in which firms operate. However, many previous studies have either covered shorter time horizons or failed to incorporate these structural changes into their analytical frameworks. As a result, the long-term effects of market risk on firm performance across different economic regimes remain inadequately understood.

Methodology

3.1 Research Design

It used existing data, as a result the examination starts after the fact has taken place. An *ex post facto* research design, commonly referred to as causal-comparative research, represents a non-experimental methodology wherein scholars explore potential causal relationships by scrutinizing an existing condition or outcome and tracing it back to its antecedent factors.

3.2 Nature and Source of Data

The data were retrieved from secondary sources. Secondary data being already processed and pooled, were obtained from statistical financial report of the sampled listed oil and gas firms in Nigeria.

The Population Size

The population of this study consists of thirteen (13) listed oil and gas firms in Nigeria exchange group. They are Mobil Nigeria PLC, AninoInternational ,Aradel Holdings Plc , Capital Oil Plc , Caverton Offshore Support Group , ConoilPlc , EternaPlc , Forte Oil Plc ,Japaul Oil & Maritime Services, MRS Oil Nigeria Plc ,OandoPlc , Seplat Energy Plc and Total Nigeria Plc

3.3.1 Sample Size

The study purposively selected five oil and gas firms based on the firms that had the highest average profits over the period under study. The selected firms are EternaPlc, Royal Dutch Shell, ExxonMobil, Chevron and Total Energies.

3.3.2 Sampling Technique

Data were obtained using purposive sampling technique where the five selected firms were chosen in such a way that, the ones with the highest average profit after interest and tax were selected. We took all the oil and gas firms in the industry by adding their respective yearly profit after interest and tax from 2012 to 2024. We divided their respective total with 13 years and multiply it by 100 to convert to percentages for easy accessibility. The first five oil and gas firm with highest average profit after interest and tax were selected from the population of 13 operating oil and gas firms in Nigeria oil and gas industry.

3.4 Specification of Model variables

The model expressing the functional relationship between the dependent variable and independent variables are presented below.

The functional relationship was as follows

$$Y = f(X)$$

Where Y = dependent variable, X independent variables and f function

The mathematical relation is expressed thus

$$ROA = f(\text{INTR} + \text{EXCHR} + \text{EQTYP} + \text{INFR})$$

To make it estimable, the econometric form of the model is presented thus;

$$ROA_{it} = \alpha + \beta_1 \text{INTR} + \beta_4 \text{INFLR} + \mu_{it}$$

Where;

ROA = Return on Asset, the proxy for financial performance

α = Constant

$\beta_0 - \beta_4$ = coefficient of the proxies for the independent variables

INTR = Interest Rate

INFR = Inflation Rate

μ = Error term

i = Firms

t = year and

f = Functional Relationship

The study employed Pooled (OLS) regression because it provides a straightforward method to estimate the relationship between market risks (interest rate risk, exchange rate risk, and equity price risk) and the financial performance of oil and gas firms over time. Pooled OLS is appropriate when the data consist of panel observations where the unobserved individual firm effects are assumed to be constant or uncorrelated with the explanatory variables.

3.5 Techniques of Analysis

The objective of the study is to conduct an analysis regarding the contribution of to the oil and gas firms within Nigeria. In light of this, data were analyzed using descriptive and inferential statistics with the aid of STATA15. The analyses included: descriptive statistics, Breusch and Pagan Lagrangian multiplier test for random effects, and Robust OLS

3.6 A priori expectation

The a priori expectation of this study is based on established financial theory and prior empirical findings regarding the relationship between market risks and firm performance. Specifically, it is expected that:

Interest rate risk will have a positive effect on the financial performance of oil and gas firms, as fluctuations in interest rates may present opportunities for firms to optimize investment returns or financing costs.

Data Presentation and Analysis

4.1 Data Presentation

The data for this work covering return on assets (ROA), Equity Price Risk (EQTY P), Exchange Rate (EXCH R), Interest Rate (INT R) and Inflation Rate (INFL R) were collected and presented in tabular form (see appendix A)

4.2 Data Analysis

Computer printout results of data analysis were attached in appendix B

4.2.1. Descriptive statistics

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Jacq-Bera
ROA	65	4.719	3.942	-6.37	15.25	2.45
INTR	65	15.327	5.548	11.5	27.5	1.98
INFR	65	05.308	6.779	-7.8	32.5	4.23

Source: Researcher's computation using STATA 15 (2025)

The descriptive statistics in Table 2, indicate that the average Return on Assets (ROA) for Nigerian oil and gas firms was 4.72 percent, indicating that on average, these firms were succeeding in generating mediocre returns on their assets. This is, however, heralded by an extremely high standard deviation of 3.94 and a low minimum value of -6.37, which indicates immense variability among firms as some had losses while others had high profitability of as much as 15.25 percent. This spread is a reflection of the responsiveness of firm performance to the fluctuations of market conditions.

Interest rate risk (INTR) also contributes to these challenges. The median interest rate during the research period was 15.33 percent, which varied between 11.5 percent and 27.5 percent. The upper end is proof of the impact of monetary policy adjustments, which increased borrowing costs for firms. Taking into account that oil and gas firms are capital-intensive, higher interest rates restrict access to affordable financing, thereby restricting expansion as well as reducing financial returns.

The inflation rate (INFR) adds a degree of uncertainty. At a mean of 5.31 percent, inflation is moderate; although, the high standard deviation of 6.78 and the extreme values of -7.8 to 32.5 suggest volatility in the local price environment. Extreme inflation erodes consumer purchasing power and elevates input prices, affecting the overall financial health of oil and gas firms indirectly.

Table 2: Breusch and Pagan Lagrangian multiplier test

Type of test	chibar2(01)	Prob>chibar2
BPLMT	1.53	0.108

Source: Researcher's computation using STATA 15 (2025)

The result of the Breusch–Pagan Lagrangian Multiplier Test (BPLMT) in Table 8 has a chibar2 value of 1.53 and a p-value of 0.108. The p-value is greater than the 0.05 significance level, so the null hypothesis that the pooled OLS model is correct cannot be rejected. This finding implies that the variance of the random effects model and the pooled OLS model is not large, which implies that the less restrictive pooled OLS specification can be used for the data. In practice, this finding implies that unmeasured firm-specific heterogeneity does not contribute significantly to biasing the regression estimates and that firm variation in the data set is not so large that the use of a random effects estimator is needed. Thus, pooled

regression model provides efficient and accurate estimates of the market risk variables return on assets (ROA) relationship.

Robust Linear Regression

Table 3: Linear Regression

ROA	Robust Coef.	T	P >[t]
INTR	0.630	3.66	0.001
INFLR	0.370	2.28	0.027
Cons	-6.072	-2.28	0.007
F(4, 57)	8.79		
Prob> F	0.000		
R-squared	0.404		

Source: Researcher's computation using STATA 15 (2025)

From table 9, the model fit as a whole is good with an F-statistic of 8.79 and a probability of 0.000, establishing joint significance of the variables. 0.404 R-squared indicates 40.4% of the ROA variation is accounted for by exchange rate, equity price, interest rate, and inflation and the other 59.6% accounted for by other variations not included in the model.

4.2.7. Test of Hypotheses

Regression results reflect the effects of market risk factors on oil and gas firms' return on assets (ROA) in Nigeria. The decision rule is rejecting the null hypothesis if the calculated p-value is equal to or less than 0.05 (significant) but where greater than 0.05 the alternative hypothesis is accepted.

H₀₁: interest rate risk does not have significant effect on the financial performance of oil and gas firms listed on Nigeria exchange group plc.

Interest rate (INTR) is positive and significant (coef. = 0.630, t = 3.66, p = 0.001), showing that a rise in interest rate is associated with improved ROA. The null hypothesis is rejected and the alternative which states that interest rate risk has significant effect on the financial performance of oil and gas firms listed on Nigeria exchange group plc is accepted.

Inflation rate (INFLR) is also positively and significantly associated with ROA (coef. = 0.370, t = 2.28, p = 0.027), meaning that moderate inflation can improve profitability, possibly by charging goods above costs. The constant is negative (-6.072, t = -2.28, p = 0.007), which implies that firm performance would be reduced without these explanatory variables.

Further Test (Robust check)

Generalized Least Squares (GLS)

Table 4: Result of GLS

ROA	Coef.	Z	P >[z]
INTR	0.630	3.95	0.000
INFLR	0.370	2.10	0.036
Cons	-6.072	-3.15	0.002
Wald chi2(4)	41.93		
Prob> chi2	0.000		

From table 10 one can infer that the result is very similar to robust OLS affirming the appropriateness of the regression model for the data analysis. The regression coefficients and p-values are approximately the same in term of whether significant or not.

4.3. Discussion of Findings

The study found that interest rate risk positively and significantly influences ROA of Nigerian oil and gas firms. Interest rate risk has a significant positive effect on financial performance (ROA) of oil and gas firms (coef. = 0.630, $p = 0.001$). This result appears counterintuitive since higher interest rates usually increase borrowing costs and reduce profitability. However, in line with Risk Management Theory, firms in capital-intensive industries like oil and gas may pass increased costs to consumers or leverage interest-sensitive investments to generate additional income (Dionne, 2013; Ezeaku et al., 2018). The implication is that moderate interest rate hikes may not necessarily harm these firms but could create opportunities for higher returns. While some prior works in Nigeria (Abubakar et al., 2021) found interest rate risk to be non-significant, others (Bassey, 2022) observed a positive effect on bank profitability, supporting this study's outcome. This suggests that oil and gas firms' ability to hedge and manage debt structures determines how interest rate movements translate into performance.

In summary, the results confirm that while interest rate movement can bolster performance through improved financing dynamics and investor confidence. The findings align broadly with theoretical expectations and much of the empirical evidence, though the positive effect of interest rate risk underscores the unique adaptive capacity of Nigerian oil and gas firms.

5.1 Summary of Findings

(i) Interest rate risk has significant positive effect on the financial performance of oil and gas firms listed on Nigeria exchange group plc with regression coefficient of 0.630 and p-value of 0.001.

5.2 Conclusion

This study examined the effect of market risk proxied by interest rate risk on the financial performance of listed oil and gas firms in Nigeria between 2012 and 2024. The findings reveal that interest rate risk exert significant positive influences on return on assets (ROA). The positive impact of interest rate risk suggests that oil and gas firms in Nigeria have adapted to changing borrowing conditions, possibly by leveraging financial hedging, re-pricing strategies, or cost pass-through mechanisms.

5.2 Recommendations

(i) Since exchange rate volatility has a significant negative effect on financial performance, oil and gas firms should adopt robust foreign exchange risk management strategies. These may include currency hedging through forward contracts, swaps, or natural hedging (matching dollar revenues with dollar-denominated expenses). Additionally, the Central Bank of Nigeria should work toward stabilizing the naira by ensuring transparent forex policies, as this will enhance investor confidence and reduce exposure to external shocks.

5.4 Contributions to Knowledge

1. Theoretical Contributions

This study validates and extends Risk Management Theory by demonstrating how oil and gas firms in Nigeria strategically respond to market risks. Contrary to the conventional expectation that interest rate risk always reduces profitability, the findings show that firms can leverage fluctuations in interest rates to improve performance. This suggests that risk, when effectively managed, can be transformed into an opportunity rather than solely a threat. Thus, the study enriches the theoretical understanding of risk-return dynamics in high-risk sectors within emerging economies

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