



# International Journal Of Scientific And University Research Publication

ISSN No **102/226**

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Listed & Index with  
**ISSN Directory, Paris**



**Multi-Subject Journal**

Volum : **(10)** | Issue : **(22)** |



## CONTRIBUTORY PENSION SCHEME AND THE PREMIUM BASE OF THE NIGERIAN INSURANCE INDUSTRY

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### ABSTRACT

The paper investigates the veracity of the hypothetical expectation that the implementation of the Pension Reform Act of 2004, as amended, would lead to a quantum growth in the premium base of the Nigerian insurance industry. Given that prior research had confirmed the power of mandated contributory pension scheme to facilitate growth of the financial sector, the paper argued that the insurance industry, being a subsector of the financial system, would experience its fair share of the expected growth. Employing annual gross premium as a proxy for insurance industry growth and measured over a span of eleven years (2005-2015), regression analysis of data showed that premium income of insurance industry had a positive and no significant relationship with contributory pension scheme ( $\beta = 0.8496$ ;  $t = 1.8282$ ;  $p = 0.1415 \geq 0.05$ ). The result not being significant at 5% could be traced to two related factors, namely, the manifest reluctance shown by MDAs and other public sector employers to comply with the provisions of section 9(3) of the Pensions Reform Act, 2004 and the failure of PFAs to expose the early retiring workers to the annuity option of pension payment structure; this hamstrung the growth of the annuity business, a major component of the insurance industry in Nigeria. The paper therefore recommends that pension regulatory authorities in Nigeria should compel strict compliance with the relevant provisions of the Act in order for the insurance industry to experience the expect quantum growth

**KEYWORDS** : Pay-as-You-Go, Contributory Pension, Premium, Insurance Industry.

### INTRODUCTION

There is a growing global interest about public sector pension. Interest, really, has shifted from the need for it to the issue of how to provide adequate funds to pay emerging pension benefits. This concern has been triggered, in part, by worldwide crisis in the management of public sector pension system. This was the concern of Ellison (2011) when he commented that UK pension system has been sick for a long time. The crisis, too, has been brought about by several isolated factors namely, the escalating costs of government expenditure in other sectors, the growing proportion of old people in the global population, increase in life expectancy, impact of the recent global financial crisis (Alles, 2010) and, not the least, the issue of official corruption by those who manage pension and the decline in government revenues, as were the case in Nigeria (Oloja, 2011).

Already, in Western countries, a widespread fear has been expressed that an increasing proportion of the elderly, combined with a decline in the workforce, will deteriorate economic development, leading to a lower Gross National Product (GNP) and per Capita GNP; it is feared that the development could lower net income for workers and the pensioners and ultimately undermine sustainability of the old age pension systems (Kune, 2011). Under these circumstances, pension funding based on pay-as-you-go system becomes burdensome and unsustainable. The factors highlighted above laid the foundation for the global pension crisis and the resulting popular demand for reform of the sector (World Bank, 1994). In fact, Alles (2010) observed that in many of the OECD countries with mandated retirement savings systems, pension funding is switching from defined benefit (DB) systems to defined contribution (DC) systems.

Latin American countries were the first in the world to reform their pension by switching from the pay-as-you-go system to the contributory pension schemes where, in typical cases, worker and employer jointly contribute to a fund to be invested in relevant mix of portfolio of assets (Queisser, 1999). Chile, in 1981 for example, blazed a trail when it became the first country in that region to replace the old pay-as-you-go system with a novel individual and privately funded pension for public sector workers (World Bank, 1994). According to Life insurance industry estimates, about 60% of all Chilean pensioners chose the annuity option and this triggered a quantum jump in premium from \$51m in 1987 to \$1.1b in 1996 (Queisser, 1999).

In Nigeria, up till May, 2004, a variant of the pay-as-you-go pension system was operated whereby retirement benefits were provided for through annual budgetary allocations (Okafor, 2000; Binuomoyo,

2009). The scheme was largely in pension arrears (Binuomoyo, 2009). As in 2005, the accumulated pension debt in the public sector nation-wide was N2 trillion (FGN, 2005). The crisis in the sector was reflected mainly in huge pension arrears, delay in release of budgetary allocations, cumbersome pension delivery systems, inaccurate data base for pensioners and alleged cases of fraud (Inabo, 2011; Oloja, 2011; Binuomoyo, 2009). To stem further slide into messier zone, Nigerian Government enacted the Pension Reform Act of 2004 (as amended in 2014), that switched the erstwhile pay-as-you-go pension system to the contributory pension scheme.

Available literature could point to no prior study that directly interrogated how specifically pension funding impacts on the growth of premium generation in Nigeria. Therefore the broad Objective of the paper is to examine the extent to which the contributory pension scheme has helped in the growth of the premium base of the insurance industry.

## 2. Literature Review

### 2.1. Concept of Pension

Pension may be defined as a regular flow of income paid by an employer to a previous worker who is currently in retirement. Mumy (1979: 519) sees pension as a series of regular income (annuity) paid through the years following retirement to someone who has retired from formal employment in recognition of past economic contributions to organisation's prosperity.

Anyafu (2000) defines it as a periodic payment or allowance to an individual or his family given because of some meritorious work or when certain conditions such as age, length of service, desired degree of contributions, etc, have been met. Diamond (1996: 116), however, insists that pension is a device for dividing business output between workers and pensioners. While it could be true that workers and pensioners share in business outputs, care must be taken to avoid giving an impression that only these two parties partake of business profits. As can be deduced from the above definitions pension has been explained to mean regular payments made in connection with past formal employment.

### 2.2. Concepts of Pension Reforms and Contributory Pension Scheme

As Queisser (1999) has pointed out, pension reform occupies a premium part of policy agenda of countries around the world. The World Bank (1994) has weighed in along this line when it states that "systems providing financial security for the old are under

increasing strain throughout the world”; this is a hint as to the likely cause for reform. To reform means to improve, make better, rectify or amend. These are all dictionary meanings. Pension reform therefore means an attempt to improve or rectify a pension system that has proven unsustainable or that faces future threat of insolvency. In Nigeria, before the pension reform Act of 2004, the public pension system had already become unsustainable, with a huge deficit pension burden of N2 trillion (Balogun, 2006). Two variants pension reforms were further identified namely, parametric pension reform and systemic/structural pension reform. 1) Parametric Pension Reform. This envisages changes or adjustments to the parameters of an existing pension system in order to make it functional. The parameters of interest include, age of retirement, contribution rate, vesting right, etc. Robalino, 2005 as reported by Balogun (2006), claimed that majority of pension reforms entailed changes to the parameters of Defined Benefit pension systems. According to him between a span of 1995-2005, 18 countries increased retirement age; 57 upped the contribution rates, 28 of them tinkered with the benefit formulae, 10 changed vesting periods while 14 changed the contributory base and/or indexation mechanisms. 2) Systemic Pension Reform. This variant contemplates a structural or paradigm shift in the pension system by a country (Balogun, 2006). A good example is the change of funding modality from the Defined Benefit (DB) to the Defined Contribution (DC) or the Social Security or Voluntary Pension scheme. As Queisser (1999) pointed out, the goal of reform that targets change of funding mechanism is to assign an increasing role to the private sector while the state focuses on regulating and supervising the pension environment. This decentralised pension reform option seems to capture the view of Anne-Sophie (2011) who claimed that most reforms introduced recently aim to strengthen the link between contributions made by the individual beneficiary and the pension benefits s/he will be entitled to. This kind of pension reform is exemplified in the contributory or the funded pension system which the Pension Reform Act of 2004 (as amended by 2014 Act), typifies. The *contributory pensionscheme* therefore is a pension plan in which both worker and employer jointly contribute regular, defined amount or stated percentage of worker’s salary, perhaps on monthly basis and to be kept in a fund that will be invested. Both the aggregate contributions and the investment profits thereof target providing income streams for the worker at retirement.

### 2.3. Concept of Insurance Industry

Irukwu (1989: 6) presents insurance as organised system for the sharing of losses and a modern method to deal with risks and risks distribution. According to him, it is basically a system under which the risk of one party, known as the insured or policyholder, is transferred to another party known as the insurer, in return for a premium paid by the insured to the insurer as consideration for the risk assumed by the insurer. Insurance industry therefore is the aggregate of companies that are legally registered to underwrite the risks of both individuals and corporate entities in a given economy. Insurance companies are known to transact investment business (Farny, 1999). According to him, this arises from advance payment of premiums and the capital accumulation and consumption processes which typify the life insurance and health insurance sectors.

## 2.4. Theoretical Review

### 2.4.1. The Efficiency Wage Theory

This is the theoretical basis for payment of pension. The efficiency wage theory argues that companies such as, Siemens, that paid pensions at the earliest times, might have been goaded to pay premium wage to workers in order to prevent shirking of responsibility by workers and also to elicit extra effort from them. It is further argued that creating a pension fund is akin to wage raise in that when workers cared about their future they will take into account

the benefits of being taken care of during retirement. It was even reasoned that Henry Ford’s “five dollar day” policy in 1914 acted as an efficiency wage by increasing productivity, profits and queues for jobs at the Ford factory (Raff and Summers, 1987 cited by Kastl and Moore, 2009). Even, as a plausible explanation, it was further posited that the mid-1870s economic decline in Europe occasioned by banks’ failure and Franco-Prussian War caused loss of skilled workers for Siemens due to war enlistment. Everything therefore was being done to woo and retain the few available workers. The adoption of the pension fund was that it would provide a wage premium over the prevailing market wage. But why Siemens had to pay wage premium through such a complicated system such as pension may have been for either of two reasons. The first could be because Siemens had a higher discount rate than workers such that postponing the payments associated with the wage increase into the future, there was the possibility that both firm and worker could have gained by the creation of pension fund. The second, and an alternative explanation, is that the cost of such a wage premium, via pension fund may have been lower when compared to direct wage payments.

### 2.4.2. Human Capital Theory

This theory speculates that the pension fund may have acted like an implicit contract between the firm and the employee to the effect that the firm would look after employees in their old age so long as employees worked faithfully for the company for many years (Kastl and Moore, 2009). It simply comes down to mean that when employers and employees repeatedly interact over a long time, it may be optimal to design long-term implicit contracts that encourage human capital acquisition and reduce employee turn-over and strikes (Lazear, 1979; Prendergast, 1979, as reported by Kastl and Moore, 2009). It appears a settled matter, as in the case of Siemens, that that the establishment of the pension fund and the associated rules were equivalent to workers placing a security deposit with the company. And since the stringent rules ensured that pensions were not paid unless worker stayed with the company for an unbroken 10-year work period, the accumulated pension exerted such an aware—some bonding effect on workers.

## 2.5. Empirical Review

Few empirical studies have measured the impact of fully funded pension schemes on saving and even fewer have tested the effect of a shift from pay-as-you-go to fully funded schemes; the reason is that until 1994 only Chile had made that switch (World Bank, 1994). For funded occupational pension plans in the U.S. only 60% of pension saving was offset by reductions in household saving, so the net effect is positive (Munnell and Yohn, 1992; Pesando, 1991).

James (1998) has observed that only Chile has had a mandatory saving plan long enough to permit an estimate of its effect. He however added that data from Chile were problematic, and savings ratio deemed erratic thus complicating the analysis and making the results highly sensitive to the starting date for comparison. Further on Chile, Corsetti and Schmidt-Hebble (1997) posit that private sector saving, as a percentage of GDP increased from almost zero in 1979-1981 to 17% in 1990-1992, while private consumption decreased commensurately. Again Corsetti and Schmidt-Hebble (1995) posit that econometric evidence suggests that the 1981 pension reform could be contributing-jointly with other contemporaneous structural changes-to Chile’s private saving boom. Further, time series regression analyzed by Haindl (1996) indicates that pension reform accounts for 6.6% of the 9.9% point increase in the national saving rate in Chile (16.7% of GDP in 1976-1980 to 26.6% in 1990-1994). Of the 6.6 point increase, 3.1 points were attributable to the direct impact of pension saving; the balance of 3.5 points was traceable to the financial deepening caused by the pension fund. Morande (1996) also discovered a significant positive effect of pension fund dummy on private saving from 1960 to 1995. Schmidt-

Hebbel et al. (2000) claimed that empirical evidence shows that countries that increase their mandatory retirement programmes tend to achieve higher private saving rates. This they supported by pointing to Chile also. According to them, time series evidence for Chile suggests 3.8% in saving increment that can be attributed to pension reform (Schmidt-Hebbel, 1999). Holzmann (1997) presented empirical proof that shows that Chile's most positive value that accrues from funded pensions is the increase in aggregate savings.

Catalan et al. (2000) in Akpan and Ukpong (2014) sought to know whether there exists Granger-Causality relation between capital market development and contractual savings through pension funds. Two capital market indicators were used namely, stock market capitalization and stock value traded. 26 countries were chosen, of which 6 of them were developing countries. The results indicate that contractual savings granger-cause capital market development. And capital markets have been shown as an arrangement for savings mobilization.

Nigeria undertook a reform of its public pension system in 2004 in which it changed the funding modality from pay-as-you-go to the contributory pension scheme. An ostensible goal of that reform was to raise the level of aggregate saving in the economy (Asekunnowo, 2009). Asekunnowo undertook an empirical survey of the nexus between funded defined contributory pension scheme in Nigeria and savings mobilization, financial market deepening and economic growth. Data generated were analysed using descriptive statistics. Some measures of financial deepening such as DCP/GDP (domestic credit to the private sector as a share of GDP), TBD/GDP (total bank deposits divided by GDP) and CIM (contract intensive money) did not improve much over the period. This according to him could be a hint of poor intermediation within the banking sector. However, the DCP/GDP + SMC/GDP (domestic credit to the private sector as a share of GDP plus stock market capitalisation as a share of GDP) measure showed a marked improvement due largely to the SMC/GDP measure. This result indicates that the Nigerian capital market achieved some notable degree of deepening following the implementation of reform. The spinoff effects of these results have positive implications for the growth of insurance industry in Nigeria. This, as we expect, will induce massive channelling of funds via the capital market to the real sector of the economy. Great industrial enterprises would be able, with relative ease, to access long term funds for investments. This, as we had argued earlier, is possible only with the insurance protection offered by the insurance industry. Recall that the insurance industry has been described as the only business that exists for the survival of other businesses (Irukwu, 1989: 6).

**3. Research Design**

The paper examined the impact of Contributory pension scheme on the premium base of the insurance industry in Nigeria from 2005 to 2015. An *ex post facto* (after-the-fact) research design was used for the eleven-year study period. Asika (2005) underscored the importance of *ex post facto* research by stating that such research provides a systematic and empirical solution to research problems, by using data which are already in existence.

**3.1. Population and Sample Selection**

The population of the study consists of the contributory pension fund accumulated from 2005, a year after the inception of the Pension Reform Act which came into existence on the 25 June, 2004. These comprise eleven (11) years of annual observations. The sample size for this paper involved the entire population.

**3.2. Nature and Sources of Data**

Secondary data were used in this study and they were gleaned from 2005 to 2015 time period. They were obtained from the National Insurance Commission's website (i.e. its annual reports and accounts), Pension Regulatory Commission and official publications of the National Bureau of Statistics. In addition, data pertaining to the various proxies of growth of the Nigerian Insurance Industry were sourced from official statistics of the Pension Commission, statistical bulletin of the National Insurance Commission and the Central Bank of Nigeria's Statistical bulletin for various years.

**3.3. Model Specification**

Model specification involves the determination of the dependent and explanatory variables which will be included in the model, the theoretical expectations about the sign and the size of the parameters of the function. Following the previous works of Adejoh (2013), Mesike and Ibiwoye (2012), and Oke (2012), key determinants of the growth of the Nigeria Insurance Industry were identified and modelled in multiple linear regression form specified in symbolic form as:

$$ISG_t = f(CP, GDP, MCAP, IR, NCP) \\ S) t ISG_t = f(CP, GDP, MCAP, IR, NCPS) t(1)$$

Insurance sector growth (dependent variable) is measured as Premium of Insurance industry from the Income and Investment approach as specified in the functional form below:

$$PII = f(CP, GDP, MCAP, IR, NCPS) \\ PII = f(CP, GDP, MCAP, IR, NCPS) (2)$$

The mathematical model is econometrically specified as follows:

$$PII_t = \alpha_0 + \alpha_1 CP_t + \alpha_2 GDP_t + \alpha_3 MCAP_t + \alpha_4 IR_t + \alpha_5 NCPS_t + \epsilon_t \\ PII_t = \alpha_0 + \alpha_1 CP_t + \alpha_2 GDP_t + \alpha_3 MCAP_t + \alpha_4 IR_t + \alpha_5 NCPS_t + \epsilon_t \quad (3)$$

Equations (3) expressed in log form is rendered as below:

$$\log PII_t = \log \alpha_0 + \alpha_1 \log CP_t + \alpha_2 \log GDP_t + \alpha_3 \log MCAP_t + \alpha_4 \log IR_t + \alpha_5 \log NCPS_t + \epsilon_t \\ \log PII_t = \log \alpha_0 + \alpha_1 \log CP_t + \alpha_2 \log GDP_t + \alpha_3 \log MCAP_t + \alpha_4 \log IR_t + \alpha_5 \log NCPS_t + \epsilon_t \quad (4)$$

Where:

Log = logarithm

$PII_t$  = Premium Income of Insurance at time t

$CP_t$  = Contributory Pension at time t

$GDP_t$  = Gross Domestic Product at time t

$MCAP_t$  = Market Capitalization of listed equities at time t

$IR_t$  = Interest rate at time t

$NCPF_t$  = Non-contributory Pension Fund at time t

$\alpha_0$  = Constant

$\alpha_1 - \alpha_5$  = coefficients of the independent variables

$\epsilon_t$  = Error term

The log form of the equations was followed in order to eliminate

extreme values and avoid the problem of outliers.

### 3.4. Description of Research Variables

The variables used in the study are based on established theoretical relationships, their use in previous studies and the availability of data. Sequel to this, the multi-linear relationship specified above was used to shed light on the test variables in the paper.

The following metrics were used for the dependent and independent variables respectively.

#### 3.4.1. Dependent Variable

Insurance industry growth is measured in two broad dimensions namely, the income approach and investment approach. The two approaches were used to derive the measure of growth as briefly described below.

Premium Income of Insurance Industry (PII). Insurance is a scheme for fund's (savings) mobilization through issuance of policies to policyholders who in return for protection guaranteed pay a service charge in the form of premium. These premia when fully earned constitute a key source of income to the insurance industry. The size or volume of these premia is a key measure of growth of the insurance industry. Hence an increase in the premium mobilized suggests a growth in the industry.

#### 3.4.2. Independent Variable (The Test Variable)

The independent variable (the test variable) in this study is the Contributory Pension scheme (its funds). The Contributory Pension system ensures that a saving culture is imbibed by workers, which leads to the accumulation of capital needed for development (Umar and Emmanuel, 2012). Contributory Pension fund was used and measured as the annual figures of Contributory Pension disclosed in the official statistics of the National Pension Commission (PenCom) from 2005 to 2015.

Contributory Pension=Annual CPS amount disclosed in(PenCom)official statistics  
 Contributory Pension=Annual CPS amount disclosed in(PenCom)official statistics(5)

#### 3.4.3. Control Variables (Explanatory Variables)

The variables listed below are the theoretically recognized determinants of growth of insurance sector. In line with the work of Mesike and Ibiwoye (2012) they were used as control variables. These variables are Gross domestic product, Inflation rate, capital market development, interest rates, and non-contributory pension funds.

### 3.5. Technique of Analysis

The data for this study were analysed in accordance with the objective of the paper. The techniques of data analysis therefore involved estimation of multiple OLS linear regression model specified in the equations below, which helped to achieve the objective of the paper.

$$\begin{aligned}
 PII_t &= \beta_0 + \beta_1 \\
 1CP_t + \beta_2 GDP_t + \beta_3 M \\
 CAP_t + \beta_4 IR_t + \beta_5 NCPF_t + \epsilon_t \\
 PII_t &= \beta_0 + \beta_1 CP_t + \beta_2 GDP_t + \beta_3 MCAP_t + \beta_4 IR_t + \beta_5 NCPF_t + \epsilon_t \quad (6)
 \end{aligned}$$

where the premium base of the insurance industry at time,  $t$  ( $PII_t$ ) is the dependent variable, Contributory pension at time  $t$ , ( $CP_t$ ) is the explanatory variable; gross domestic product at time  $t$  ( $GDP_t$ ), market capitalisation at time  $t$  ( $MCAP_t$ ), interest rate at time  $t$  ( $IR_t$ ) and non-contributory pension fund at time  $t$  ( $NCPF_t$ ) are the control variables;  $\epsilon_t$  is an error term that incorporates the cumulative effect on  $PII_t$ , of all the factors not explicitly included in the model. If  $CP_t$  is increased

by one unit while holding the values of the other independent variables constant,  $PII_t$  would change by an amount,  $\beta_1$ . The *a priori* expectation is that  $\beta_1$  would be negative (i.e.,  $\beta_1 < 0$ ).

## 4. Presentation of Data, Analysis and Discussion of Results

Table 1 below shows the summary of descriptive statistics in terms of the mean scores, median, maximum and minimum values, standard deviation, skewness, Kurtosis and Jarque-Bera statistics. These were computed from the descriptive statistics table in the main econometric software (EViews version 9.0) used in the analysis. The reported statistics are for the measures of contributory pension and growth of the Nigerian Insurance Industry (LogPII, LogIEI, LogIGSI, LogIMMI) plus other explanatory variables (LogGDP, IR and LogMCAP). The transformation of these variables was deemed appropriate following the outcome of preliminary tests conducted. Overall, the transformation of variables yielded optimum results in terms of the adjusted coefficient of multiple determination, F-ratio and t-tests plus the fact that it has a higher number of significant variables.

### 4.1. Descriptive Statistics

The results in Table 1 show that the mean values which represent the average values of the variables were 11.85, 12.17, 10.48, 17.14, 9.08 and 11.27 for PII, CP, GDP, IR, MCAP and NCPF respectively. This implies that all the variables have approximate mean values especially for the measures of growth of the Nigerian Insurance Industry. This supports the argument that informed the logarithmic transformation of most of the variables, an exercise aimed at securing linearity. Also, the standard deviations which measure how concentrated the data are around the mean reveal that the variations in the variables were not much. Furthermore, the series was normally distributed as revealed by the probability values of the Jarque-Bera statistic as shown in the summary of descriptive statistics.

### 4.2. Correlation Analysis

The correlation results for the model are shown in Table 2 below.

Table 2 reports the correlation among premium base of insurance industry (PII), contributory pension (CP), gross domestic product (GDP), interest rate (IR), market capitalization (MCAP) and non-contributory pension funds (NCPF). The results show that the correlation between PII and CP is positive at 0.887065 which confirms the expectation that contributory pension scheme and premium base of insurance industry are positively correlated. This result suggests that premium base of insurance industry increased alongside contributory pension.

The correlation between premium base of the insurance industry (PII) and gross domestic product is 0.890884. This implies that gross domestic products and premium base of the insurance industry move in the same direction. This result conforms to the empirical works of (Levine and Zervos, 1996; Demirguc- Kunt, 1994; Demirguc-Kunt and Levine, 1995; Rousseau, 2000).

Variables	Mean	Median	Max	Min	Std. Dev.	Skew	Kurt.	Jarque-Bera	OBS
Log (PII)	11.85874	12.18126	12.47676	10.63179	0.704672	-0.817937	1.990973	1.847110	12
Log (CP)	12.17300	12.13085	13.13177	10.92184	0.661103	-0.319886	2.456833	0.293474	10
Log (GDP)	10.48308	10.86245	11.14221	6.268301	1.342485	-2.894747	9.654308	38.89903***	12
IR	17.14250	16.89500	19.18000	15.14000	1.162835	0.310615	2.583339	0.279767	12
Log (MCAP)	9.087716	9.219815	9.856261	7.655627	0.710097	-0.872979	2.592491	1.607218	12
Log (NCPF)	11.27156	11.80711	12.44297	8.524639	1.317660	-1.137660	2.897235	2.161518	10

Table 1. Summary of descriptive statistics.

\*\*\* is indicative of the fact that Jacque-Bera test of Normality of the data set was carried out at 1% level of significance.

Correlation						
Probability	Log (PII)	Log (CP)	Log (GDP)	IR	Log (MCAP)	Log (NCPF)
Log (PII)	1.000000					
Log (CP)	0.887065***	1.000000				
Log (GDP)	0.890884***	0.952241***	1.000000			
IR	-0.128758	-0.320969	-0.136636	1.000000		
Log (MCAP)	0.716721**	0.871840***	0.775547***	-0.356055	1.000000	
Log (NCPF)	0.913611***	0.830130***	0.902745***	0.124351	0.733228**	1.000000

Table 2. Correlation results for model one.

Source: EViews computations (2017); Note: \*\* and \*\*\*denote significance at 5% and 1% level respectively.

From the result, the correlation coefficient of interest rate (IR) suggests a negative relationship with premium base of insurance industry (PII). By implication, this means that an increase in interest rates results to a decrease in premium base of insurance industry and *vice versa*. A plausible reason for this relationship between PII and IR could be due to the fact that high lending rate discourages borrowing, and when borrowing is discouraged, aggregate investments in assets that could need insurance protection decline. Hence, the premium base of insurance industry begins to fall. The opposite holds true when interest rate is reducing. Again, when interest rate is high investment in money market instruments may be preferred to insurance.

### 4.3. Discussion of Regression Result

Table 3 shows the results for the regression model.

The impact of contributory pension on premium income of insurance industry

Table 3 below captures the effect of contributory pension on the growth of the insurance industry in Nigeria proxied by Premium Income of Insurance industry (PII).

The result of the ordinary least squares (OLS) shows that contributory pension (CP) and non-contributory pension (NCPF) have positively affected the premium base of insurance industry (PII) in Nigeria. On the other hand, gross domestic product (GDP), interest rate (IR) and market capitalization (MCAP) were negative in influencing the premium base of the insurance industry (PII). In addition, the results reveal that the only significant variable is non-contributory pension funds (NCPF).

The coefficient of (CP) is 0.849755 and this indicates that a 1% increase in this variable results to about 0.84% increase in (PII). This implies that contributory pension scheme has impacted the insurance industry positively over the period of study. This shows that contributory pension scheme has accelerated the growth of premium base of the insurance industry by 0.84%. Also, a 1% decrease

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Log (CP)	0.849755	0.464800	1.828217	0.1415
Log (GDP)	-2.208959	1.533665	-1.440314	0.2232
IR	-0.114597	0.092028	-1.245239	0.2810
Log (MCAP)	-0.657136	0.330056	-1.990983	0.1173
Log (NCPF)	0.454287	0.140974	3.222486	0.0322
C	28.76822	13.06464	2.201992	0.0924
R-squared	0.950965			
Adjusted R-squared	0.889671			
F-statistic	15.51481			
Prob (F-statistic)	0.010008			
Durbin-Watson stat	1.648556			

Table 3. Regression results for model one (Dependent variable, PII).

Source: EViews computations.

in (GDP) leads to about 2.20% decrease in (PII). This implies that the health status of the Nigerian economy has been poor, degenerating to low premium base of insurance industry in Nigeria. In addition, the results show that interest rate (IR) and market capitalization (MCAP) had a negative influence on premium base of insurance industry (PII).

The non-contributory pension (NCPF) which is significant at 5% as shown by the *p*-value (0.0322) had a positive coefficient of 0.454287. This implies that non-contributory pension funds caused approximately 0.45% increases in premium base of insurance industry in Nigeria. From this result, it can be seen that non-contributory pension funds is vital to the growth of premium base of insurance industry.

The overall goodness of fit of the model as shown by the adjusted coefficient of determination is 0.889671, which shows that variation in the explanatory variables (CP, GDP, IR, MCAP and NCPF) explained about 88% variations in premium base of insurance industry (PII). The F-statistic shows that the model is useful in determining the contributions of CP, GDP, IR, MCAP and NCPF to the growth of insurance industry, given that the computed F-statistic is 15.51481, with a probability value of 0.010008, which is less than 5% (0.05) critical value.

### 4.4. Test of Hypothesis

$H_0$ : The contributory pension does not have positive and significant impact on the premium base of the insurance industry.

$H_1$ : The contributory pension has positive and significant impact on the premium base of the insurance industry.

DECISION RULE:

Accept  $H_0$  and reject  $H_1$  if *p* is less than 0.05.

Accept  $H_1$  and reject  $H_0$  if *p* is greater than 0.05.

DECISION: Based on the *p*-value of 0.1415 which is greater than 0.05 (5%) (See Table 3) it was concluded that contributory pension funds (CP) have no significant impact on the premium base of

insurance industry (PII). Hence, the null hypothesis ( $H_0$ ) was accepted.

#### 4.5. Implications of the Results

The results obtained for model one implies that contributory pension funds are a prerequisite for sustainable growth of the insurance industry in Nigeria. From the results, contributory pension funds contributed positively and insignificantly to the premium base of insurance industry. This implies that contributory pension scheme caused a little increase in gross premium of insurance industry. This result is in line with *a priori* expectation, theories and empirical studies of Anyafo (2000) and Diamond (1996) who believe that pension is a device for mobilizing savings from workers which could generate premium for insurance companies' investments. Consequently, efforts should be made to strengthen contributory pension scheme in order to boost insurance industry's performance in Nigeria.

#### 5. Summary of Findings

The major finding of the study is as stated below.

The contributory pension scheme had a positive and non-significant impact on the growth of premium base of the insurance industry in Nigeria.

## CONCLUSION

The combined results of regression analysis and test of hypotheses show that the implementation of the pension reform Act of 2004 (as replaced by the Act, 2014) has a positive but insignificant impact on the growth of gross premium income of the insurance industry in Nigeria for the period investigated. This clearly demonstrates that the pension reform has the capacity to stimulate the growth of the insurance industry, although this has not happened as the results show. That the result was not significant at 5% level could be explained by two related factors. One, there was an observed reluctance by Ministries, Departments and Agencies (MDAs) and private sector employers to comply with the provisions of section 9(3) of the Pensions Reform Act, 2004 which provides that "...employers shall maintain life policy in favour of the employee for a minimum of three times the annual total emolument of the employee". Therefore the massive premium impact expected was not fully realised. Two and related to the first, there was also a deliberate unwillingness on the part of Pensions Fund Administrators (PFAs) to expose the early retiring workers to the annuity option of pension payments. This created a scenario whereby most workers who retired under the contributory pension scheme thought of gradual withdrawal as the only option for receipt of pension by retirees. This, in a way, hamstrung the growth of the annuity business, a major aspect of the insurance industry in Nigeria. To this extent, therefore, the expected premium impact that annuity contracts could have engendered was not fully realised.

#### Recommendations

From the summary of findings the paper recommends diligent

implementation and Enforcement of the provisions of the Pensions Act of 2014. The National Pension Commission as the regulator of pension in Nigeria should take urgent steps to compel MDAs and private sector employers to comply with the provisions of section 4(5) which states, "that every employer shall maintain a group life insurance policy in favour of each employee for a minimum of three times the annual total emolument of the employee and premium shall be paid not later than the date of commencement of the cover". The full impact of the contributory pension scheme on the insurance industry can be felt if only the law is diligently implemented as enacted.

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