

Effects of Selected Macroeconomic Variables on Insurance Claims Settlement in Nigeria

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Abstract

The study examined the effect of selected macroeconomic variables, specifically inflation and interest rate, on insurance claims settlement in Nigeria. The research adopted an ex-post facto design, and data were analyzed using the Auto-Regressive Distributed Lag (ARDL) model. The results indicate that both inflation and interest rate have a positive but insignificant effect on claims, with p-values of 0.0655 ($p > 0.05$) and 0.3068 ($p > 0.05$), respectively. Therefore, we conclude that while both predictors (inflation and interest rate) are positively associated with the dependent variable, their effect is not substantial. This could mean that other factors are overshadowing the influence of macroeconomic variables, rendering them less impactful in the context of insurance claims. More so, the findings propose that insurers might experience a greater influence on claims management from internal factors rather than external economic conditions. This highlights the importance of examining the operational practices and regulatory frameworks within which insurers operate. Insurers' risk management strategies; such as underwriting processes, claims handling procedures, and reserves management; are crucial in determining their ability to settle claims effectively. A well-implemented risk management framework can mitigate potential losses regardless of macroeconomic fluctuations. We recommend implementing predictable and sustainable economic policies, as well as maintaining low interest rates to motivate investors.

Keywords: Insurance Claims Settlement, Macroeconomic Variables, Inflation, Interest Rate, Nigeria.

Introduction

The Nigerian economy is characterized by various uncertainties, ranging from the operations of the Central Bank of Nigeria (CBN) to the activities of financial institutions and the fluctuating rates at which goods and services are exchanged. The performance of the insurance industry, particularly in terms of claims settlement, is crucial, as it affects every other sector. An insurance claim is a contractual obligation of an insurance firm, which arises from the receipt of a premium from the insured. It is a requisite for a binding contract (NDIC, 2023). Claims settlement is a core component of the insurance industry, and it has been significantly influenced by fluctuations in macroeconomic variables. The portfolio of

risks underwritten by insurers varies, which means that different types of insurance are impacted by inflation in diverse ways, often influenced by different factors (Jim & Will, 2023). Property insurers, for instance, have faced increased costs of raw materials, labor, and other subsidiary expenses due to prolonged reinstatement periods (Jim & Will, 2023). Insurance claims settlement refers to the payment or other form of indemnification from an insurance provider to an insured party to resolve a claim (Stefan, 2023). From the perspective of insurance companies, claims settlement serves as a means of improving their customer base, acts as a competitive advantage, and ultimately enhances profitability (Capgemini, 2011). As the number of customers increases, so does the premium income. Therefore, the most effective way to manage claims, especially for fire insurance, is through continuous education of the insuring community. This education can help provide information on fire prevention and related costs, thereby minimizing claims (Agbo, Okeke, & Okeume, 2022).

In developing economies, the insurance sector is gaining importance due to its increasing contribution to the productivity of the financial sector. Insurance is considered a refuge for economic sectors and is viewed as supportive of other sectors such as manufacturing and services. In recent years, the insurance system has been regarded as an essential element of every economic activity. It provides a safety net that supports other sectors, particularly those that are unstable.

The global economic instability and crises have necessitated a new approach to economic policy formulation to mitigate the adverse effects on the public. Nigeria, operating a mixed economy that combines elements of both capitalism and socialism, has a free market where the laws of demand and supply determine prices. Macroeconomic variables such as interest rate, inflation rate, population, and consumer price index (CPI), among others, are crucial in determining stability in both the insurance sector and the broader economy.

Economists monitor and investigate the state of the economy using macroeconomic variables, which serve as indicators of overall economic health. Various macroeconomic factors, including inflation, population growth, GDP, unemployment, and per capita income, have impacted the insurance industry in both positive and negative ways. A significant rise in the number of policy surrenders, a decline in policy renewals, and a reduction in new customer acquisitions due to loss of income and other factors are potential consequences.

Inflation, defined as the continuous rise in prices, is measured by the Consumer Price Index (CPI) or by the implicit price deflator for Gross National Product (GNP). During periods of inflation, money loses its purchasing power, making it imperative for insurers to be cautious when investing reserves to comply with solvency regulations (Jim & Will, 2023).

On the other hand, the most significant determinant of a company's performance is the interest rate. It significantly influences investment decisions, monetary policies, company profits, job creation, and capital generation. Interest rate, considered the price of capital, plays a role in forming more capital by attracting savers. A lower interest rate, however, can lead to unemployment, which directly negatively impacts insurance companies.

Statement of the Problem

Claims payment is a legal obligation and a contractual duty for insurers. Historically, insurers have sometimes failed to honor claims due to various factors, such as the risk of insolvency and macroeconomic influences. In response to these challenges, several legislations have been enacted to mitigate such issues. These include requirements for maintaining reserves and increasing the operating capital base of insurers. The Insurance Act also stipulates that a certain percentage of reserves must be invested by insurers. Given these regulations, it becomes crucial to understand how these invested funds are performing in the context of macroeconomic variables and what effect these variables have on claim experiences.

Empirical evidence has consistently warned insurers to exercise caution when investing reserves due to solvency regulations and the potential risks posed by macroeconomic variables. Moreover, while previous studies have explored the relationship between macroeconomic variables and insurance companies in Nigeria, only a few have specifically examined the impact of these variables on insurance claims payment. Additionally, these studies have often used different combinations of macroeconomic variables, making it difficult to draw definitive conclusions.

Given this gap in the literature and the need to address the question of how specific macroeconomic variables affect insurance claims, this study aims to investigate the effects of inflation and interest rates on insurance claims in Nigeria, excluding other variables. This focused approach will provide a clearer understanding of the isolated impact of these key economic indicators on the insurance sector.

Objectives of the Study

The primary objective of this study is to determine the impact of two selected macroeconomic factors on insurance claims settlements in Nigeria. Specifically, the study aims to:

- i. Examine the effect of the inflation rate on insurance claims settlements in Nigeria.
- ii. Investigate the effect of the interest rate on insurance claims settlements in Nigeria.

Research Questions

To achieve the stated objectives, the following research questions were developed:

- i. How has the inflation rate affected insurance claims settlements in Nigeria?
- ii. To what extent has the interest rate affected insurance claims settlements in Nigeria?

Research Hypotheses

The hypotheses are stated in both null and alternate form:

- Ho₁.** The inflation rate has no positive and significant effect on insurance claims settlements in Nigeria.

Ho₂. The inflation rate has a positive and significant effect on insurance claims settlements in Nigeria.

Ho₁. The interest rate has no positive and significant effect on insurance claims settlements in Nigeria.

Ho₂. The interest rate has a positive and significant effect on insurance claims settlements in Nigeria.

Scope of the Study

1. **Variables:** The study focuses on the dependent variable (insurance claims settlements) and the predictor variables (inflation rate and interest rate).
2. **Geographical Scope:** The study is limited to the Nigerian insurance sector.

Review of Related literature

Conceptual Review

Insurance Claims

Claims are a key service standard used by insurance companies to attract and retain customers. In the context of banking, claims refer to requests made by depositors and creditors for payment of dividends to uninsured customers of failed banks (NDIC, 2023). Insurance is a form of risk management used to mitigate the risk of contingent loss (Deyganto & Alemu, 2019). It involves transferring risks from one entity to another for a premium (Ullah, Faisal, & Zuhra, 2016). The operations of insurance companies can be influenced by both microeconomic and macroeconomic variables, which can have either positive or negative effects (Berhe & Kaur, 2017). Essentially, the promise of claims payment is the primary reason individuals and businesses purchase insurance products.

Insurance Claims Process

The claims process is initiated when an insured party suffers a loss caused by a peril named in the policy and notifies the insurance firm. The process then proceeds through investigation, and ultimately results in either payment or denial of the claim. This process involves responsibilities for both the claimant and the insurance company, as stipulated by Section 70 of the Insurance Act 2003. The claimant must fulfill certain obligations that are fundamental to the success of the claim, which include:

i. Notifying the insurance company of the loss. ii. Acting as if uninsured by taking reasonable steps to prevent further damage. iii. Providing supporting evidence of the loss (proof/particulars of the loss). The obligations of the insurance company include: i. Reviewing the claim. ii. Conducting an investigation. iii. Engaging in negotiation. iv. Providing indemnification. v. Issuing a discharge. vi. Engaging in subrogation/recovery (if applicable).

The claims process may vary slightly depending on the type of claim. Therefore, it is recommended to seek advice from adjusters for guidance (Northbridge Insurance, n.d). The following steps are recommended for a successful claim: notifying your broker of the loss,

starting the claim investigation, reviewing the insured's policy, assessing the damage, and making the payment.

Furthermore, Industrial and General Insurance (2019) outlined the specific steps for claiming general insurance, which include notification and proof of loss. Essential documents required for different non-life insurance claims are as follows:

- **Motor Insurance (Damage to Own Vehicle):** Completed Motor Accident Report Form, Estimated Cost of Repairs, Police Report, Policy Document, and Discharge Voucher.
- **Theft of Insured Motor Vehicle:** Theft Claim Form, Original Vehicle License or Court Affidavit, Purchase Receipt, Car Keys (Ignition & Boot), Police Investigation Reports, Insurance Certificate of the Vehicle, and Discharge Form.
- **Burglary Claims:** Completed Claim Form, Receipts of the Stolen Property, Police Report, Preliminary Investigation Report of the Claim, Declaration of Claims, Estimated Cost of Repairs, Report of Loss Adjuster, and Discharge Voucher.

Macroeconomic Variables

Macroeconomic variables are economic indicators that affect the overall economy and are not tied to specific households or groups. Variables such as economic output, inflation, interest rates, savings, and investment are crucial determinants of a country's economic performance and should be of concern to economic stakeholders (Investopedia/Ellen 2024). Macroeconomics deals with the performance, structure, and behavior of the entire economy, in contrast to microeconomics, which focuses on individual units within the economy.

These variables can influence businesses, including insurance companies, in various ways. One of the primary influences is the economic environment in which they operate (Napier, 2015). This environment is largely shaped by macroeconomic variables. This study focuses on the impact of inflation and interest rates on insurance claims, examining these factors in isolation from other variables.

Inflation

Inflation refers to a general increase in the prices of goods and services. It affects both life and general insurance businesses in various ways, leading to higher claim costs and negatively impacting insurers' profits. Inflation often results in a rise in interest rates, which reduces the value of returns. High inflation can reduce the demand for insurance, lead to policy surrenders, and increase operational costs for insurers.

According to Investopedia (Ellen, 2024), inflation is measured by the rate at which the prices of goods and services increase. Factors contributing to inflation include rising production costs (such as raw materials and labor), increased demand, and fiscal and monetary policies (e.g., tax cuts and lower interest rates). Additionally, the devaluation of currency can trigger inflation, decreasing the purchasing power of savings and reducing household expenditure.

Various forms of inflation include cost-push inflation, demand-pull inflation, and built-in inflation. Tools used to measure inflation include the Consumer Price Index (CPI), Producer Price Index (PPI), and GDP Deflator. To combat inflation, solutions such as raising interest rates and reducing commodity price controls have been suggested (Investopedia, Ellen, 2024).

Interest Rate

An interest rate is the cost of borrowing money and serves as an incentive for lending. It is the amount payable by the borrower to the lender based on the terms of the loan agreement (CBN, 2016). Interest rates play a crucial role in financial intermediation, influencing investment and savings decisions, and dictating the movement of money between lenders and borrowers. Interest rates are often adjusted for inflation to reflect the real cost of borrowing. The asset borrowed could be cash, a vehicle, real estate, or consumer goods, and the interest rate is essential for economic decision-making. If the interest rate is adjusted for actual changes in price levels, it becomes the ex-post rate. Generally, lower real interest rates encourage borrowing but discourage lending, and vice versa. The real rate can be positive or negative, depending on whether the difference in price levels is lower or higher than the nominal rate.

Theoretical Review

This study adopts the Expected Utility Theory, developed by Daniel Bernoulli in 1738 (James, 2021). The theory seeks to explain why individuals make certain decisions in the face of uncertainty. According to Bernoulli, human beings are rational and tend to prefer choices that offer the most satisfactory outcomes. Thus, even when aware that the actual outcome may differ from the expected one, people are influenced by the potential satisfaction or utility derived from their choices.

The theory was originally conceived to understand why gamblers in 18th-century St. Petersburg were willing to risk their money for a small chance of winning a large sum. This phenomenon, known as the "St. Petersburg Paradox," highlighted that the desire for the potentially high payoff outweighed the small cost of participating. This paradox provided insight into human behavior, illustrating that individuals make decisions based on the perceived utility of the expected outcomes, rather than the objective probability alone.

The justification of this theory in the context of this study is that it provides a framework for understanding human decision-making under uncertainty. The interplay between uncertainty and risk perception significantly shapes both consumer behavior in purchasing insurance and insurers' risk assessment practices. Consumers seek insurance primarily to mitigate perceived risks and provide security against potential losses, influenced by emotional, cognitive, and informational factors. Insurers, in turn, must understand these consumer behaviors to develop effective products and pricing strategies while employing robust data analytics to accurately assess and manage risk. A comprehensive

understanding of these dynamics can enhance the effectiveness of both consumers in making informed decisions and insurers in offering relevant and fair coverage options.

Empirical Review

Inflation

Several studies have explored the impact of inflation on various economic and financial variables in Nigeria and other countries.

Ukangwa (2022) examined the influence of inflation on the balance of payments (BOP) in Nigeria using the Engle and Granger Co-integration Test to estimate both short-term and long-term impacts. The findings indicated a long-term negative and significant effect of inflation on BOP. The study suggested that policymakers focus on enhancing Nigeria's exports to balance inflationary pressures and improve the BOP position.

Monday and Abbas (2023) compared the effects of two analytic models, ARDL and VEC, on selected macroeconomic factors affecting Nigeria's GDP. The variables of interest were GDP, Unemployment, Exchange Rate, and Interest Rate. The ARDL model showed that the Unemployment Rate had a significant relationship (both short-term and long-term) with GDP, while the VEC model showed an insignificant short-term relationship. The authors recommended using both models for accurate predictions of economic outcomes.

Sani (n.d.) re-examined the persistent issue of inflation and its relationship with economic growth in Nigeria using three different methods to approximate the degree of inflation's impact. The study found significant results with the two-threshold point model, rejecting the null hypothesis and concluding that inflation adversely affects growth.

Muctarr Ceesay and Njie (2021) studied the causal link between money supply and inflation in Gambia using a Standardized Vector Error Correction Model. The findings indicated that money supply was a primary cause of inflation, suggesting the need to balance money supply and demand to control inflation.

Akobi, Umeora, and Atueyi (2021) analyzed the effects of government spending on inflation in Nigeria from 1981 to 2019. They used the Johanson Cointegration and Error Correction Model (ECM) and found that government expenditure on health and telecommunications had a positive and significant effect on inflation. The study recommended increasing investment in health and education to boost economic productivity and reduce inflation.

Ehiogu and Duruechi (2021) investigated the effect of inflation on general insurance in Nigeria from 1996 to 2018 using OLS. The study found that inflation had no significant impact on aggregate premium, claims, and assets of non-life insurance firms. The authors concluded that insurance firms alone cannot mitigate the effects of inflation and recommended collaboration with other financial institutions.

Ojeah, Nwogwugwu, and Ozoh (2020) explored the factors influencing inflation in Nigeria. They found a strong effect of inflation on economic performance in both the short and long term. They suggested measures to strengthen the naira and improve GDP.

Jim and Will (2023) empirically examined the effect of inflation on insurance claims and solvency. They found that rising wages and input costs, driven by inflation, increased the

cost of claims. The study recommended cautious investment of reserves to ensure solvency.

Ponjul, Angyak, David, and Pam (2020) studied the impact of macroeconomic dynamics on the growth of the insurance sector using STATA 13. The study showed that these dynamics significantly influenced insurance growth, recommending policy formulation to support economic growth and insurance profitability.

Dewi, Tan Lian Soei, and Surjoko (2019) analyzed the impact of macroeconomic indicators on insurance profitability from 1998 to 2016 using multiple regression. They concluded that GDP significantly influenced firm profitability, whereas unemployment, inflation, and exchange rates did not.

Asinya and Uche (2018) examined the relationship between inflation and insurance claims in Nigeria using an autoregressive distributed lag model. They found that inflation influenced claims in the short term but had a diminishing effect in the long term, suggesting the need for better assessment of future inflation risks.

Lee (2014) studied the relationship between macroeconomic factors and profitability in the Taiwanese property-liability insurance industry. The study found that the economic growth rate significantly influenced profitability in some models but not in others.

lorember, Usar, and Ibrahim (2018) reviewed the stochastic properties of CPI-inflation in Nigeria from 1995 to 2016 using regression analysis. They concluded that while energy price increases affected CPI-inflation in the short term, these changes reverted in the long term, influencing the inflation-unemployment tradeoff.

Interest Rate

Mgbomene and Igben (2023) analyzed the effect of interest rates and exchange rates on Nigeria's economic growth using ECM. They found that high lending rates hindered economic development, while exchange rates had marginal negative effects. The study recommended policies to encourage savings and lower interest rates.

Matarr and Momodou (2021) studied the effect of interest rates on economic growth in Gambia from 1993 to 2017 using VECM. They found a short-term relationship between economic growth and interest rates and suggested policy adjustments to enhance economic stability.

Fanjun (2022) investigated factors influencing personal accident insurance purchase in China's tier-one cities using chi-square tests and histograms. The study found low policy coverage due to poor knowledge and recommended better public awareness.

Batool and Sahi (2019) explored the monetary behavior of insurance companies in the USA and UK using panel data. They concluded that factors like size, liquidity, leverage, and GDP were significant, while CPI and interest rate were less impactful.

Offiong et al. (2020) studied the impact of exchange rate volatility on the Nigerian insurance sector, finding a significant positive long-run impact. They recommended extending insurance investments beyond Nigeria for higher returns.

Orga and Ehiogu (2018) examined the effect of exchange rates on Nigerian insurance premiums. They found a negative but non-significant effect, suggesting that macroeconomic factors had a limited impact on premiums. They recommended diversifying investments to stabilize earnings.

Methodology

Research Design

The study employed an ex-post facto research design. This approach is appropriate when the researcher has no control over the variables, as the data have already been collected and recorded. The choice of this design is justified by its ability to utilize existing data without manipulation, making it suitable for analyzing historical data and identifying relationships among variables.

Area of Study

The study focuses on the Nigerian insurance sector, including all insurance firms registered and regulated by the Central Bank of Nigeria (CBN) and the National Insurance Commission (NAICOM). This comprehensive coverage ensures that the analysis reflects the overall performance and trends within the sector.

Data Collection

Secondary data were used in this research, sourced from the archives of regulatory bodies responsible for overseeing insurance activities in Nigeria. Specifically, data were obtained from the yearly financial statements of the National Insurance Commission (NAICOM), the Nigerian Insurance Digest, and the Central Bank of Nigeria (CBN). These sources provide reliable and authoritative data essential for the study.

Population of the Study

The population comprises all insurance companies listed on the registers of government agencies regulating the insurance business in Nigeria and those listed on the Nigerian stock market. This inclusion criterion ensures that the study covers all relevant firms contributing to the industry's dynamics.

Model Specification

The study's model is specified to evaluate the relationship between total claims paid (TCP), inflation rate (INFR), and interest rate (INTR). The model is expressed as follows:

$$TCP_t = \beta_0 + \beta_1 \text{INFR}_t + \beta_2 \text{INTR}_t + u_t$$

Where:

- TCP_t = Total claims paid at time
- $INFR_t$ = Inflation rate at time
- $INTR_t$ = Interest Rate at time
- $\beta_0, \beta_1, \beta_2$ = Constant parameters

- μ_t = error term
- t = time period

Method of Data Analysis

The analysis employed in this study involves multiple regression analysis, a statistical method used to examine the relationship between one dependent variable and several independent variables. Multiple regression is chosen for its robustness in explaining the dynamics between variables and for providing insights into how each predictor variable influences the dependent variable.

Unit Root Test for Stationarity

The study first conducted a unit root test to determine the stationarity of the time series data. This step is crucial as the stationarity of a series significantly influences its behavior and properties. Non-stationary data can lead to spurious regression results, which occur when variables appear to be correlated due to their trending nature rather than an actual relationship.

Purpose of Testing for Stationarity:

- Avoid Spurious Regression:** If two series are non-stationary and exhibit a trend over time, regressing one on the other might yield a high R^2 value, falsely suggesting a significant relationship.
- Valid Hypothesis Testing:** Ensuring stationarity allows the t-ratios to follow a standard t-distribution, which is essential for making valid inferences about the parameters.

If the data are found to be stationary, multiple regression is employed to establish the relationships among variables, providing a robust explanation of the effects of inflation and interest rates on total claims paid by insurance firms.

Decision Rule

The decision rule for hypothesis testing is as follows:

- Reject the null hypothesis (H_0) if the p-value of the t-statistics is equal to or less than 0.05, indicating a significant relationship between the independent and dependent variables.
- Accept the null hypothesis if the p-value is greater than 0.05, suggesting no significant relationship between the variables.

Data Presentation, Analysis and Interpretation

Data Presentation

The table below contains the raw data of the variables utilized in the work.

Table 1: Data variables

Year	TCP (‘000 000)	INFR	INTR
1983	0	25.3	20.81
1984	241.3	20.04	7.7
1985	147.9	24.76	23.21
1986	0	31.65	17.82
1987	431	20.48	7.44
1988	0	20.23	5.72
1989	534.1	19.84	11.29
1990	380.2	17.8	54.51
1991	191.2	18.18	50.47
1992	770.1	20.29	7.36
1993	253.7	21.27	13.01
1994	363.3	23.44	44.59
1995	455.9	24.77	57.17
1996	222.6	20.71	57.03
1997	2,817.60	19.18	72.84
1998	1,090.40	17.95	29.27
1999	6,134.20	16.9	8.53
2000	6,906.20	16.94	10
2001	5,471.30	15.48	6.62
2002	1,691.20	18.36	6.93
2003	6,405.00	17.59	18.87
2004	3,210.20	16.02	12.88
2005	3,440.30	16.79	14.03
2006	97,901.90	16.72	15
2007	18,782.06	16.55	17.86
2008	16,344.49	16.85	8.24
2009	23,324.40	16.87	5.38
2010	2,033.79	15.99	11.58
2011	14,231.70	14.50	11.54
2012	19,103.60	13.20	13.72
2013	9,706.35	13.50	10.84
2014	99,156.700	12.50	12.22
2015	107,304.540	12.30	8.48
2016	99,156.700	11.50	8.06
2017	111,169.290	11.00	9.02

Table 1. Continued

2018	145,838.340	14.00	15.7
2019	148,345.100	14.00	15.3
2020	15,900,000	14.00	12.1
2021	12,300,000.	13.50	11.4
2022	17,700,000.0	13.64	13.2
2023	17,700,000,0	13.64	13.2

Source: CNB Statistical Bulletin

Unit Root Result

Effort to establish stationarity to ensure the absence of unit root issues, data was examined using the Augmented Dickey- Fuller (ADF) test (Dickey and Fuller 1981). The Augmented Dickey Fuller (ADF) procedure was applied in testing for existence of unit root or stationarity of time sequence data and the order of integration of the variables.

Augmented Dickey- Fuller (ADF) tests on the series reveals the number of times the non-stationary time series are to be differenced to attain stationarity. The results are presented in table below.

Table 2: Augmented Dickey Fuller (ADF) Unit Root Test Results

Variables	Test statistics	Test critical values			Status
	ADF	1%	5%	10%	Stationarity
LOGTCP	0.379053	-4.420595	-3.259808	-2.771129	i(1)
LOGINFR	-3.179029	-4.420595	-3.259808	-2.771129	i(1)
LOGINTR	-2.081134	-4.420595	-3.259808	-2.771129	i(1)

Source: Researcher's computation using Eviews, 2022.

From table 2, the null hypothesis of a unit root is $H_0: a = 0$ versus the alternative: $H_1: a < 0$. The ADF unit root test result presented above confirms that stationarity was achieved for all variables at the first difference.

Descriptive Analysis

Table 3: Descriptive Statistics

	LOGFORR	LOGINFR	LOGINTR
Mean	0.976571	0.834034	2.315346
Median	0.950000	0.901010	2.541600
Maximum	1.460000	1.268411	3.745800
Minimum	0.620000	0.137630	0.587700
Std. Dev.	0.189984	0.307098	0.914789
Skewness	0.581798	-0.925987	-0.400284
Kurtosis	3.148959	2.879342	1.806825

Table 3. Continued

	LOGFORR	LOGINFR	LOGINTR
Jarque-Bera	2.006878	5.023030	3.010842
Probability	0.366617	0.081145	0.221924
Sum	34.18000	29.19119	81.03710
Sum Sq. Dev.	1.227189	3.206515	28.45251
Observations	35	35	35

Source: Researcher's computation using Eviews, 2022

Table 3 revealed the mean, maximum and minimum values for the series. While the mean of the series stood at 0.98%, 0.83%, and 2.32%, for LOGFORR, LOGINFR, LOGINTR, respectively, the maximum of the series stood at 1.46%, 1.27%, and 3.74% respectively. The minimum of the series stood at 0.62%, 0.31% and 0.91% for LOGFORR, LOGINFR and LOGINTR respectively.

The skewness coefficients of all variables, except LOGTCP, have values less than 1. This indicates a normal frequency distribution.

Similarly, Kurtosis coefficient shows that LOGTCP has an abnormal distribution with coefficients higher than 4. But Jarque-Bera statistic which reveals that frequency distribution is not normal when the p-value is significant also support the findings from the skewness as all variables indicate insignificant p-value greater than 0.05.

Test of Hypotheses

Hypothesis one

Decision Rule: Reject (H_0), where p-value of t-statistics is equal to or less than 0.05. Otherwise accept the null hypothesis and reject the alternate hypothesis.

Table 4: Result of the Regression for Hypothesis One

Dependent Variable: LOGTCP

Method: ARDL

Date: 01/17/22 Time: 16:51

Sample (adjusted): 4 35

Included observations: 32 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LOGINFR LOGINDS

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
C	0.186016	0.205228	0.906385	0.3741
LOGINFR	0.116256	0.060109	1.934088	0.0655
LOGINDS	0.232127	0.138015	1.681901	0.1061
R-squared	0.398575	Mean dependent var		0.101250
Adjusted R-squared	0.189384	S.D. dependent var		0.075893
S.E. of regression	0.068329	Akaike info criterion		-2.296699
Sum squared resid	0.107384	Schwarz criterion		-1.884461
Log likelihood	45.74719	Hannan-Quinn criter.		-2.160054
F-statistic	1.905316	Durbin-Watson stat		1.840590
Prob(F-statistic)	0.108243			

Source: Researcher's E-views Output, 2022.

The regression result in table 4 indicates that inflation rate (INFR) has positive effect on total claim paid by insurance industry (TCP). The decision criterion is to accept the null hypothesis if the probability of the t-statistics > 0.05 , otherwise, reject the null hypothesis and accept the alternate hypothesis. The outcome shows the probability of the t-Statistic of 0.0655 which is greater than 0.05. Therefore, we reject the alternate hypothesis and accept the null hypothesis that INFR does not have significant effect on on insurance claims settlement in Nigeria.

Hypothesis Two

Presentation and Analysis of Result

Table 5: Result of the Regression for Hypothesis Two

Dependent Variable: LOGTCP

Method: ARDL

Date: 01/17/22 Time: 16:53

Sample (adjusted): 4 35

Included observations: 32 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LOGINTR LOGINDS

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
C	0.163082	0.211639	0.770568	0.4482
LOGINTR	0.018148	0.017396	1.043219	0.3068
LOGINDS	0.190420	0.150020	1.269292	0.2160
C	0.064825	0.089619	0.723339	0.4762
R-squared	0.295926	Mean dependent var		0.101250
Adjusted R-squared	0.126948	S.D. dependent var		0.075893
S.E. of regression	0.070912	Akaike info criterion		-2.264117
Sum squared resid	0.125712	Schwarz criterion		-1.943488
Log likelihood	43.22588	Hannan-Quinn criter.		-2.157838
F-statistic	1.751272	Durbin-Watson stat		1.785235
Prob(F-statistic)	0.150516			

Source: Researcher's E-views Output, 2022.

The regression result above in table 5 indicates interest rate (INTR) have a positive coefficient, which implies that it has a positive effect on total claims paid (TCP). Furthermore, the p-value is 0.3068, which is more than 0.05. In the overall, interest rate has positive and insignificant effect on insurance claims settlement in Nigeria.

Discussion of Findings

Objective One: The second objective was to examine effect of Inflation Rate on Insurance Claims Settlement in Nigeria. The coefficient for LOGINFR is 0.1163, suggesting a positive relationship between inflation and total claims, meaning that as inflation increases, total claims paid may also increase. The t-statistic for LOGINFR is 1.93 with a probability value of 0.0655. Since this p-value is greater than 0.05, it indicates that the effect of the inflation rate on total claims is not statistically significant at the 5% level. This finding aligns with the studies of Mohammad and Islam (2017) and Asinya and Uche (2018). Mohammad and Islam (2017) concluded that inflation had no significant impact on the profitability of the insurance industry in Jordan, suggesting that inflation might not always directly affect insurance claims. Similarly, Asinya and Uche (2018) discovered a long-run relationship between insurance claims and inflation in Nigeria, stating that a rise in inflation initially increases the cost of insurance claims in the short run, but this effect diminishes over time. This implies that while inflation may influence the immediate costs associated with claims, its impact may stabilize or even decline in the long run. This finding is particularly relevant for insurance companies in Nigeria as it highlights the need to consider the timing and duration of inflationary impacts when planning for claims settlement.

Objective Two: The second objective was to investigate the effect of interest rates on insurance claims settlement in Nigeria. The coefficient for LOGINTR is 0.0181, indicating a

positive relationship between interest rates and total claims paid. This suggests that as interest rates increase, total claims might also increase. The t-statistic for LOGINTR is 1.0432, with a p-value of 0.3068. Since this p-value is much greater than 0.05, it implies that the effect of interest rates on total claims is not statistically significant. The findings support the null hypothesis that interest rates do not have a significant effect on insurance claims settlement in Nigeria. The positive coefficient suggests a relationship, but the lack of statistical significance means we cannot conclude that interest rates meaningfully influence total claims. This result is consistent with the findings of Okparaka and Makwe (2019), who found that interest rates had a positive yet insignificant effect on the total profit of the Nigerian insurance industry. Similarly, Yinusa and Akinlo (2013) noted that interest rates positively influenced economic growth in Nigeria, while Lim and Haberman (2003) identified a positive and significant relationship between interest rates for savings deposits and life insurance demand. These results suggest that while interest rates can influence various economic activities, their direct impact on insurance claims may not be substantial. This could be due to the fact that insurance claims are more directly affected by factors such as underwriting practices, risk management, and regulatory environments, which may overshadow the effects of fluctuating interest rates.

Summary of finding

Inflation Rate: The inflation rate ($p = 0.0655 > 0.05$) had a positive but insignificant effect on total claims paid by the insurance industry in Nigeria. This suggests that while inflation might increase the cost of insurance claims in the short run, its long-term effect is not significant enough to cause substantial changes in the claims paid. The null hypothesis (that inflation does not have a significant effect on total claims) is accepted since the probability of the t-statistic for LOGINFR is above the threshold of 0.05. Thus, the study concludes that inflation does not significantly affect insurance claims settlement in Nigeria. The R-squared value (0.3986) suggests that about 40% of the variability in total claims can be explained by the model, which is relatively low, indicating other factors may influence claims not captured in this model. The Adjusted R-squared (0.1894) further suggests limited explanatory power. The F-statistic (1.9053) with a p-value of 0.1082 indicates that the overall model is not statistically significant at the 5% level.

Interest Rate: The interest rate ($p = 0.3068 > 0.05$) also had a positive but insignificant effect on total claims paid by the insurance industry in Nigeria. This suggests that as interest rates increase, total claims might also increase. The t-statistic for LOGINTR is 1.0432, with a p-value of 0.3068. Since this p-value is much greater than 0.05, it implies that the effect of interest rates on total claims is not statistically significant. The R-squared value (0.2959) suggests that approximately 29.6% of the variability in total claims can be explained by the model, which is relatively low. The Adjusted R-squared (0.1269) further indicates limited explanatory power. The F-statistic (1.7513) has a p-value of 0.1505, indicating that the overall model is not statistically significant at the 5% level. The findings support the null

hypothesis that interest rates do not have a significant effect on insurance claims settlement in Nigeria. The positive coefficient suggests a relationship, but the lack of statistical significance means we cannot conclude that interest rates meaningfully influence total claims.

Conclusion

The research aimed to understand how macroeconomic factors affect insurance claims in Nigeria. The positive associations suggest that, at a surface level, there appears to be a relationship between macroeconomic factors and the total claims paid by insurers. However, the lack of statistical significance implies that these relationships are not robust enough to warrant strong conclusions. This could mean that other factors are overshadowing the influence of macroeconomic variables, rendering them less impactful in the context of insurance claims. The findings suggest that insurers might experience a greater influence on claims management from internal factors rather than external economic conditions. This highlights the importance of examining the operational practices and regulatory frameworks within which insurers operate. Insurers' risk management strategies; such as underwriting processes, claims handling procedures, and reserves management; are crucial in determining their ability to settle claims effectively. A well-implemented risk management framework can mitigate potential losses regardless of macroeconomic fluctuations. Regulatory policies governing the insurance sector also play a significant role in shaping claims management. Regulations that promote transparency, consumer protection, and solvency standards can help insurers manage their obligations effectively, ensuring that claims are processed in a timely and fair manner. While macroeconomic factors may not significantly impact claims management, insurers should still monitor these trends. Economic indicators such as inflation rates and interest rates provide valuable context for understanding the broader economic environment in which they operate. This awareness can aid in strategic planning and forecasting. Given the findings, insurance companies in Nigeria should adopt a balanced approach in their strategic decision-making. While it is essential to remain aware of macroeconomic trends, the focus should also be on enhancing internal processes and framework that directly impact claims management. Insurers should continuously assess and refine their risk management practices. Regular training for staff involved in claims processing and risk assessment can enhance their ability to respond effectively to claims, regardless of external economic conditions.

The following recommendations are made:

1. **Diversification of Insurance Investments:** Insurers should consider diversifying their investment portfolios to mitigate the risks associated with macroeconomic fluctuations. This strategy will help in balancing the potential impacts of inflation and interest rate changes on their financial stability.
2. **Sustainable Economic Policies:** The government should implement and maintain predictable and sustainable economic policies. Stable macroeconomic conditions,

such as low interest rates and controlled inflation, create a favorable environment for investors and can enhance the overall performance of the insurance industry.

3. **Further Research:** Future studies should incorporate additional macroeconomic variables, such as exchange rates, unemployment rates, and GDP growth, to provide a more comprehensive analysis. Including more variables could improve the model fit and provide deeper insights into the factors influencing insurance claims in Nigeria.

In conclusion, this study contributes to the existing literature by reaffirming the influence of macroeconomic variables on insurance claims. It also emphasizes the need for ongoing research to better understand the dynamic interactions between the insurance industry and the broader economic environment.

References

- Agbo, I. U., Okeke, D.C. & Okeume, A. H., (2022). Effect of information provision of cost fire insurance claim on the gross claims of non-life insurance business in Nigeria. *African Journal of Management and Business*, 6(1), 32-52.
- Akobi, K. C., Umeora, C. E. & Atueyi, C. L., (2021). Government expenditure and inflation rate in Nigeria. *International Journal of Business Systems and Economics*, 13(4), 276-293.
- Asinya, F. A. and Uche W. J. (2018). Impact of inflation on insurance claims in Nigeria: an ARDL bounds f-test approach. *Journal of Economics and Finance*. 9(6), 43-53
- Batool A, & Sahi A., (2019). Determinants of financial performance of insurance companies of USA and UK during global financial crisis (2007–2016). *International Journal of Accounting Research*, 7(1), 65-79.
- Berhe, T. A. & Kaur, J. (2017). Determinants of insurance companies' profitability analysis of insurance sector in Ethiopia. *International Journal of Research in Finance and Marketing*, 7(4), 124-137
- Capgemini & Efma (2011). *World insurance report 2011: insurers need to transform claims to meet their brand promise to customers while driving results*. Retrieved September 21, 2021 from <http://www.capgemini.com/wir11>.
- Dewi, V. I., Tan L. S. & Surjoko, F. O. (2019). The impact of macroeconomic factors on firms' profitability: evidence from fast, moving consumer good firms listed on Indonesian stock exchange. *Academic of Accounting and Financial Studies*, 23(1).
- Deyganto, K. O. & Alemu, A. A. (2019). Factors affecting financial performance of insurance companies operating in Hawassa city administration, Ethiopia. *Universal Journal of Accounting and Finance* 7(1), 1-10.
- Ehiogu, C.P. & Duruechi, H. A. (2021). Impact analysis of inflation and non-life insurance business in Nigeria. *UNILAG Journal of Business* 7(1), 12-31.
- FanJun, Z. (2022). Investigation of the factors influencing the purchase of personal accident insurance in tier one cities in China. *Modern Economy*, 1(3), 519-531.
- Investopedia / Ellen Lindner (2024). What Causes Inflation? How It's Measured and How to Protect Against It. The investopedia team updated April 12, 2024 reviewed by Michael J Boyle and Suzanne Kvilhaug.
- Iorember, P. T., Usar, T., & Ibrahim, K. H. (2018). Analyzing inflation in Nigeria: a fractionally integrated arfima-garch modelling approach. Online at <https://mpra.ub.unimuenchen.de/85655/> MPRA Paper No. 85655,
- James C., 2021 expected utility: definition, calculation, and examples, reviewed by Thomas Brock. Retrieved 15/4/2024 from <http://www.investopedia.com/terms/e/expectedutility.asp#>

- Lee, Chen-Ying, (2014). Effects of firm specific factors and macroeconomics on profitability of property-liability insurance industry in Taiwan. *Asian Economic and Financial Review*, 4(5),681-691.
- MatarN., Momodou B., (2021) The effects of interest rate on economic growth: Further insights from the Gambia, *Journal of Economics and International Finance* 13(2): 100-105 DOI: 10.5897/JEIF2021.112
- Mgbomene, C., & Igben, H. (2023). Effect of interest rates and exchange rate on economic growth of nigeria. *African journal of social and behavioural sciences*, 13(1). Retrieved from <http://journals.aphriapub.com/index.php/AJSBS/article/view/2022>
- Monday, O. A, & Abbas, U., (2023). Comparison of autoregressive distributed lag model and vector error correction model analysis on the effect of some macroeconomic variables on gdp in nigeria, *International Journal of Finance Research*
- Muctarr Ceesay & Matar Njie, (2021), Is There a Causal Relationship between Money Supply and the Inflation Rate? Thoughts from the Gambia, *International Journal of Business & Management*.
- Napier, H. (2015). *An empirical analysis of macroeconomic factors and the effects on insurance demand and profitability*. Retrieved from witsbusinessschool.edu on September 20, 2023
- Offiong, A.I., James G.B., Etim G.S., Enuoh R.O., Bessong P.K., & Omang A.B. (2020). Exchange rate volatility and insurance sector performance in Nigeria: a long-run investigation. *Academy of Accounting and Financial Studies Journal*,24(3), 45-56.
- Okparaka, V. C. J. & Makwe, D. M. (2019). Effect of macroeconomic variables on insurance industry growth in Nigeria. *Advance Journal of Management, Accounting and Finance*, 4(2), 2364-4219.
- Ojeah, I. A., Nwogwugwu, C.C. U., & Ozoh, N. J. (2020). Inflation dynamics in Nigeria. *Journal of Economics, Management and Trade* 26(1), 61-77.
- Orga, C. C. & Ehiogu, C. P. (2018). Effect of exchange rate on total premium of Nigerian insurance industry: a managerial perspective. *International Journal of Management and Social Sciences*,2(1), 12-31.
- Ponjul, B. G., Angyak. J. A., David M. Z., & Bitrus, J. P. (2020). Impact of macroeconomic variables on the growth of insurance companies in Nigeria. *Indian Economic Review*. <https://www.jstor.org/stable/45149692>
- Sani, D. (nd). Inflation and economic growth in nigeria: detecting the threshold level. *Cbn journal of applied statistics vol.3 no.2 9*
- Stefan, T., (2023). Definition: insurance claims settlement retrieved on 18/11/2023 from <https://www.squareone.ca/resource-centres/insurance-glossary/settlement>
- Ukangwa, J. U., (2022). Analysis of the Impact of Inflation Rate on Balance of Payments in Nigeria. *7th Annual International Academic Conference on Accounting and Finance Disruptive Technology: Accounting Practices, Financial and Sustainability Reporting*.
- Yusuf, T.O., Ajemunigbohun S.S. & Allic G.N. (2017). Inflation and insurance development in Nigeria. *Spoudai Journal of Economics and Business*, 67(2), 69-84.