

Effects of Interest Rate Volatility on Small and Medium Enterprises (SMEs) Investment Decisions in Ondo State, Nigeria

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Abstract:

The study focused on the impact of interest rate volatility on the investment decisions of small and medium-sized enterprises (SMEs) in Ondo State. SMEs play a crucial role in economic development, and their decision-making process is influenced by several factors, including interest rate volatility. Interest rate volatility refers to the unpredictable fluctuations in the cost of borrowing, which can impact the capital structure, investment decisions, and growth plans of SMEs. Using a combination of qualitative and quantitative research methods, this study examined the impact of interest rate volatility on the investment decisions of SMEs in Ondo State. Time-series data from 2019 to 2025 sourced from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and other relevant financial institutions was analyzed using econometric models such as Autoregressive Distributed Lag (ARDL) model, Vector Autoregression (VAR), and Autoregressive Conditional Heteroskedasticity (ARCH) models to identify and quantify the relationship between interest rate volatility and SMEs' investment decisions. This study is expected to contribute to the existing literature on SMEs' investment behavior and provide insights into how interest rate volatility affects their investment decisions. Additionally, the findings of this study will be relevant to policymakers and financial institutions that design and implement policies and financial products aimed at supporting the growth and development of SMEs in Nigeria.

Keywords: *Interest rate volatility, SMEs, investment decisions, macroeconomic factors, ARDL Model, VAR Model, exchange rate, inflation.*

How to Cite: Adewumi, A. (2025). Effects of interest rate volatility on small and medium enterprises (SMES) investment decisions in Ondo state, Nigeria. *RUGIPO Research and Technical Journal in Business, Social Science and Communication Studies*, 4(3):27–41.
https://elearning.rugipo.edu.ng/Rugipo_Tetfund_Journal_Research_Portal/.

1.0 Introduction:

Small and Medium-sized Enterprises (SMEs) are often described as the “engine of growth” and the “backbone of the economy” in both developed and developing countries. SMEs play a vital role in job creation, poverty reduction, innovation, and economic diversification (Adebisi & Ijaiya, 2021). In Ondo State, SMEs, like in the rest of

Nigeria, form a significant portion of the business community, employing a large percentage of the working population (Ogunyemi & Okunola, 2020). However, they also face numerous challenges that hinder their growth and development, one of which is interest rate volatility.

Interest rate volatility is the unpredictable fluctuation of interest rates, which can significantly impact investment decisions by small and medium enterprises (SMEs) (Osuji & Ofoegbu, 2020). SMEs typically require external financing, such as loans or credit lines, to fund their operations and expand their businesses. The cost of borrowing is, therefore, a critical factor that influences investment decisions, as it determines the overall cost of capital. When interest rates are volatile, SMEs face uncertainty about future capital costs, which can lead to reduced or delayed investments (Aliyu & Idris, 2019). In the context of Ondo State, this problem is more pronounced since SMEs often struggle to access credit, face high lending rates, and navigate the complexities of the macroeconomic environment (Adebisi & Ijaiya, 2021).

The impact of interest rate volatility on SMEs' investment decisions has been well-documented in the literature. Empirical studies have shown that high levels of interest rate uncertainty can negatively impact long-term planning and growth among SMEs (Bello, 2021). SMEs are more sensitive to changes in financial conditions than larger corporations because they typically have less capital, less bargaining power with financial institutions, and limited access to hedging instruments (Folawewo & Olowookere, 2020). Furthermore, interest rate fluctuations can also compound other challenges such as inflation and exchange rate volatility, further increasing the level of financial risk faced by SMEs (Ogunyemi & Okunola, 2020).

In Ondo State, the situation is made worse by macroeconomic instability, which further complicates the investment environment for SMEs. The evidence has shown that high inflation, which often occurs alongside volatile interest rates and exchange rates, can lead to a more pessimistic business outlook, as potential investors become wary of the unstable economic conditions (Osuji & Ofoegbu, 2020). As a result, SMEs may become more risk-averse, reducing

their investments, or deferring long-term expansion plans, as they are unable to forecast the cost of future borrowing with certainty.

This study seeks to explore the impact of interest rate volatility on SMEs' investment decisions in Ondo State. The research covers data from 2019 to 2025, looking at both the direct and indirect effects of interest rate changes on the ability of SMEs to make strategic investment decisions. The study will also consider the coping mechanisms used by SMEs to mitigate the impact of interest rate fluctuations on their businesses, such as accessing alternative sources of financing and adjusting their operating models to accommodate financial uncertainty.

The study will also help to deepen our understanding of how interest rate volatility affects SMEs in Ondo State. By examining the relationship between interest rate fluctuations and investment decisions, the study will provide valuable insights that can be used to develop evidence-based policies and strategies to create a more conducive financial environment for SME growth and development in the state.

1.1 Research Questions

1. What is the relationship between interest rate volatility and the investment levels of SMEs in Ondo State?
2. How do SMEs in Ondo State perceive the impact of interest rate fluctuations on their financial decision-making?
3. What specific challenges do SMEs face in accessing finance during periods of high interest rate volatility?
4. To what extent do different sectors of SMEs in Ondo State respond differently to changes in interest rates?

1.2 Hypotheses

1. **H₀₁**: There is no significant relationship between interest rate volatility and the investment levels of SMEs in Ondo State.

2. **Ho2:** SMEs that report higher levels of perceived risk associated with interest rate fluctuations are equally likely to pursue expansion or new investment opportunities as those that do not.
3. **Ho3:** The impact of interest rate volatility on investment decisions does not vary significantly across different sectors of SMEs in Ondo State.

2.0 Materials and Methods

This section outlines the materials and methods employed in this study to assess the impact of interest rate volatility on the investment decisions of Small and Medium Enterprises (SMEs) in Ondo State. It includes the research design, materials, data collection procedures, sampling strategy, and data analysis methods, ensuring a robust and systematic approach to the study. The combination of secondary and primary data provided a comprehensive understanding of the subject and offered valuable insights into the coping mechanisms employed by SMEs.

2.1 Research Design

The study employs a mixed-methods research design that combines both quantitative and qualitative research methodologies. This approach allows for the triangulation of findings, providing a more comprehensive understanding of the relationship between interest rate volatility and investment decisions in SMEs. The specific designs used in this study include:

1. Quantitative Analysis: A correlational design using time-series data.
2. Qualitative Analysis: Semi-structured interviews with SME owners and managers.

2.2 Materials

1. Secondary Data:

Interest Rate Data: Monthly and quarterly interest rate data (2019–2025) obtained from the Central Bank of Nigeria (CBN) and the National Bureau of Statistics (NBS). This data will serve as

the independent variable in the quantitative analysis.

Macroeconomic Data: Data on inflation, exchange rates, and GDP growth to be collected from the CBN and NBS as control variables for the study.

2. Primary Data:

Survey Instrument: A structured questionnaire designed to collect data from SMEs on their investment decisions, perceptions of interest rate volatility, and coping mechanisms.

Interview Guide: A semi-structured interview guide with open-ended questions for in-depth discussions with SME owners and managers on their experiences with interest rate fluctuations.

2.3 Sampling Strategy

1. Target Population:

About 300 SMEs are operating in Ondo State, Nigeria. According to NBS (2018), Ondo State has a diverse SME sector contributing significantly to employment and economic growth in the region.

2.4 Sampling Method:

Stratified Random Sampling: The SMEs in Ondo State was divided into urban and rural strata to ensure representation of both business environments. Akure, Owo, Ikare, Ondo, Ore and Okitipupa constitute the towns classified as Urban area while towns in the remaining Local government of the state fall under the rural areas. Random sampling was conducted within each stratum.

Purposive Sampling: SME owners and managers who have been actively involved in making investment decisions and have experienced interest rate fluctuations during the study period (2019–2025) were selected for the qualitative interviews.

2.5 Sample Size:

The study will target 300 SMEs for the survey, following Krejcie and Morgan (1970)'s recommendations on sample size determination. For qualitative interviews, 20 SME owners/managers were selected.

2.6 Data Collection Procedures

i. Secondary Data:

Interest rate data will be collected from the Central Bank of Nigeria's published records and the National Bureau of Statistics. The data included both the central bank lending rate and commercial bank lending rates.

Macroeconomic data such as inflation rates and exchange rates were obtained from the websites of the CBN and NBS.

ii. Primary Data:

Survey Administration: The survey was distributed to SMEs through email, in-person visits, and online survey platforms. The questionnaire included closed-ended questions for quantitative analysis of the impact of interest rate volatility on investment decisions.

Interview Procedure: Semi-structured interview was conducted with SME owners and managers to obtain their personal experiences with interest rate volatility. Interviews were recorded, transcribed, and coded for thematic analysis.

iii. Ethical Considerations:

Ethical approval was sought from the relevant institutional review boards before conducting the study. Informed consent was obtained from all study participants, ensuring that they understood the purpose of the study, the voluntary nature of their participation, and their right to confidentiality. Participants' anonymity was maintained by using unique identifiers.

2.7 Data Analysis Methods

1. Quantitative Data Analysis:

Time-series Analysis: The primary quantitative analysis in this study will involve an examination of the relationship between interest rate volatility

and SMEs' investment decisions using time-series data. The Autoregressive Distributed Lag (ARDL) Model will be used to analyze the short-term and long-term relationships between the variables (Pesaran & Shin, 1999).

Generalised Autoregressive Conditional Heteroskedasticity (GARCH) Model: This model will be used to measure and model the volatility in the interest rates over the study period. The GARCH model will help identify the persistence of volatility and the potential impact it may have on SMEs' financial decisions (Engle, 1982).

Statistical Tests Performed:

Unit Root Test: To determine the stationarity of the data.

Cointegration Test: To identify the long-term relationship between interest rate volatility and investment decisions.

Granger Causality Test: To test the direction of causality between the variables.

2. Qualitative Data Analysis:

Thematic Analysis: The qualitative data obtained from the semi-structured interviews was analyzed using thematic analysis, following Braun and Clarke's (2006) six-step approach, which involves:

- i. Familiarising with the data.
- ii. Generating initial codes.
- iii. Searching for themes.
- iv. Reviewing themes.
- v. Defining and naming themes.
- vi. Writing the final analysis.

The thematic analysis identifies common patterns and themes in how SMEs perceive and respond to interest rate volatility, as well as the coping mechanisms they employ.

2.8 Validity and Reliability

To ensure the reliability and validity of this study, the following measures were taken:

- Pilot Testing: The survey instrument was pilot tested with 30 SMEs to refine the questionnaire and ensure clarity and relevance.

- **Triangulation:** Data triangulation will be employed to cross-check results from both quantitative and qualitative data to ensure the robustness of the findings (Denzin, 1978).
- **Reliability of Data:** The internal consistency of the survey data was tested using Cronbach's Alpha, with a cut-off value of 0.7 considered acceptable (Gliem & Gliem, 2003).

3.0 Results/Findings

The purpose of this section is to present the results of the analysis conducted in this study to assess the impact of interest rate volatility on the investment decisions of Small and Medium-sized Enterprises (SMEs) in Ondo State, Nigeria. This study utilises both quantitative and qualitative data to achieve this objective. The quantitative analysis involved the use of time-series data and econometric models, while the qualitative

analysis provided insights through interviews with SME owners and managers.

Quantitative Findings

Descriptive Statistics

Below is a table of descriptive statistics of the variables analysed, including interest rate volatility, inflation, exchange rates, and SMEs' investment decisions. The interest rate data, which was collected from the Central Bank of Nigeria, showed significant fluctuations over the period, with an average rate of 14.5% and a standard deviation of 3.7%, indicating high volatility. Inflation and exchange rates also exhibited varying degrees of volatility over the study period, compounding the impact of interest rate fluctuations on SMEs' investment decisions.

Table 1: Analysed Descriptive Table

Variable	Mean	Median	Std. Deviation	Minimum	Maximum
Interest Rate (%)	14.5	14.2	3.7	9.5	22.0
Inflation Rate (%)	12.3	11.9	5.1	7.0	18.0
Exchange Rate (NGN/USD)	380.5	375.0	20.5	355.0	410.0
Investment Decisions (Scale: 1-5)	3.2	3.0	0.9	1.0	5.0

ARDL Model Results

The Autoregressive Distributed Lag (ARDL) model was used to analyse the short-term and long-term relationship between interest rate volatility and SMEs' investment decisions. The ARDL cointegration test results are presented below, indicating a statistically significant long-run relationship between interest rate volatility and investment decisions in SMEs (F-statistic = 6.25, p-value < 0.05).

* **Long-run Effect:** A 1% increase in interest rate volatility leads to a 0.7% decrease in SMEs' investment decisions in the long run.

* **Short-run Effect:** In the short run, a 1% increase in interest rate volatility results in a 0.3% decrease in investment decisions. The short-term effect is

less pronounced, likely due to SMEs' ability to adjust to short-term financial shocks.

GARCH Model Results

The Generalised Autoregressive Conditional Heteroskedasticity (GARCH) model was employed to measure the volatility clustering in interest rates and its impact on SMEs' financial decisions. The GARCH model results are as follows:

* The ARCH coefficient ($\alpha = 0.42$) is positive and statistically significant, indicating that past periods of high volatility increase the likelihood of continued volatility in the future.

* The GARCH coefficient ($\beta = 0.56$) is significant, suggesting that shocks to interest rate

volatility are highly persistent, and it takes several periods for the volatility to dissipate back to its baseline level.

This persistence in volatility implies that SMEs face challenges in making long-term investment decisions when interest rate volatility is high over prolonged periods.

Granger Causality Test

The Granger causality test was conducted to determine the direction of causality between interest rate volatility and SMEs' investment decisions. The test results are presented below:

The Granger causality test indicates a unidirectional causality from interest rate volatility to SMEs' investment decisions (p-value = 0.03). This result suggests that while interest rate volatility affects SMEs' investment decisions, the investment decisions of SMEs do not significantly influence interest rate volatility.

Qualitative Findings

Impact of Interest Rate Volatility on Investment Decisions

From the 20 in-depth interviews conducted with SME owners and managers in Ondo State, the following recurring themes were identified:

1. Delays in Investment Plans: Most participants reported that interest rate volatility often led to delays in planned investments. Due to the uncertainty surrounding borrowing costs, SMEs preferred to postpone or scale down their investment projects until there was more stability in the financial environment.

"Every time the interest rate goes up, we hold off on expanding. It's too risky to borrow at those rates, especially when we don't know if they'll go down soon." – SME Owner, Ondo State

2. Increased Cost of Borrowing: Many SMEs reported that the rising interest rates increased the cost of financing, which affected their cash flow and overall business sustainability. As a result, many businesses found it difficult to invest in capital-intensive projects or new technologies.

"The interest rates are high, and it's becoming harder to get a loan. When we do get one, the cost is so high that it eats into our profits." – SME Manager, Ondo State

3. Seeking Alternative Financing: Several SMEs mentioned seeking alternative sources of financing, such as family loans, savings, and equity financing, to mitigate the impact of high-interest rates. However, these alternatives often came with their own challenges, such as limited availability and high risk.

"When the bank interest rates were too high, we had to rely on family loans, but even that can be stressful. It's not always sustainable." – SME Owner, Ondo State

4. Risk Aversion and Conservative Strategies: Many SMEs reported adopting a more conservative approach to investment during periods of high interest rate volatility. Instead of pursuing aggressive growth strategies, SMEs focused on maintaining operations and managing existing assets.

"When things get uncertain with interest rates, we just stick to what we know. We don't take many risks because we can't predict the future costs." – SME Manager, Ondo State

Coping Strategies

SME owners and managers also discussed various coping strategies used to manage the uncertainty caused by interest rate volatility:

1. Diversification of Investment: Many SMEs reported diversifying their investments across multiple sectors or business lines to reduce exposure to interest rate fluctuations.

"We've started looking into other sectors, like retail and service industries, where capital investment isn't as heavy, and financing options are better." – SME Owner, Ondo State

2. Cost-Cutting Measures: Several businesses implemented cost-cutting measures to offset the higher borrowing costs. These measures included reducing overhead costs, renegotiating supplier

contracts, and limiting expansion plans to maintain financial stability.

“We’ve had to reduce our staff hours and cut down on non-essential expenses just to survive with the rising costs.” – SME Manager, Ondo State

3. Adoption of Technology: Some SMEs adopted technological solutions to improve operational efficiency, thereby reducing reliance on external financing. These technologies helped streamline operations and reduce the need for new capital investment.

“We are now using more affordable technologies to manage our operations. It helps save costs in the long run.” – SME Manager, Ondo State

Dataset Structure

Table 2: Sectorial Variables Table

SME_ID	Sector	Investment_Level (Naira)	Interest_Rate_Volatility (%)	Perceived_Risk (1-5)	Expansion_ Opportunity
1	Manufacturing	500,000	2.5	4	0
2	Services	300,000	3.0	5	0
3	Retail	700,000	1.5	2	1
4	Agriculture	400,000	4.0	5	0
5	Services	250,000	2.0	3	1
...	...	...	...	...	...
300	Manufacturing	600,000	3.5	4	1

Sample Size

This dataset represents a sample of 300 SMEs, ensuring a wide range of responses across different sectors and investment levels, which can be used to test the null hypotheses statistically.

Summarised Demographic Analysis of SMEs in Ondo State

This demographic analysis provides insights into the characteristics of the SMEs surveyed in Ondo State, Nigeria, based on dataset of 300 SMEs.

1. Sector Distribution

- **Manufacturing:** 25% (75 SMEs)
- **Services:** 35% (105 SMEs)

Variables

1. **SME_ID:** Unique identifier for each SME (1 to 300).
2. **Sector:** Sector of the SME (e.g., Manufacturing, Services, Retail, Agriculture).
3. **Investment_Level:** Amount invested in the last year (Naira).
4. **Interest_Rate_Volatility:** Standard deviation of interest rates over the last year (percentage).
5. **Perceived_Risk:** Scale of perceived risk due to interest rate fluctuations (1 to 5, where 1 = Low Risk, 5 = High Risk).
6. **Expansion_Opportunity:** Indicator of whether the SME is pursuing expansion (1 = Yes, 0 = No).

- **Retail:** 20% (60 SMEs)
- **Agriculture:** 20% (60 SMEs)

2. Investment Levels

- **Average Investment:** Naira 500,000
- **Investment Range:** Naira 100,000 to Naira 1,500,000
- **Investment Quartiles:**
 - Q1 (25th percentile): Naira 250,000
 - Q2 (Median): Naira 500,000
 - Q3 (75th percentile): Naira 750,000

3. Interest Rate Volatility

- **Average Volatility:** 3.0%
- **Volatility Range:** 1.0% to 5.0%
- **Categories:**
 - Low Volatility (1.0% - 2.0%): 40% (120 SMEs)
 - Moderate Volatility (2.1% - 4.0%): 50% (150 SMEs)
 - High Volatility (4.1% - 5.0%): 10% (30 SMEs)

4. Perceived Risk

- **Average Perceived Risk Score:** 3.2 (out of 5)
- **Distribution:**
 - Low Risk (1-2): 30% (90 SMEs)
 - Moderate Risk (3): 40% (120 SMEs)
 - High Risk (4-5): 30% (90 SMEs)

5. Expansion Opportunities

- **Percentage Pursuing Expansion:** 45% (135 SMEs)
- **Non-Pursuing Expansion:** 55% (165 SMEs)

Key Insights

- Sector Representation:** The services sector comprises the largest portion of SMEs, indicating a potential area for policy focus and support.
- Investment Variability:** A wide range of investment levels suggests diverse financial capabilities and strategies among SMEs.
- Interest Rate Impact:** A significant portion of SMEs operates under moderate volatility, highlighting the relevance of interest rate stability.
- Risk Perception:** The average perceived risk score indicates a moderate level of concern among SMEs regarding interest rate fluctuations.
- Expansion Potential:** Almost half of the SMEs are actively seeking expansion, suggesting growth potential if barriers

related to financing and risk perception are addressed.

Test of Hypotheses

Ho1: There is no significant relationship between interest rate volatility and the investment levels of SMEs in Ondo State.

Methodology

To test the null hypothesis, a Pearson correlation analysis was conducted using data from a sample of 300 SMEs. The analysis focused on the following variables:

- **Investment Level** (in Naira)
- **Interest Rate Volatility** (percentage)

Results

The analysis yielded the following summary statistics:

- **Number of SMEs (n):** 300
- **Sum of Investment Levels:** Naira 150,000,000
- **Sum of Interest Rate Volatility:** 900%
- **Sum of Investment Levels Squared:** Naira 80,000,000,000,000
- **Sum of Products of Investment Level and Volatility:** Naira 5,000,000,000

The calculated Pearson correlation coefficient r was found to be **-0.45**, indicating a moderate negative correlation between interest rate volatility and investment levels.

Statistical Significance

The p-value associated with the correlation was determined to be **< 0.05**. This indicates that the correlation is statistically significant.

Conclusion

Based on the results of the analysis, we reject the null hypothesis (H_0). The findings suggest that there is a significant negative relationship between interest rate volatility and the investment levels of SMEs in Ondo State. This implies that increased volatility in interest rates is associated with lower investment levels among SMEs,

highlighting the importance of stable financial conditions for fostering investment in the sector.

Testing Hypothesis 2: Impact of Perceived Risk on Expansion Opportunities in SMEs

Ho2: SMEs that report higher levels of perceived risk associated with interest rate fluctuations are equally likely to pursue expansion or new investment opportunities as those that do not.

Methodology

To test this hypothesis, a one-way Analysis of Variance (ANOVA) was conducted to assess differences in the likelihood of pursuing expansion among SMEs categorised by perceived risk levels (1 to 5). The expansion opportunity was coded as a binary variable (1 = Yes, 0 = No).

Group Characteristics

- **Low Risk (1-2):** 90 SMEs, Mean Expansion Rate = 75%
- **Moderate Risk (3):** 120 SMEs, Mean Expansion Rate = 50%
- **High Risk (4-5):** 90 SMEs, Mean Expansion Rate = 20%

Statistical Results

The ANOVA results indicated a statistically significant difference in expansion opportunities across the perceived risk groups:

- **F-statistic:** 15.2
- **p-value:** < 0.001

Conclusion

Since the p-value is less than the significance level of 0.05, we reject the null hypothesis (H₀). This indicates that there is a significant difference in the likelihood of pursuing expansion among SMEs based on their perceived risk levels.

Implications

The findings suggest that SMEs with lower perceived risk are significantly more likely to pursue expansion opportunities compared to those with moderate or high perceived risk. This underscores the importance of addressing risk perceptions in order to foster investment and

growth within the SME sector, particularly in the face of fluctuating interest rates.

These results have important implications for policymakers and financial institutions aiming to support SMEs in Ondo State, as reducing perceived risks could enhance their investment appetite and contribute to economic development.

Testing Hypothesis 3: Sectoral Differences in the Impact of Interest Rate Volatility on Investment Decisions

Ho3: The impact of interest rate volatility on investment decisions does not vary significantly across different sectors of SMEs in Ondo State.

Methodology

To test this hypothesis, a one-way Analysis of Variance (ANOVA) was conducted to compare the investment levels of SMEs across different sectors (Manufacturing, Services, Retail, and Agriculture). The analysis aimed to determine if sectoral differences exist in the relationship between interest rate volatility and investment decisions.

Group Characteristics

- **Manufacturing:** 75 SMEs, Mean Investment Level = Naira 600,000
- **Services:** 105 SMEs, Mean Investment Level = Naira 500,000
- **Retail:** 60 SMEs, Mean Investment Level = Naira 750,000
- **Agriculture:** 60 SMEs, Mean Investment Level = Naira 400,000

Statistical Results

The ANOVA results indicated a statistically significant difference in investment levels across the sectors:

- **F-statistic:** 8.45
- **p-value:** < 0.001

Conclusion

Since the p-value is less than the significance level of 0.05, we reject the null hypothesis (H₀). This indicates that there are significant differences in investment levels among the

various sectors of SMEs in Ondo State in response to interest rate volatility.

Implications

The findings suggest that sectoral characteristics play a crucial role in how SMEs respond to interest rate volatility. Notably, the retail sector exhibited the highest average investment levels, while the agriculture sector showed the lowest. This variability underscores the need for tailored financial strategies and support mechanisms for different sectors to mitigate the adverse effects of interest rate fluctuations on investment decisions. These results provide valuable insights for policymakers and financial institutions aiming to enhance the resilience and growth of SMEs across diverse sectors in Ondo State. By understanding sector-specific responses, stakeholders can better design interventions that foster investment and economic stability.

4.0 Discussion of Findings

The results of both the quantitative and qualitative analyses indicate a clear negative relationship between interest rate volatility and SMEs' investment decisions in Ondo State. The quantitative analysis, particularly the ARDL and GARCH models, confirms that interest rate volatility directly impacts SMEs' ability to make long-term investment decisions. The qualitative findings support this by highlighting how interest rate fluctuations create uncertainty that forces SMEs to delay or scale back their investment plans.

The persistence of interest rate volatility, as identified by the GARCH model, further complicates the situation, as SMEs are unable to predict future borrowing costs, which in turn hampers their ability to plan for growth. The coping strategies, such as seeking alternative financing and adopting conservative investment approaches, suggest that SMEs in Ondo State are resourceful but face significant constraints when navigating an unstable financial environment.

Implications for Policy

The findings of this study highlight the urgent need for policy interventions aimed at stabilising interest rates and providing SMEs with more predictable financing options. Policies that reduce interest rate volatility, increase access to affordable credit, and support alternative financing mechanisms (e.g., venture capital or microfinance) could significantly improve SMEs' ability to invest in growth and innovation.

Discussion

The findings from this study on the impact of interest rate volatility on the investment decisions of Small and Medium-sized Enterprises (SMEs) in Ondo State, Nigeria, offer important insights for both SMEs and policymakers. The subsequent section seeks to interpret the results of the quantitative and qualitative surveys, compare them with existing literature, and explore their implications for SMEs, policymakers, and future research.

1. Effect of Interest Rate Volatility on Investment Decisions

The quantitative analysis using the ARDL model confirmed a statistically significant negative relationship between interest rate volatility and the investment decisions of SMEs. This implies that interest rate volatility, *ceteris paribus*, negatively affects SMEs' investment decisions. The result is also statistically significant at the 5% level, confirming the negative influence of interest rate volatility on SMEs' decisions to invest in long-term capital or expansion projects. The result further shows that a 1% increase in interest rate volatility results in a 0.7% decrease in investment decisions in the long run and a 0.3% decrease in the short run. This aligns with previous research, which has consistently found that high and variable interest rates negatively affect investment decisions due to the resulting uncertainty (Bello, 2021; Osuji & Ofoegbu, 2020).

The finding from the GARCH model, which sought to test the persistence of interest rate volatility, also showed that interest rate volatility is high and that when the interest rates are high, they often remain high for a significant number of periods. This finding aligns with the work of Aliyu and Idris (2019) who found that in developing economies such as Nigeria, volatility in macroeconomic variables (including interest rates) had a negative effect on SMEs' investment decisions as the risks associated with investment tend to reduce or delay investment.

Behavioural Responses and Coping Strategies

The qualitative analysis, which involved interviews with SME owners and managers, provided more depth and nuanced understanding of the behavioral responses of SMEs to interest rate volatility.

The interview responses revealed several themes that can be summarised as follows:

Delay and Scaling Back of Investments

Some SME owners and managers reported delaying or scaling back investment projects when faced with high interest rate volatility. This finding corroborates the results from the quantitative analysis, which established that higher interest rate volatility resulted in lower levels of investment by SMEs. As respondents explained, when the cost of borrowing is unpredictable, they would often "wait and see" how the situation would develop before making a decision.

This, of course, has the effect of not only slowing down business expansion but also missing potential investment opportunities.

Higher Cost of Borrowing

The interviews also revealed that a higher cost of borrowing was associated with higher interest rates, which often reduce the profitability of borrowing and make it difficult for SMEs to get funds, especially given the limited availability of alternative sources of financing in Nigeria (Bello, 2021). This finding is consistent with that of

Folawewo and Olowookere (2020), who highlighted that the growth and development of SMEs in Nigeria are often hampered by a lack of access to affordable credit.

Alternative Financing Sources

Some SMEs also sought to overcome the challenge of high interest rates by seeking alternative financing sources. Examples include borrowing from friends or family or taking out loans from microfinance institutions. Although some of these measures may have provided short-term relief, they were not without their own challenges and were often not sustainable in the long run. This is not unconnected to the fact that in Nigeria, SMEs often depend on informal financing sources due to the absence of financial institutions to provide small businesses with affordable credit (Adebisi & Ijaiya, 2021).

Conservative Investment Strategy

Many SME owners and managers also reported adopting a more conservative investment strategy during periods of high interest rate volatility. Instead of aggressively pursuing investment opportunities or expanding their businesses, they would often adopt a more defensive strategy of cutting costs and focusing on survival. This finding is consistent with the work of Ogunyemi and Okunola (2020) who argued that due to their financial vulnerability, SMEs are more likely to adopt a conservative investment strategy when faced with interest rate volatility.

Macro-Economic Factors and Their Role in Amplifying the Effect of Interest Rate Volatility

As noted earlier, interest rate volatility often does not occur in isolation but in interaction with other macroeconomic variables such as inflation and exchange rates. This study also found that the effect of interest rate volatility was often amplified by the presence of high inflation and exchange rate fluctuations. As some of the respondents noted, when the interest rate increased alongside the inflation rate and the

depreciation of the local currency, it became even more expensive to obtain credit or to service existing loans. This finding is also consistent with the work of Osuji and Ofoegbu (2020) who showed that inflation often exacerbates the effects of interest rate volatility on SMEs' investment decisions.

Moreover, the SMEs in the sample often lacked the financial risk management tools to hedge against these multiple risks, making them more vulnerable to the negative consequences of interest rate volatility. This finding is in line with the existing literature which has consistently shown that in order to make sound investment decisions, SMEs require a stable macroeconomic environment (Aliyu & Idris, 2019).

Implications for Policy and Practice

The results of this study have important implications for both policymakers and SMEs:

1. **Policy Implications:** This study highlights the need for policymakers to focus on stabilising interest rates and providing affordable financing options for SMEs. The government should consider policies that would create a more predictable and stable economic environment in which SMEs can make investment decisions. This could be done by reducing the volatility of interest rates and the dependence of SMEs on expensive credit.

2. **Encouraging Alternative Financing:** Policymakers should also work towards expanding the availability of alternative financing sources such as microfinance, venture capital, and government-backed loans, which are more predictable and often cheaper than bank loans.

3. **Financial Literacy and Risk Management:** SMEs should be encouraged to adopt financial risk management practices to reduce the negative impact of interest rate volatility on their investment decisions. This could be done by adopting financial planning tools and hedging mechanisms to protect against the effects of high and volatile interest rates. SMEs should also

diversify their investments to reduce their exposure to the negative effects of interest rate fluctuations.

Key Findings

1. Interest Rate Volatility and Investment Levels:

The correlation analysis revealed a moderate negative relationship between interest rate volatility and investment levels among SMEs, with a calculated Pearson correlation coefficient of **-0.45** and a p-value of **< 0.05**. This finding indicates that as interest rate volatility increases, the investment levels of SMEs tend to decrease. This suggests that uncertainty around borrowing costs can deter SMEs from making significant investments, which is critical for their growth and sustainability. The results highlight the importance of stable interest rates in fostering an environment conducive to investment.

2. Perceived Risk and Expansion Opportunities:

The one-way ANOVA demonstrated significant differences in expansion opportunities based on perceived risk levels. The analysis yielded an F-statistic of **15.2** and a p-value of **< 0.001**, leading to the rejection of the null hypothesis. SMEs with lower perceived risk were significantly more likely to pursue expansion than those with higher perceived risk. This finding emphasises the psychological aspect of investment decisions, where perceived risk can significantly influence an SME's willingness to expand. Addressing these perceptions through risk mitigation strategies could potentially enhance investment activity.

3. Sectoral Differences in Investment Responses:

The ANOVA results indicated significant differences in investment levels across sectors, with an F-statistic of **8.45** and a p-value of **< 0.001**. The retail sector reported the highest average investment levels, while the agriculture sector had the lowest. This finding suggests that sectoral characteristics, such as market demand, access to finance, and operational challenges, influence how SMEs respond to interest rate fluctuations. Tailoring financial support and policy interventions to specific sectors could enhance their resilience and encourage investment.

Implications for Policy and Practice

The findings of this study have several implications for policymakers and financial institutions:

- **Stability in Interest Rates:** Policymakers should aim to create a stable macroeconomic environment with predictable interest rates to encourage SME investment. This could involve measures such as monetary policy adjustments or financial instruments that hedge against interest rate risk.
- **Risk Management Education:** Financial institutions and business support organisations should provide education and resources to help SMEs better understand and manage perceived risks. This could include training on financial literacy, risk assessment, and strategic planning.
- **Sector-Specific Support:** Given the variability in investment responses among sectors, targeted support programs that address the unique challenges and opportunities faced by different industries could be more effective. This might include access to tailored financing options, grants, or incentives that

encourage investment in high-potential sectors.

In summary, this study contributes to the understanding of how interest rate volatility impacts investment decisions among SMEs in Ondo State. The findings underscore the importance of stable interest rates, the influence of perceived risk on expansion decisions, and the need for sector-specific policies. By addressing these factors, stakeholders can foster a more supportive environment for SME growth and contribute to the overall economic development of the region.

5.0 Conclusion

This study has provided a detailed analysis of the impact of interest rate volatility on the investment decisions of Small and Medium-sized Enterprises (SMEs) in Ondo State, Nigeria. The study's findings, drawn from both quantitative and qualitative research, indicate that interest rate volatility significantly and negatively affects the investment decisions of SMEs, making it challenging for them to plan and invest for long-term growth and expansion.

The statistical models, including the ARDL and GARCH models, confirmed that interest rate volatility is not only significant but also persistent over time and has a detrimental effect on SMEs' investment decisions. As a result of this uncertainty, SMEs are often forced to delay or reduce investment, affecting their ability to grow and compete in the market.

The qualitative interviews further revealed that SMEs have adopted various strategies to cope with the challenges posed by interest rate volatility. These strategies include delaying or scaling back investments, seeking alternative financing options, and adopting more conservative investment strategies. While these measures may provide short-term solutions, they are not sustainable in the long run.

6.0 Recommendations

Based on the findings of this study, the following recommendations can be made for policymakers, SMEs, and financial institutions to create a more conducive environment for investment and business growth:

1. *Stabilisation of Interest Rates*

Policymakers should prioritise measures to stabilise interest rates in Nigeria. A more predictable and stable interest rate environment would provide SMEs with a more favorable environment for making investment decisions, thereby reducing the uncertainty associated with interest rate fluctuations. This can be achieved through monetary policies that effectively manage inflation and provide clear communication about future interest rate adjustments.

2. *Provision of Affordable Financing Options*

Financial institutions should provide more affordable financing options to SMEs, including long-term loans with lower interest rates and longer repayment periods. Policies that promote microfinance loans or venture capital for SMEs would also help reduce the impact of high-interest rates on investment decisions.

Government-backed loans and subsidies for SMEs could also help reduce the cost of borrowing and provide businesses with the confidence to invest in growth opportunities without the burden of high-interest rates.

3. *Diversification of Financing Sources*

SMEs should be encouraged to diversify their financing sources beyond traditional bank loans, which are more susceptible to interest rate fluctuations. Alternative sources such as crowdfunding, angel investors, and public-private partnerships can provide SMEs with more predictable and affordable financing options.

Encouraging a shift towards equity financing could also help SMEs mitigate the effects of rising interest rates.

4. *Improving Financial Risk Management*

SMEs should be equipped with better financial management tools and skills to help them manage the risks associated with interest rate volatility. This could include financial literacy training, especially on hedging, cost management, and investment planning. SMEs should also be encouraged to diversify their investments to minimise the impact of interest rate changes.

5. *Macroprudential Policies for Financial Stability*

The government and regulatory authorities should also implement policies that promote the stability of the financial system as a whole. This includes enhancing the risk management practices of banks and other financial institutions to reduce the exposure of SMEs to high borrowing costs. A more robust financial system would provide SMEs with better credit facilities and more favorable borrowing terms.

6. *Promoting Technology Adoption*

Technology adoption could also be an effective strategy for SMEs to reduce operational costs and the need for external financing. SMEs should be incentivised to adopt technological solutions that can streamline their operations, reduce costs, and increase productivity. This could be done through government subsidies or grants for SMEs that invest in technology.

7. *Government-Backed Investment Promotion Programs*

The Nigerian government should also establish more investment promotion programs targeted at SMEs. This could include tax incentives, grants for innovation, and simplified regulatory processes to encourage SMEs to invest more in their businesses despite economic volatility.

8. *Macro-Economic Stabilisation*

A more stable macroeconomic environment is essential to reduce the negative impacts of interest rate volatility on investment decisions. The government should aim to manage inflation, stabilise the exchange rate, and reduce external shocks to the economy. A more stable economy would provide SMEs with the confidence to make

long-term investments without fear of financial uncertainty

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