



## Impact of Insurance Risk Management on Fixed Capital Formation in Nigeria

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**Abstract:** This study investigated the impact of insurance risk management on fixed capital formation in Nigeria. The study sampled all insurance companies operating in Nigeria. Time series data covering the period 1996 - 2019 were obtained from CBN Statistical Bulletin, Annual Report of National Insurance Commission and the various issues of Nigerian Stock Exchange Fact book. General business insurance and life insurance claims were used to represent risk management (independent variable), while gross capital formation was used as dependent variable. Data were analyzed using descriptive statistics, unit root, Auto Regressive Distributed Lag (ARDL) and ARDL Bound cointegration test as well as model diagnostic test by Stata 15 software. The study found that life insurance claims exerts insignificant positive impact on gross capital formation, with reported estimate 0.1636576 ( $p=0.058 > 0.05$ ), general insurance business exert insignificant negative impact on gross fixed capital formation, with estimate  $-0.1913046$  ( $p=0.065 > 0.05$ ) and the non-existent of long-run connection between gross fixed capital formation and independent risk management. Our study suggests that regulatory authorities should implement strategies to encourage Nigerians to patronize life insurance companies, since this would lead to greater insurance investment and, in turn, growing in Nigeria's gross capital formation, among other things.

**Keywords:** Risk Management; General Business Insurance; Life Insurance Claims; Gross Capital Formation

**JEL Classification:** G22; G32

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## 1. Introduction

Today, insurance is an essential component of national economic operations all around the world. (Ezu, Okoye, & Ogbogu, 2020). This is because the insurance sector represents the core of an economy's risk management system, as the main component in mitigating the impact of financial risk on businesses and ensures financial security of the government and household. However, without an insurance coverage, the private commercial sector of the economy might not be able to function optimally. This is as a result of the fact that as the business grow, the dread of sudden loss is constantly present. Insurance provides a cover against any sudden loss arises from the business.

The management of diverse financial risks is a unique function of insurance sector (Lezaasi & Tamunonimim, 2012). Risk management is the process of aggregating risks, transferring them, and insuring against financial losses caused by uncertainty and volatility. It involves identifying unexpected loss exposures, analyzing different approaches for handling loss exposure, picking unsurpassed method, and observing the outcomes to modify decisions (Skipper, 1997). The availability of insurance services is critical for business sustainability and formation of fixed capital balance for growth purposes. This can inspire business owners to accept serious risk. Growth is often associated with an increase exports, while other times it is attributed with the increased financial development. Some economic models attribute economic upswing to the beneficial function of government spending, while others attribute it to the formation of capital in both the public and private sectors, among other things. Insurance, on the other hand, plays a substantial role in the well-being of citizens and economy in developed economies (Adetunji, Nwude & Udeh, 2018). However, in Nigeria, there is loss of confidence towards the insurance companies. Adetunji, Nwude, and Udeh (2018) opined that the level of skepticism about insurance companies has risen to the point where the value of insurance stocks has negative impact on Nigerian Stock Exchange because many of the stocks have been unable to rise above the market's least price per share, only a few investors continue to trade on them. Hence, Because of people's negative attitudes toward insurance, the Nigerian insurance sector's potential to contribute considerably to the country's fixed capital formation has been questioned. The numerous challenges provoking insurance industries in Nigeria according to Adetunji *et al.*, (2018) are insufficient underwriting capacity, competence and skill, poor research capacity and institutional framework, inadequate infrastructure, repudiation of genuine claims, imbalanced workplace distribution, poor education and awareness creation, insurance intermediary fraud, spurious claims pattern among others.

The importance of insurance risk management on the formation of fixed capital through adequate and proper payments of claims during the occurrence of unforeseen events that lead to financial losses in a business, most businesses in the economy

continue to survive and increase the quantity of products and services produced in the economy despite the occurrence of adverse events that lead to financial losses, thereby, affecting the economy more positively. This argument is bolstered by erroneous perceptions and concerns in Nigeria that insurance is a kind of gambling, as well as a scarcity of larger studies on the response of Fixed Capital Formation (FCF) consequences resulting from the payment of claims on major insurance products.

As at date, in Nigeria context, few studies have been carried out within the analysis of the implications of insurance risk management on fixed capital formation as a result of inadequate relevant data. The existing sparse publications on the precise description of the association have produced mixed results with no any consensus results. For instance, Mojekwu, Agwuegbo, & Olowokudejo (2011), and Akinlo (2013) discovered encouraging association between insurance contributions and Nigeria economic progress. Lezaasi and Tamunonimim (2012) discovered claim paid under auto-insurance, fire and employers' liability insurance policies have a short-term effect on GFCF growth. While Kalu, Agwah and Nwadike (2019) found capital formation to be positively and significant of general insurance premium and total insurance business in Nigeria.

However, the reviewed works emphasized only on insurance and growth but how claims paid on insurance sector contribute to fixed capital formation in Nigeria were not study. Unfortunately, only one study had been conducted since 2012 using claims paid on fire disasters, auto-insurance, workers' liability and marine insurance policies on gross fixed capital formation without showing the direction of relationship. This is the motivation for this research. This investigation anticipates to fill up the identified gap by incorporating general business insurance claims, as well as the use of ARDL Bound cointegration techniques to understand the direction and essence of connection between fixed capital formation and insurance risk management in Nigeria.

## **1.2. Research Objectives**

Overall goal of this research is to look into the effect of insurance risk management on fixed capital formation. However, in order to do so, the following precise aims must be met:

1. to investigate the insurance industry risk management indicators that affects fixed capital formation.
2. to find out the nature, extent, and direction of variation caused by insurance industry risk management variables on fixed capital in the short and long-run.

3. to appraise the effect of life and general insurance on fixed capital formation in Nigeria

### **1.3. Research Questions**

Subsequent research questions arose as a result of the study's specific objectives:

1. to what extent does life insurance risk management have effect on Fixed capital formation in Nigeria?
2. what is the level of impact of general insurance risk management on Fixed capital formulation in Nigeria?
3. what is the nature and direction of variation caused by insurance industry risk management variables on fixed capital formation in Nigeria both in the short and long-run?

### **1.4. Research Hypotheses**

The following hypotheses were developed in response to the study questions posed above:

1. Ho<sub>1</sub>: Life insurance risk management does not exert significant impact on fixed capital formation in Nigeria.
2. Ho<sub>2</sub>: General insurance risk management does not exert significant impact on fixed capital formation in Nigeria.
3. Ho<sub>3</sub>: Insurance risk management does not have short and long-run impact on fixed capital formation in Nigeria.

## **2. Review of Literature**

### **2.1. Risk Management Concept**

Risk is the possibility of deviations from expectations that can cause harm. Risk is the probability of an event that differs from what is expected, but this difference is only visible when it manifests as a loss (Kasidi, 2010). Another opinion was also expressed by Abbas Salim in Kasidi (2010), risk is a state of uncertainty that can result in a loss. So, based on some of the definitions given, risk is something that is unpredictable yet can affect a firm if not handled effectively.

According to Lezaasi & Tamunonimim (2012) citing Dorfman (2005), risk management can be defined as the logical formulation and implementation of a strategy to cope with possible losses imperative to manage a personal or an entity

risk of loss and safeguard its assets. Every firm is confronted with hazards that pose a threat to its operations. To handle the strategic, financial, operational, and hazard risks that they confront, successful companies use best practices and a cohesive team and infrastructure. Risk management is a tool for categorizing risks and responding to them, as well as maintaining control over reality, effectiveness, and regulatory compliance. A good risk management strategy gives you a new perspective on your company's internal or external, estimated or retroactive exposures. Risk assessment through a procedure that is straightforward, practical, and easy to comprehend, but with sufficient managerial support and, last but not least, resources, is required for a sustainable and efficient process.

In a nutshell, risk management is the preparation for the more complicated actions of commercial units or enterprises, which are caused by scientific and technical advancement (Kasidi, 2010).

## 2.2. Concept of Capital Formation

Capital formation is described as the process of accumulating valuable investable assets, increasing wealth, or creating new wealth. Although savings may be a process of capital accumulation, capital formation is not the same as accumulation because the rise in the stock of actual assets is referred to as accumulation, and not all savings are put into investment. Greater investment in non-financial assets have been held in order to boost the economy's value and increase the GDP by creating more jobs (Adekunle & Aderemi, 2012).

Apex bank in Nigeria (2007), defines "capital formation as the total change in the value of fixed assets in the economy in addition to fixed assets either for replacing or adding to the stocks, it refers to the increase in the fixed capital stocks of the capital formed". Nigeria's rate of gross fixed capital formation has increased dramatically in recent years. By present market value, the GFCF stood at N18.2 billion in 1981. Between 1982 - 1987 it dropped on till 1988 when it began to rise. In 1990, the GCFC had a value of N40.1 billion, N141.9 billion in 1995, N331.1 billion in 2000, N804.4 billion in 2005, and N1546.5 billion in 2006. It was N2053 billion as at 2008, and in 2011, it was N4207.4 billion (Kanu, Ozurumba & Anyanwu, 2014) cited in Kalu *et al*, (2019)

Fixed assets in national accounts cover a wider range of assets compared to business accounts. Fixed assets are produced assets that are employed in manufacturing operations frequently or continuously above one year. Types of fixed assets that are incorporated in statistical measurement are determined by the reason for which they are to be used. For example, a vehicle, is included in GFCF only if it is utilized for business operations or falls under "production" category. An automobile for private usage is usually not provided. However, because cars can be used for both personal

and professional purposes, the lines are not always straightforward to draw; in this instance, a standard rule is frequently adopted. Non-produced assets are excepted from the approved GFCF assessment (For example, land, underground resources, mineral reserves, natural resources, forestry e.t.c.) (Seng, 2014; Ugwuegbe, & Uruakpa, 2013; Sarkar, 2006; Uremadu, 2006).

Also, GFCF excludes routine maintenance, acquisitions of home appliances that are long lasting (such as personal cars and furnishings), animals raised for consumptions. Insofar as the expenditure comprises adjustments to fixed assets possessed, it can be strenuous to define an accurate statistical confines for GFCF and intermediate consumption. This expense can apply to new fixed investment in certain circumstances, but merely to operating expenses related to the maintenance and repair of fixed assets in others. Fixed asset insurance is included in the GFCF in some countries. Recently, there is a shift in handling research and development expenses as opined by (Seng 2014; Ugwuegbe & Uruakpa, 2013).

Research and development is now reported as production asset rather than intermediate consumption, resulting in an increase in GDP. While it is difficult to determine the exact amount of the overall fixed capital stock, since the cost prices of capital goods are documented, it is feasible to calculate a consistent amount of shift in net fixed capital increases. Use of GFCF time series data to study movements in asset activity over time is common, with sequence being deflated or regulated via price index. However, it can be used to derive different fixed capital stock measurements. The stock may be valued at the “book value,” however, book values are frequently a combination of historical cost, replacement cost, and scrap value. To put it another way, there is no universally accepted monetary value (Seng, 2014; Ugwuegbe, & Uruakpa, 2013).

In theory, if a fixed asset is purchased by one organization during the year, sold to other organization in the same year, this would not be regarded as an investment twice in the same year; else, the real expansion of the fixed capital stock might be exaggerated. New manufactured fixed assets should be included in amount spent on GDP, which GFCF is a part. Offensive armament and its delivery systems were removed from capital formation in the GFCF calculation, regardless of their service life; the reason for this is because military weapons are employed to harm lives and assets, hence, it is not a value-added product (Kanu, Ozurumba & Anyanwu 2014).

### **2.3. Theoretical Review**

The relationship between capital formation and insurance within the confines of this work is supported by three key theories namely the Neo-classical Theory of Growth, Financial Liberalization Theory and Growth Nexus Theory.

Solow (1957) and Swan (1956) established the growth theory, which identifies contributors to growth as labor, capital, technological development, and any other component included in the growth accounting exercise. The collapse in economic growth, according to this view, had to originate from outside the system, primarily from technical advancement, which is clearly treated as exogenous. However, the fundamental question of why labor supply (quantity and quality), capital accumulation, and technological advancement rise at different rates in different countries continues to be debated. Solow (1957) proposed a neoclassical growth theory that predicted per capita income convergence across countries.

Secondly, there is theory of Financial Liberalization which has its genesis in the work of McKinnon (1973) and Shaw (1973). The key work on financial buildout and economic boom, however, was published by Patrick (1966). The idea proposed two possible associations: a “demand-following” proposition, in this proposition, financial development emerges as the economy grows, and a “supply leading” phenomena, in which extensive financial institution growth leads to grow economy (Arestis, Nissanke & Stein, 2005).

Thirdly, there is the Schumpeter’s finance-growth nexus theory (1911). Financial services are crucial for economic progress, according to Schumpeter, as long as they increase productivity by fostering technical innovation, investment, and assisting entrepreneurs with the highest prospects of success in the innovation process. Bringing all the above together, this study is theoretically anchored on the fact that capital which is formed by insurance activities is used for production which engenders growth. Meaning that all the above theories rightly underpins this study.

#### **2.4. Empirical Review**

Using a dynamic factor model, Mojekwu, Agwuegbo and Olowokudejo (2011) explore significance of insurance contributions to Nigeria economic boom for twenty-seven-years, from 1981 to 2008. The suggested strategy describes a set of methods for analyzing factors, which are operative but indiscernible arbitrary values. Loading factors show which set of time series is associated to which common trend. The findings reveal a favorable association between insurance contribution, as assessed by premium volume, and Nigerian economic progress. The findings are consistent with Boon (2005), which revealed that total insurance funds have significant effect on capital formation and growth in gross domestic product at short and long term in his investigation.

Akinlo’s (2013) study insurance’s impact on economic progress in Nigeria from 1986 to 2010 is another example. The study looked at the organization of insurance sub-sectors, as well as path of interconnection between insurance and Nigeria economy boom. It used an error-correction model analysis and co integration

method. Except for premium, all of the variables are extremely important, according to the co integration technique. With a value of 10%, the premium coefficient was considerable. The study's findings show that insurance, measured in premiums, has a considerable favorable impact on economic progress with long-term connection.

In the same vein, Over the period 1986 to 2010, Akinlo and Yinusa (2013) examined the long and short-run connection concerning insurance buildout and Nigeria's economy. This research indicates that insurance development in Nigeria is linked to economic growth using the error correction model (ECM).

It revealed a long-term connection exists in insurance buildout and economic boom. Capital and rates of interest have a considerable favorable result on Nigeria economic growth according to the findings. Physical capital and inflation, on the other hand, have a negative long-term association with economic growth. The findings show that insurance has a statistically significant influence to Nigeria's economic growth.

Cristea, Mariu, and Carstina (2014) used data from 1997 - 2012 to investigate the connection flanked by insurance investment and economic progress in Romania. GDP was utilized as the dependent variable as a proxy for economic growth, whereas total insurance premium was employed as the independent variable for insurance practice. Multiple regression and the Pearson correlation test were used to discover strong link concerning the insurance market and growth in economy, but general insurance was found connected to economic growth.

In contrast, from 1976 to 2010, Olayungbo (2015) looked into the asymmetric nonlinear connection betwixt insurance and Nigeria economic progress. It concluded that in Nigeria insurance market, there is an unbalanced effect. Unidirectional causality also exists between growth in GDP and insurance premium increase. Furthermore, utilizing change disintegration and stimulus reaction with control variables, the robustness results suggest that low-price insurance policies encourages increase economy boom in Nigeria.

Another study by Ouedraogo, Guerineau, and Sawadogo (2018) looked at the relationship of life industry expansion and economy boom among eighty-six evolving nations, data from World Bank's Development Indicators from 1996 to 2011 was considered for the study. The explanatory variable was total life insurance premium, while the response variable was GDP. The data was analyzed using descriptive statistics and the generalized moments method (GMM). The findings revealed that insurance sector development contributes favorably to economy, but that this effect differs by country due to structural differences.

In Nigeria, Kalu, Agwah and Nwadike (2019), looked into the impact of insurance on capital formation from 1996—2010 using the ordinary Least Square Regression



method. They found that insurance contributed significantly to capital formation within the period studied.

### 3. Research Methodology

All insurance businesses operational in Nigeria, as defined in Insurance Act 2003 and listed on The Nigerian Stock Exchange are included in the study's target population (NSE). From 1996 to 2019, secondary data was collected for appraisal from numerous publications of the central bank of Nigeria statistical bulletin, the National Insurance Commission annual reports, the National Pension Commission annual reports, and the Nigerian Stock Exchange Fact Book, with natural log form of the series used as proxies for variables. The availability of published data influences the choice of base year and upper limit.

#### 3.1. Model Specification

In terms of operations, Gross Fixed Capital Formation (GFCF) evaluate the worth of new asset purchases of enterprises, governments, and people, which represents economic value added that is reinvested rather than spent. Whereas insurance claim is the indemnification received by the insured from the insurer. Hence, this study created a single disaggregated insurance claim payment modeling gross fixed capital formation as functions of general business and life insurance claims expressed as:

$$GFCF = f(GIN, L) \quad (3.1)$$

Where

GIN = General Insurance Claims

L = Life insurance Claims

Expressing equation (3.1) in econometric form; we have;

$$GFCF_t = \beta_0 + \delta GIN_t + \tau Life_t + \epsilon_t \quad (3.2)$$

$\delta, \tau > 0$

Where

$\epsilon_t$  represent the error term and other variables remain as defined above.

However, assuming a long-run balance relationship exists in equation (3.2), it is predicted that those variables are co-integrated (Studenmund, 2014).

Conferring to Pesaran and Shin (1998), ARDL ( $p, q_1, \dots, q_k$ ) can be expressed as :

$$\alpha(L, p)y_t = \beta_0 + \sum_{i=1}^k \beta_1(L, q_i) x_{i,t} + \epsilon_t \quad (3.3)$$

Where

$\beta_0$  is constant,  $y_t$  dependent variable (Gross Fixed Capital Formation), L is the lag operator,  $\epsilon_t$  is the error term and  $x_{i,t}$  is the regressors vector

Hence, the long run relationship of (3.1) can be expressed as:

$$\ln GFCF_t = \beta_0 + \gamma \ln GFCF_t + \delta \ln GIN_t G + \tau \ln L_t + \epsilon_t \tag{3.4}$$

The short run relationship of 3.4 is given by:

$$\begin{aligned} \Delta \ln GFCF_t &= \beta_0 + \gamma \Delta \ln GFCF_t + \delta \Delta \ln GIN_t G + \tau \Delta \ln L_t + \sum_{i=1}^p \gamma_i \Delta \ln GFCF_{t-i} + \\ \Delta \ln GFCF_t &= \beta_0 + \delta \Delta \ln GIN_t G + \tau \Delta \ln L_t + \sum_{i=0}^p \gamma_i \Delta \ln GFCF_{t-i} + \\ \sum_{i=0}^{q_1} \delta_i \Delta \ln GIN_{t-i} &+ \sum_{i=0}^{q_2} \tau_i \Delta \ln L_{t-i} + \sigma ECM_{t-1} + \epsilon_t \end{aligned} \tag{3.5}$$

$\Delta$  is denoted as the first-difference operator and  $\delta$ ,  $\gamma$  and  $\tau$  being its coefficients

### 3.2. Method of Data Analysis

In the quest to accomplish the objectives predetermined in this research and to proffer answers to those research questions raised, the study makes use of descriptive statistics, unit root test, as well as autoregressive distributed lag and Bounds cointegration test to establish the long-run connection among variables.

## 4. Analysis and Estimation Results

**Table 4.1. Variables Descriptive Statistics**

	<b>GBI</b>	<b>LIFE</b>	<b>GFCF</b>
Mean	5.061948	3.880707	4.756499
Median	5.230729	3.930567	4.836952
Maximum	5.589224	4.261240	5.355803
Minimum	4.329048	3.058318	3.880934
Std. Dev.	0.378504	0.308881	0.438132
Skewness	-0.499904	-1.406263	-0.593885
Kurtosis	1.963700	4.387119	2.340561
Jarque-Bera	2.073531	9.834402	1.845655
Probability	0.354600	0.007320	0.397394
Sum	121.4868	93.13696	114.1560
Sum Sq. Dev.	3.295101	2.194370	4.415081
Observations	24	24	24

Source: Authors' Computation (2021)

Descriptive statistics presented above revealed the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-bera, probability and sum of square deviation of the observations collated across the listed insurance firm over time. The table depicted that changes in general insurance business has the highest mean and median value of 5.061948 and 5.230729 respectively while GFCF record most unstable variable in the model having a standard deviation value of 0.438132. In the same vein, the median value of GBI, LIFE and GFCF, are greater than their corresponding mean values, while the change in the variables are negatively skewed.

The table further revealed that the Kurtosis of GFCF and GBI are less than 3. This indicated the nature of these data is said to be pleytokurtic, while life insurance business is leptokurtic in nature since the kurtosis values of  $4.387119 > 3$ . Also, the probability value of the Jarque-Bera statistics for LIFE value .007320 was found to be significant at a 5% confidence level while GIN and GFCF were not significant.

#### 4.1. Correlation Analysis

**Table 4.2. Correlation Statistics**

	GFCF	GBI	LIFE
GFCF	1.0000		
GBI	-0.7840	1.0000	
LIFE	-0.7191	0.9506	1.0000

*Source: Author's Computation (2021)*

Correlation outcome obtainable in Table 4.2 revealed that there is positive relationship between GBI and LIFE, the correlation coefficient stood at 0.9506. This result reflects that General Business Insurance (GBI) move in the same direction with Life insurance. Similarly, the correlation between GFCF, GBI and Life is negative with coefficient values of -0.7840 and -0.7191 respectively.

## 4.2. Unit Root Test

Table 4.3. Result of the Stationary Test

Variables	ADF @ Level				ADF @ 1st Difference				Decision
	Test stat	Test Critical Value At 5%	Prob	Remark	Test stat	Test Critical Value at 5%	Prob	Remark	
GFCF	-1.852	-2.998	0.468	NS	-3.994	-3.222	0.002	S	I(1)
GNI	-1.852	-2.998	0.347	NS	-3.694	-3.005	0.012	S	I(1)
LIFE	-4.418	-3.004	0.002	NS					I(0)

Source: Authors' Computation (2021)

The Augmented Dickey-Fuller (ADF) unit root test was utilized to avoid regression of a nonstationary variable on another nonstationary variable(s) using ordinary least square (OLS), which can result in a spurious regression result. The results are provided in table 4.3. The tests' null hypothesis is that the variable isn't stationary. As a result, the null hypothesis is rejected, implying that variable is stationary. Estimated value of the test statistics must be greater than the crucial value of the statistics at a given level of significance to reject the null hypothesis (5 percent level of significance). The variables are termed stationary at level when the null hypothesis is rejected at order of integration zero, I(0). However, from the ADF, it is noted that the GFCF and GBI were non-stationary as they are integrated of order one, I(1), while, life is stationary at order I(0). This, therefore, highlights the exigency of running a cointegration test in order to determine if there is a long-run connection among the variables using ARDL bound assessment method since is the combination of I(0) and I(1) series.

#### 4.4. Co-integration Bound Test

**Table 4.4. Pesaran/Shin/Smith ARDL Bounds Test**

H <sub>0</sub> : no cointegrating equation								F = 2.126
								t = -1.009
Critical Values (0.1-0.01), F-statistic, Case 3								
[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	
L_1	L_1	L_05	L_05	L_025	L_025	L_01	L_01	
k_2	3.17	4.14	3.79	4.85	4.41	5.52	5.15	6.36

Source: Authors' Computation (2021)

The bound cointegration test was performed on the level form of the variables. As showed in Table 4.4 the F-statistics of 2.126 is lower than the critical value for the lower bound I(0), 3.17, 4.14, 3.79, 4.85, 4.41, 5.52, 5.15 and 6.36 respectively. There is statistical reason not to reject the null hypothesis of no cointegration equation. Then we conclude that there is no cointegration, hence, no long-run relationship. The short run model is further estimated using ARDL Model in Table 4.5.

**Table 4.5. Estimated Short-Run Coefficient ARDL (1,0,0)**

ARDL(1,0,0) regression						
Sample: 1997 – 2019			No of observation = 23			
e(lags)[1,3]			F(3, 19) =		56.72	
GFCF GBI life			Prob > F =		0.0000	
r1 1 0 0			R <sup>2</sup> =		0.8995	
			Adj R <sup>2</sup> =		0.8837	
Log likelihood = 37.505322			Root MSE =		0.0521	
GFCF	Coef.	Std. Err.	T	P>t	[95% Conf.	Interval]
GFCF						
L1	.8837791	.1152262	7.67	0.000	.6426078	1.12495
GBI	-.1913046	.0977047	-1.96	0.065	-.395803	.0131938
Life	.1636576	.0810416	3.02	0.058	-.0059644	.3332795
_cons	.3398486	.3975869	0.85	0.403	-.4923103	1.172007

Durbin-Watson d-statistic (4, 23) = 1.505608

The optimal lag was selected using the AIC approach. Table 4.5 showed that a percentage change in the first lag of GFCF is associated with .88% increase in GFCF on average ceteris paribus at the 1% statistical significant level. The model also gives

a reasonable short run projection of gross capital formation for a unit increase in the two explanatory variables (GFI and Life) which are jointly statistically significant based on the computed F statistics values of 56.72 with P-values of 0.000 which is lower than 0.05% and this equally attest to the overall goodness of fit of the postulated model. However, the table also indicated that life insurance exerts insignificant positive impact on gross capital formation in Nigeria with an estimate  $\tau = .1636576$ , p value of 0.058 while the negative impact of general business insurance with an estimate of  $\delta = -.1913046$  with p value of 0.065 is evident that the model is adjudged to be best fit with strong coefficient of determination ( $R^2 = 0.8995$ ) which implies that 90.0% of the variation in measure of gross fixed capital formation is accounted for by the independent variables; (GFI and Life). Hence, 88.4% of the variation in GFCF can be accounted for when other predictor variables are added to the model as evidenced from the adjusted R-squared value of 0.8837. The table further revealed a Durbin Watson value of = 1.505608 which lies within an acceptable range of -2 and 2. This indicated that the model was adjudged to be specified correctly and no serial correlation on the data.

**Table 4.6. Diagnostic Test Result**

Test statistics	lags	chi2	df.	Prob. Value
1st order serial correlation	1	0.396	1	0.5292
White Heteroskedasticity		17.92		0.0361
Cameron & Trivedi's decomposition of IM-test				
Heteroskedasticity		17.92	9	0.0361
Skewness		3.81	3	0.2824
Kurtosis		1.83	1	0.1766
Total		23.56	13	0.0354

*Source: Authors' Computation (2021)*

Table 4.6 shows that the chi-square value of 0.396 and the probability value of 0.5292 with 1 degree of freedom in the Breusch-Godfrey first order serial correlation test are not significant at the 95 percent confidence level. As a result, the alternative assumption that the error terms are unrelated is rejected, implying that the error terms are connected. In a similar vein, we discovered that, given a predetermined probability level of 0.05, the actual probability of 0.0361 is less than 0.05, indicating that the successive error terms are not heteroscedastic.

## 5. Concluding Remarks

In this study, the results showed that increase in compensation paid on life insurance business does not substantially culminate into higher gross fixed capital formation in Nigeria, though it has a reflection of incremental influence on gross capital

formation. By implication, this finding gave reasons to affirm that life insurance does not significantly provoke the gross fixed capital formation in the country. From the foregoing, we concluded that declining life insurance business reflect mildly the possibility of a lower gross fixed capital formation. The study established that increase in the claim paid on general insurance business in Nigeria has the capacity to decline fraction of the gross fixed capital formation at the end of the financial year. However, from this finding, it can be affirmed that general insurance business does not increase country gross fixed capital formation. Finally, the study established non-existent of long-term relation between gross fixed capital formation and risk management.

### 5.1. Recommendations

Hingeing on the overview of discoveries made in this study, the following policy recommendations were presented:

- i. Insurance operators need to ensure reduction in insurance premium paid on general business as increases would lead to decrease in gross fixed capital formation.
- ii. The regulatory authorities should implement policies that make insurance appealing to Nigerians, as this would result in improved life insurance take up and, in turn, growth in fixed capital formation, as life insurance have a positive association with gross fixed capital formation.
- iii. More attention should be given by government, through proactive regulatory policies and insurance companies to develop good insurance policies and practices that are not misleading but very clear in content for more understanding by insured or the public as this will enable more people to take insurance cover which will consequently boost increase the financial base of the companies in that sector.

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