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Exchange Rate Volatility and the Growth of General Insurance Business in Nigeria (1997-2022)

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Abstract

Research Purpose: This study examined the effect of exchange rate volatility on the growth of general insurance business in Nigeria from 1997 to 2022. The specific objectives of the study were to measure the effect of real effective exchange rate on fire insurance premium income and to determine effect of real effective exchange rate on motor insurance premium income in Nigeria.

Methodology: The ex-post facto research design was applied. Data was taken from CBN Bulletin 2022 and NAICOM reports of various years. Hypotheses formulated were analyzed using Ordinary Least Squares (OLS) and regression analysis.

Findings: It was found that real effective exchange rate positively but non-significantly impacted on fire insurance premium income in Nigeria within the period of the study. Also, it was revealed that real effective exchange rate positively and non-significantly impacted on motor insurance premium income in Nigeria within the period of the study.

Conclusion: Based on the findings of the study it was concluded exchange rate plays a positive impact on insurance income in Nigeria as used in the context of this study. In line with the findings it was recommended that an expanded exchange rate regime that does not embrace parallel exchange rate will go a long way in making insurance have more premium income and finally contribute to economic growth.

Recommendation: Management of exchange rate regime by the government through exchange rate fixation will go a long way in making insurance have more premium income and finally contribute to economic growth.

Key words: *Economic growth, Exchange rate, Exchange rate volatility.*

1.0 INTRODUCTION

Insurance business is the business that exists and struggles for the survival of all other businesses. The crucial role the insurance industry plays in the growth and development of nations can never be over-emphasized because; it is the pillar of every successful business.

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Insurance is a social device providing financial guarantee to individuals and businesses in the occurrence of insured events according to the terms and conditions of the contract, in exchange for the premium paid by the insured individuals and businesses (Ezema, Aransi, Eneh, Okafor, Isaac & Eze, 2023). According to Ariwa & Ezeudu (2017) the concept of insurance entails a technique whereby an individual or corporate body shifts the risk or risk management responsibilities to another person or firm specialising in the management of risks. Insurance provides financial security from identified risks occurring or discovered within a specified period. Insurance is a special product in that the ultimate cost is often unknown until long after the coverage period, while the revenue premium payments by policyholders are received before or during the coverage period. Insurance exists to provide the avenue and mechanism of transferring risk from the person or organisation likely to suffer loss to the experts who specialise in the management of risk (Ime & Enem, 2017). Insurance companies provide various insurance services ranging from life insurance businesses to non-life or general insurance businesses. Insurance companies operate in an economic environment; the environment can affect their growth positively or negatively (Ponjul, Angyak, David & Pam 2020). The factors or variables in this economic environment can be divided into macroeconomic variables and microeconomic variables. One of the macroeconomic variables that affect the growth of general insurance business in Nigeria is exchange rate.

Exchange rate refers to the value of one currency (the domestic currency) in relation to another (foreign currency). It can also be defined as the price at which one unit of a country's domestic currency exchanges for another country's currency. Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade (Osho & Efuntade, 2019).Exchange rate regime and interest rate remain important issues of discourse in the International finance as well as in developing nations, with more economies embracing trade liberalisation as a requisite for economic growth (Owolabi & Adegbite, 2017). Exchange rate volatility affects the value of naira and the value of naira affects the purchasing power of members of the public. When the value of naira is high people will be able to buy more insurance products which will increase the premium income of insurance companies and the growth of the insurance industry. This work is set to examine the effect of exchange rate on the growth of general insurance business in Nigeria (1996-2022).

Exchange rate volatility affects the purchasing power of citizens of any country because change in exchange rate affects the value of local currency which also affects the purchasing power of the insured public. Orga & Ehiogu (2018), examined the effect of exchange rate on the total premium of the Nigerian insurance industry: a managerial perspective. They concluded that exchange rate had a negative and non-significant effect on insurance business growth (premium) in Nigeria. Ibekwe (2021) studied exchange rate and performance of deposit money banks in Nigeria. She concluded that exchange rate has an adverse effect on

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the performance of deposit money banks in Nigeria and has not helped to improve the rate of investment in Nigeria within the period under study. Amenawo, Godwin, Glory, Rebecca, Peter & Alphonsus (2020) examined exchange rate volatility and insurance sector performance in Nigeria: a long-run investigation. They concluded that the long-run effects of interest rate and inflation rate as explanatory variables would negatively impact on insurance sector performance as theoretically expected.

Most of the research works done on exchange rate and insurance cover life and non-life insurance industry in Nigeria. None of the studies mentioned above concentrate on exchange rate and general insurance business in Nigeria. Exchange rate plays an increasingly significant role in Nigeria firms as it directly affects domestic selling price level, profitability, allocation of resources and investment decisions. That is why this study is set to investigate the effect of exchange rate on the growth of general insurance business in Nigeria from 1996 to 2022. This study sought to examine the effect of real effective exchange rate on fire insurance premium income in Nigeria and to evaluate the effect of real effective exchange rate on motor insurance premium income in Nigeria.

2.0 REVIEW OF RELATED LITERATURES

Conceptual Review;

Exchange Rate

Ikenna, Abeng, Is'mail, Uba & Balarebe (2016), exchange rate is the price of one currency in terms of another currency, that is, the current market price for which one national currency can be exchanged for another. Exchange rate is the price of one country's currency in relation to another country. It is the required amount of units of currency that can buy another amount of units of currency (Onuoha 2014). Exchange rate can be a conversion factor, a multiplier or a ratio, depending on the direction of conversion. It is the price of one currency in relation to another which expresses the national currency's quotation in respect to foreign currencies (Nyairo 2015). The exchange rate is very important in the economy because imports and exports constitute a large part of the economy. Exchange rate determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade (Osho & Efuntade, 2019).Exchange rates are an important instrument of monetary policy a growing number of countries are intervening in currency markets as part of their economic strategies. Exchange rate and inflation are basically dependent on the quantity of money in circulation and in terms of effect influence the price at which goods and services can be bought (Orga & Ehiogu, 2018). Exchange rate is a macroeconomic variable of major focus in Nigeria as it has a direct significant effect on the cost of production / business hence affecting domestic selling price level (premium) profitability, allocation of resources, investment decisions, export sales and the overall competitiveness in the industries. The change in the exchange rate is capable of affecting the price structure of an entity and the input procured for production. Firms and individuals expect the monetary policy department to

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ensure that there are well-articulated monetary policies that will moderate the exchange rate in order not to result in excessive increase in the prices of imported input either goods, services or equipment in the country.

Insurance

Insurance is an agreement where, for a stipulated payment called the premium one party (the insurer) agrees to pay to the other (the policy holder or his designated beneficiary) amount (the claim payment or benefit) upon the occurrence of a specific peril (Peter 2019). Insurance is a contract in which an insurer promises to indemnify an insured against losses from specific contingencies or perils the promise is in exchange for a consideration called premium. It helps to protect the insured person or their family against financial loss. According to Ariwa & Ezeudu (2017) the concept of insurance entails a technique whereby an individual or corporate body shifts the risk or risk management responsibilities to another person or firm specialising in the management of risks. In insurance many people pay a little money in form of premium, to create a bigger pool of money so that anyone who is unfortunate enough to suffer a loss is reimbursed financially for that loss. It basically provides services in the form of security against general uncertainties which are likely to occur in everyday life, thereby resulting in liabilities which translate to a financial loss (Okparaka, 2018). It means the money contributed by the fortunate many is used to compensate the unfortunate few. Deyganto and Alemu (2019) opined that insurance is a form of risk management used to hedge against the risk of a contingent loss. Insurance is a safeguard against risk (Eczema, Jimoh, & Agbaji 2021).Insurance companies provide various insurance services ranging from life insurance businesses to non-life or general insurance businesses. Chukwudi (2016),insurance can be divided into two major categories: life insurance businesses and non-life or general insurance businesses. Life insurance business is a non-indemnity insurance business that is contingent upon human life such as whole life assurance, endowment assurances and term assurances (Okonkwo 2002). Non-life insurances are insurance businesses that are subject to the principle of indemnity. They are insurance businesses which do not have their insured perils dependent upon human life. The happening of the loss say fire, negligence, theft, are fortuitous or accidental and undesired. General insurance has benefits for the insurance company and the insured person or policyholder. The benefit for the company is the profit from the premium given by the insured or the policyholder. And the benefit for the insured or policyholder is that peace of mind is provided for the future, minimising property losses if a risk occurs (Debrina, Endah & Lusy, 2022).

Fire Insurance

Rene (2020), fire insurance means insurance against any loss caused by fire. A type of property insurance that covers losses and damage brought on by fire is referred to as fire insurance (Sastrini, 2021). Fire insurance is a contract under which the insurer in return for a consideration (premium) agrees to indemnify the insured for the financial loss which the latter may suffer due to destruction of or damage to property or goods, caused by fire, during a

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specified period. In the fire insurance policy, 'Fire' means the production of light and heat by combustion or burning. Thus, fire must result from actual ignition and the resulting loss must be approximately caused by such ignition. The phrase 'loss or damage by fire' also includes the loss or damage caused by efforts to extinguish fire. Soe (2018) claims that the majority of fire insurance policies include fire protection, which offers coverage in the event that property is lost or damaged due to a fire. The cost of replacing, repairing, or rebuilding property exceeding the maximum specified by the property insurance policy can be covered in part by purchasing fire coverage. War, nuclear dangers, and other broad limitations are frequently excluded in fire insurance plans, though this can vary depending on the insurance company (Ben 2022).

Motor Insurance

Soye & Momoh (2021), motor insurance policy is the coverage purchased for road vehicles such as cars, buses, lorries, trucks, vans, motorcycles, and any form of motorised road vehicles.. Murcko (2013), car insurance cover is absolutely necessary for whoever drives a car on the roads. Motor insurance policy is a mandatory policy issued by an insurance company as part of prevention of public liability to protect the general public from any accident that might take place on the road. The law mandates that every owner of a motor vehicle must have at least a third party motor insurance policy. Though this class of Insurance is the major source of premium earnings for the Insurance companies it is also the class which is showing the biggest losses. Particularly the third party motor insurance provides the cover against third party bodily injuries, deaths and property damages caused by the motor vehicles and the comprehensive motor insurance policy provides the cover to the own damage of the vehicle, along with the third party cover (Perera & Gamage, 2019).Motor vehicle insurance is one of the important branches of non-life insurance type. Even in many countries, motor vehicle insurance is the largest total premium revenue earner (Sukono, Riaman, Lesmana, Wulandari, Napitupulu & Supian, 2018).

Insurance Premium

Orga & Ehiogu (2018) opined that premium is the specified amount of payment required periodically by an insurer to provide coverage under a given insurance plan for a defined period of time. An insurance premium equates to the money that is paid by any person or company/business for availing of an insurance policy. The insurance premium amount is influenced by multiple factors and varies from one payee to another. Insurance companies charging premiums make use of standard rates depending on the class of insurance that is involved (Ndubuizi 2022). Ojukwu (2006) informs that insurance operates by a combination of a large number of individuals and organisations agreeing to contribute adequately (premium) to a common fund and each contributor agrees that if any contributor suffers a loss of the kind insured against, such a contributor would be compensated from the common fund.

Theoretical Framework

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Purchasing Power Parity Theory

Purchasing power parity theory was propounded by Gustav Cassel, a Swedish economist, in 1921. This theory is also known as the theory of exchange rate. This theory states that in an ideal efficient market, identical goods should have one price. That is to say, that a bundle of goods in one country should cost the same in another country after exchange rates are taken into account. The foreign exchange market is considered to be in equilibrium when the deposits of all the currencies provide an equal rate of return that was expected. The PPP theorem propounds that under a floating exchange regime, a relative change in purchasing power parity for any pair of currency calculated as a price ratio of traded goods would tend to be approximated by a change in the equilibrium rate of exchange between these two currencies. This means that, when exchange rates are of a fluctuating nature, the rate of exchange between two currencies in the long run will be fixed by their respective purchasing powers in their own nations. PPP is both a theory about exchange rate and also a tool to make more accurate comparisons of data between countries. This theory is relevant to this study because it talks about exchange rate and purchasing power. Exchange rate changes affect the value of local currency, and the value of local currency will determine how people will buy insurance products which will affect the premium income of the insurance industry and also the growth of the industry. In conclusion, changes in exchange rate should be made favourable in order to increase the purchasing power of the insured public and the growth of the insurance industry in Nigeria.

2.3 Empirical Review

Orga & Ehiogu (2018) investigated the effect of exchange rate on insurance premiums of Nigerian insurance industries-post facto research design was used in the study. The data were subjected to a Unit root test to test for stationary. Ordinary Least Square Regression analysis technique was used to test the hypothesis. The study revealed that exchange rate had a negative but non-significant effect on insurance premiums of the Nigerian insurance industry. The study concluded that the insurance business premium was not significantly and positively influenced by the macro-economic variables (exchange rate). The study recommended that investments of the insurance industry should not be limited to the Nigerian economy; financial instruments in more advanced economies with possibility of high returns should be invested in by the industry as it would help to offset the effect of the devaluation of Naira on their local investments.

Uruakpa (2019) assessed insurance premium and Nigeria's economic performance. The study used Descriptive statistics, Augmented Dickey Fuller Unit Root Test, Johansen cointegration, OLS regression, variance decomposition and granger casualties were adopted. The study revealed that all the series are significant and but not normally distributed.Thecorrelationmatrixshowsthatthereishighandpositivecorrelationbetweentheindependentvariables. The study confirmed that there is a long run relationship between insurance activities and economic growth in Nigeria. The OLS result suggested that 93.11 percent of the

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total variation found in GDP was explained by the presence of total assets, investments and premium of the insurance industry sector while the F-Statistics has a value of 163.1080 which is highly significant at 5% confidence level implying that insurance industry play significant role in development of the Nigerian economy. The Variance Decomposition for 10 periods indicates that Insurance sector investment was more significant than premium for most of the periods. However, since premium represents revenue for the insurance industry it has a positive impact on GDP for all the periods while GDP responds positively. The granger causality result showed that there was a granger causality relationship between insurance premium, investment and assets have granger causality with GDP. He recommended that insurance business authorities should review its reform policy and ensure that policies that will strengthen premium mobilisation in Nigeria are put in place. Insurance companies need to invest more of their funds in productive sectors of the economy.

Ibeabuchi, Nwite & Okparaka (2020) examined the effect of macroeconomic variables on the growth of the insurance industry in Nigeria, for the period 1981 – 2018. Unit roots of stationary and descriptive statistics of normality were used to treat the variables of interest. Autoregressive Distributed Regression Lag was used to analyse the hypotheses in the study. The study revealed that: Poverty rate and exchange rate have negative and non-significant impact on Insurance premium in Nigeria; Inflation rate has negative and significant impact on Insurance premium in Nigeria; while economic growths have positive and non-significant impact on Insurance premium in Nigeria. The study concluded that macroeconomic variables play a serious negative implication on the level of insurance premium in Nigeria. They recommended that efforts should be made by the government to increase employment and reduce poverty by encouraging small and medium sector and real sector development so as to embrace insurance products. Management of exchange rate and increase in export as well as our foreign reserve will help to stabilise our currency so that insurance business will flourish. Government should embark on a ban on the importation of foreign goods to encourage our indigenous companies and stabilise inflation. Economic growths affected every sphere of the real sector activities such as production, distribution and reserve. Therefore real sector and financial sector activities should be reviewed so that economic growth will improve.

Debrina, Endah & Lusy, (2022), examined the sustainability analysis of fire insurance companies in Indonesia: the policy endorsement underwriting process. The research method used descriptive qualitative analysis and SWOT analysis. The research was conducted by collecting data consisting of primary and secondary data. The total score of the IFE matrix is 2.87. The EFE matrix is 3.342. The endorsement policy is in cell II (grow and build). They concluded that the strategy that can be applied is an intensive strategy which includes market penetration, market development and product development. The study also used an integrated strategy that includes backward integration, forward integration, and horizontal integration.

Soye & Momoh (2021), examined the contribution of motor insurance business to the gross premium income of Nigeria insurance industry. Ordinary least square (OLS) regression

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model was used to analyse the secondary data extracted from statistical bulletin of the Central Bank of Nigeria (CBN) from 1981 to 2011, and Nigeria Insurers Association (NIA) digest from 2012 to 2018. The population for the research was the entire quoted insurance companies in Nigeria. The sample size for the study is 38 years (from 1981 to 2018). The study showed that the insurance premium of a motor has no significant effect on the insurance gross premium of Nigeria. In the same vein, insurance premium income of general accidents has no significant effect on gross premium income of insurance companies in Nigeria. They recommended that government and insurance regulatory bodies should develop more strategies to ensure high compliance to third-party motor insurance buying in Nigeria.

Perera & Gamage (2019) studied the determinants of customer satisfaction in motor insurance in Sri Lanka. The population of the study was the motor insurance policy holders in the Western Province and the sample consisted of 125 motor policy holders selected through random sampling technique. Self-administered structured questionnaire was used to collect the primary data and the data was analysed using Minitab software and the SPSS software packages to examine the customers‟ attitudes towards the existing situation of the service quality of the motor insurers and to examine the customer satisfaction and intention behaviour to retain with existing company. The study revealed that customers neither disagree nor agreed with the existing situation of the insurers. There was a strong positive relationship between functional quality dimensions with customer satisfaction, except tangible and assurance dimensions which are having moderate positive relationships between the variables. The study concluded that price, technical quality and image dimensions also have a moderately positive relationship with customer satisfaction.

Sukono, Riaman, Lesmana, Wulandari, Napitupulu & Supian (2018), examined model estimation of claim risk and premium for motor vehicle insurance by using Bayesian method. They discussed the estimation of risk model claims and motor vehicle insurance premiums using Bayesian methods approach. They assumed that the frequency of claims followed a Poisson distribution, while a number of claims assumed to follow a Gamma distribution. The estimation of parameters of the distribution of the frequency and amount of claims are made by using Bayesian methods. The study used the estimator distribution of frequency and amount of claims to estimate the aggregate risk models as well as the value of the mean and variance. The showed that the frequency of claims followed a Poisson distribution with parameter values λis 5.827 and a number of claims follow the Gamma distribution with parameter values pis 7.922 and θis 1.414. They obtained values of the mean and variance of aggregated claims as IDR 32,667,489.88 and IDR 38,453,900,000,000.00. The prediction of the pure premium eligible charged to the insured was obtained, which amounted to IDR 2,722,290.82. The study concluded that the prediction of the claims and premiums aggregate can be used as a reference for the insurance company's decision-making in management of reserves and premiums of motor vehicle insurance.

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Eczema, Jimoh, & Agbaji (2021) examined the impact of environmental risks on insurance business performance; econometric evidence from Nigeria from 1996-2019. The study revealed that the real and effective exchange rate positively and significantly affects the financial performance of insurance companies in Nigeria, broad money supply negatively and non-significantly affects the Financial Performance of insurance Companies in Nigeria, inflation rate negatively and non-significantly affects the Financial Performance of Insurance Companies in Nigeria. Interest rate negatively and significantly affects the Financial Performance of Insurance companies in Nigeria and credit to the Private Sector positively and non-significantly affects the Financial Performance of Insurance Companies in Nigeria. The study concluded that environmental risks in Nigeria strongly affect the country's financial development and play a significant role in the development of the financial system and economic growth.

Gap in Empirical Review

Most of the work done above on exchange rate and insurance studied the insurance industry as a whole. This is the only work that narrows down on exchange rate and general insurance in Nigeria.

3.0 METHODOLOGY

Research Design

This study adopte*d-post facto* research design as it deals with events that had taken place and secondary data were readily available for collection. Onwumere (2009), research design provides a blueprint that guides a researcher carrying out the set investigation and analysis in the research work. Data for this study were monthly data elicited from the Central Bank of Nigeria Statistical Bulletin of 2022. The study period covers 1996 through 2022.

Model Specification

Ordinary least squares model was adopted for this study because the variables were all stationary at level one. This study is anchored on model of Ezamaet al (2023):

TMCt=F(INSIGSt ,INSINVSBt, andINSINVREMt)

TMCt= βo+ β1INSIGSt +β2INSINVSBt+ β3INSINVREM+.....Et

Where TMC= Total market capitalization

INSINVGS= Insurance investment in government securities

INSINVSB= Insurance investment in stock and bonds

INSINCERE= Insurance investment in real estate and mortgage

Bo= intercepts,

β1= coefficient of determination,

Et= error margin

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However, for the purpose of this study, we shall limit our independent variables to fire insurance premium income and motor insurance premium income, while the exchange rate remains dependent variable.

In recognition of this fact, our model is thus presented as:

REEXCt = f (FIPItandMIPIt)

That is:

$REEXCt = B_0 + B_1FIPIt + B_2MIPIt+$……..Et

Where REEXCt– Real Effective Exchange rate,

β1 FIPI– First variable Fire Insurance Premium Income,

β2 MIPI – Second variable Motor Insurance Premium Income,

Bo= intercepts,

β1= coefficient of determination,

4.0 PRESENTATION AND ANALYSIS OF DATA

RAW DATA

Data Presentation

The chapter presents the results of the analysis of the time series data obtained from the Central Bank Statistical Bulletin.

Table 4.1: Data Presentation (Times Series Exchange Rate and Premium Income of Fire and Motor Insurance)

Years	REEX	FIPI	MIPI
1997	19.07	1,822.20	3,384.71
1998	19.22	2,068.12	3,771.25
1999	19.88	2,385.07	3,616.41
2000	53.76	2,920.50	6,293.13
2001	58.25	3,449.78	7,403.98
2002	70.58	3,807.94	10,101.83
2003	85.13	4,908.30	11,715.49
2004	106.68	5,940.65	12,871.62
2005	126.69	6,965.13	15,482.44
2006	143.78	12,252.55	16,322.63
2007	148.33	11,970.62	20,734.98

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2008	155.75	11,458.44	25,771.39
2009	90.31	17,454.90	38,701.20
2010	97.44	19,534.95	43,784.17
2011	93.39	24,249.95	43,925.65
2012	89.82	24,990.02	45,421.77
2013	79.58	4,908.30	11,715.49
2014	74.2	5,940.65	12,871.62
2015	69.51	6,965.13	15,482.44
2016	70.83	12,252.55	16,322.63
2017	80.36	11,970.62	20,734.98
2018	98.21	11,458.44	25,771.39
2019	92.63	17,454.90	38,701.20
2020	81.84	19,534.95	43,784.17
2021	76.28	24,249.95	43,925.65
2022	73.55	24,990.02	45,421.77

Source: *Authors computation from the CBN Statistical Bulletin 2023*

WHERE, REEX=REAL EFFECTIVE EXCHANGE RATE, FIPI= FIRE INSURANCE PREMIUM INCOME, MIPI=MOTOR INSURANCE PREMIUM INCOME.

Table 4.2: Data Presentation (Times Series Exchange Rate and Premium Income of Fire and Motor Insurance in log transformed value)

Years	**LNREEX**	**LNFIPI**	**LNMIPI**
1997	2.9488	7.5079	8.1275
1998	2.9557	7.6348	8.2357
1999	2.9898	7.7768	8.1933
2000	3.9844	7.9794	8.7479
2001	4.0641	8.1461	8.9099
2002	4.2564	8.2444	9.2208
2003	4.4446	8.4981	9.3688
2004	4.6694	8.6894	9.4624
2005	4.8412	8.8485	9.6478

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2006	4.9686	9.4132	9.7003
2007	4.9991	9.3904	9.9398
2008	5.0483	9.3462	10.1577
2009	4.5038	9.7672	10.5638
2010	4.5797	9.8792	10.6879
2011	4.5367	10.0963	10.6906
2012	4.4971	10.1261	10.7236
2013	4.3763	8.4981	9.3688
2014	4.3065	8.6894	9.4624
2015	4.2415	8.8485	9.6478
2016	4.2601	9.4132	9.7003
2017	4.3864	9.3904	9.9398
2018	4.5873	9.3462	10.1577
2019	4.5286	9.7672	10.5638
2020	4.4041	9.8792	10.6879
2021	4.3349	10.0963	10.6906
2022	4.2977	10.1261	10.7236

Source: *Authors computation from the CBN Statistical Bulletin 2023*

WHERE, LNREEX=LOG OF REAL EFFECTIVE EXCHANGE RATE, LNFIPI= LOG OF FIRE INSURANCE PREMIUM INCOME, LNMIPI= LOG OF MOTOR INSURANCE PREMIUM INCOME.

4.2 Data Analyses

Tests of Unit root using Philip and Peron

In an attempt to confirm the order of integration of the series under study thereby confirming their suitability for a linear combination in the form of a model, the unit root test following the form specified as Philip and Peron Test was used. Table 4.2 below represents a summary of the unit root result that was stationary.

Table 4.2: SUMMARY OF UNIT ROOTS TEST RESULTS

Variable	PP Statistic	Critical Values @ 5%	Probability Value	Inference
LNEXR	-3.4722	-2.9918	0.0181	I(1)

LNFIPI	-3.0380	-2.9818	0.045	I(0)
LNMIPI	-5.2076	-3.6121	0.0017	I(1)

Source: Author's e-view 10 output with data in Appendix One.

From the result of Philip and Perron unit root test contained in table 4.2, LNEXR abdLNMIPI are all integrated of order 1(1). On the other hand, LNFIPI is integrated at 1(0) meaning that is stationary at level order Given this different orders of integration, the Ordinary Least Square Regression Method was given up in preference for the Autoregressive Distributed Lag Model which tolerates such stationary property combination.

4.2.2 Basic Descriptive Statistics/ Standard tests for Normality

	LNREEX	LNFIPI	LNMIPI
Mean	4.308203	9.053973	9.742839
Median	4.395641	9.346482	9.700308
Maximum	5.048252	10.12623	10.72375
Minimum	2.948116	7.507800	8.127024
Std. Dev.	0.559729	0.828168	0.823953
Skewness	-1.401412	-0.345626	-0.487850
Kurtosis	4.508694	1.912943	2.289115
Jarque-Bera	10.97631	2.797815	2.578792
Probability	0.004135	0.407014	0.454119
Sum	112.0133	235.4033	253.3138
Sum Sq. Dev.	7.832408	17.14654	16.97246
Observations	26	26	26

Source: *Author's e-view 10 output with data in Appendix One*

Table 4.3 contains the basic measures of central tendency, spread and variations calculated on the different series of the dataset. All the variables are negatively skewed to the left showing the degree of their departure to the line of symmetry. Also, the Kurtosis of the distribution is less than 3 meaning that they are leptokurtic and are not peaked. Of particular interest is the Jacque-Bera (JB) statistics which is a test for normality. It is a combined test of Skewness (S) of zero (0) and a kurtosis (K) of three (3), which are signs of a Mesokurtic distribution. In this case, however, the JB statistics shows that the variables are tending to 3 which are signs of

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Mesokurtic. The assumption of normality is accepted by the JB statistics, as well as the (K) and (S) figures. This, however, does not affect the goodness of the data for the estimation in this study as the kurtosis of all the variables are between 2 and 3 and the Skewness above 0-1 which is consistent with the properties of most financial time series.

Testing of Hypotheses

Test of Hypothesis One

Step 1: Restatement of the hypotheses in null and alternate form.

H_{O1}: Exchange rate does not impact positively and significantly on fire insurance premium income in Nigeria

$H0_2$: Exchange rate impact positively and significantly on fire insurance premium income in Nigeria

Step II: Presentation and discussion of the results arrived at using the estimation technique

Dependent Variable: LNREEX

Method: ARDL

Date: 04/19/23 Time: 04:40

Sample (adjusted): 1998 2022

Included observations: 25 after adjustments

Maximum dependent lags: 1 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic): LNFIPI LNMIPI

Fixed regressors: C

Number of models evaluated: 9

Selected Model: ARDL(1, 1, 1)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNREEX(-1)	0.868039	0.123495	7.028952	0.0000
LNFIPI	0.211191	0.259059	-0.815225	0.4250

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LNFIPI(-1)	0.357718	0.261932	1.365691	0.1880
LNMIPI	0.343094	0.297833	1.151965	0.2636
LNMIPI(-1)	-0.555060	0.295534	-1.878160	0.0758
C	1.345511	0.622520	2.161392	0.0436

R-squared	0.845341	Mean dependent var	4.362606
Adjusted R-squared	0.804641	S.D. dependent var	0.496176
S.E. of regression	0.219307	Akaike info criterion	0.008877
Sum squared resid	0.913818	Schwarz criterion	0.301407
Log likelihood	5.889038	Hannan-Quinn criter.	0.090012
F-statistic	20.77011	Durbin-Watson stat	2.010943
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source: *E-View 9.0 output*

From the table below, log of ire insurance premium income is represented with the coefficient of positive 0.21 which is positive and probability value of 0.42 which is not significant.

Step III: Statement of Decision criteria.

Accept H_O if the sign of the coefficient of the parameter estimates is negative, otherwise reject H_0 and accept H_1 when the coefficient of the parameter estimates is positive, or Accept H_1 if the sign of the coefficient is positive, otherwise reject H_0.Given the coefficient of the parameter estimates of lnFIPI is 21% and the probability of t-statistics of 0.42>0.05 which is non-significant, it shows that it is positively signed and statistically non-significant, the study rejected the Null hypothesis and accepted the alternate hypothesis thereby concluded thatExchange rate impact positively and non-significantly on fire insurance premium in Nigeria

Test of Hypothesis Two

Step 1: Restatement of the hypotheses in null and alternate form.

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H_{O1}: Exchange rate does not impact positively and significantly on motor insurance premium income in Nigeria

$H0_2$: Exchange rate impacts positively and significantly on motor insurance premium income in Nigeria.

Step II: Presentation and discussion of the results arrived at using the estimation technique

Dependent Variable: LNREEX

Method: ARDL

Date: 04/19/23 Time: 04:40

Sample (adjusted): 1998 2022

Included observations: 25 after adjustments

Maximum dependent lags: 1 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic): LNFIPI LNMIPI

Fixed regressors: C

Number of models evaluated: 9

Selected Model: ARDL(1, 1, 1)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNREEX(-1)	0.868039	0.123495	7.028952	0.0000
LNFIPI	0.211191	0.259059	-0.815225	0.4250
LNFIPI(-1)	0.357718	0.261932	1.365691	0.1880
LNMIPI	0.343094	0.297833	1.151965	0.2636
LNMIPI(-1)	-0.555060	0.295534	-1.878160	0.0758
C	1.345511	0.622520	2.161392	0.0436

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R-squared	0.845341	Mean dependent var	4.362606
Adjusted R-squared	0.804641	S.D. dependent var	0.496176
S.E. of regression	0.219307	Akaike info criterion	0.008877
Sum squared resid	0.913818	Schwarz criterion	0.301407
Log likelihood	5.889038	Hannan-Quinn criter.	0.090012
F-statistic	20.77011	Durbin-Watson stat	2.010943
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source. E-View 9.0 output

From the table below, log of ire insurance premium income is represented with the coefficient of positive 0.34 which is positive and probability value of 0.25 which is not significant.

Step III: Statement of Decision criteria.

Accept H_O if the sign of the coefficient of the parameter estimates is negative, otherwise reject H_0 and accept H_1 when the coefficient of the parameter estimates is positive, or Accept H_1 if the sign of the coefficient is positive, otherwise reject H_0.Given the coefficient of the parameter estimates of lnMIPI is 34% and the probability of t-statistics of 0.25>0.05 which is non-significant, it shows that it is positively signed and statistically non-significant, the study rejected the Null hypothesis and accepted the alternate hypothesis thereby concluded that exchange rate impact positively and non-significantly on fire insurance premium in Nigeria

5.0 FINDINGS, CONCLUSION AND RECOMMENDATIONS

Result reveals that real effective exchange rate positively but non-significantly impacted on fire insurance premium income in Nigeria within the period of the study, and that real effective exchange rate positively but non-significantly impacted on motor insurance premium income in Nigeria within the period of the study. The study has examined the impact exchange rate on insurance premium income in Nigeria using annual time series data spanning the period 1997-2022 by employing the autoregressive distributed lag (ARDL) baseline test approach. The results indicate that there is a positive and non-significant impact of exchange rate on insurance premium income in Nigeria. This implies that both indicators impact Nigeria's economy in the short run. The study concludes that exchange rate has a

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positive impact on insurance income in Nigeria as used in the context of this study. In line with the specific objective of the study, the following are the recommendations. Exchange rate positively and non-significantly impacted on fire insurance premium income in Nigeria within the period of the study. Expanded exchange rate regime that does not embrace parallel exchange rate will go a long way in making insurance have more premium income and finally contribute to economic growth. Exchange rate positively and non-significantly impacted on motor insurance premium income in Nigeria within the period of the study. Management of the exchange rate regime by the government through exchange rate fixation will go a long way in making insurance have more premium income and finally contribute to economic growth.

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