

## CONTRIBUTION OF PENSION INDUSTRY TO FINANCIAL DEEPENING IN NIGERIA

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**Abstract:** *This study was on contribution of pension industry to financial deepening in Nigeria (2007-2018). Its specific objectives were to examine the contribution of ratio of pension fund to GDP to ratio of insurance industry premium to GDP in Nigeria; to investigate the contribution of ratio of pension fund to GDP to ratio of credit to private sector by commercial banks to GDP in Nigeria; and to determine the contribution of ratio of pension fund to GDP to ratio of capital market capitalization to GDP in Nigeria. Ex-post facto research design was used in the study. Three hypotheses formulated were analysed using Automated Regressive Distributed Lag technique. It was found that ratio of pension fund to GDP did not significantly contribute to ratio of insurance industry premium to GDP in Nigeria; ratio of pension fund to GDP did significantly contribute to ratio of credit to private sector to GDP in Nigeria; and ratio of pension fund to GDP did not significantly contribute to ratio of market capitalisation to GDP in Nigeria. Based on the findings of the study it was concluded that the pension industry contribution to financial deepening was significant only through its involvement in the capital market. It was recommended that the pension industry should strive to win over businesses in the informal sector into its scheme. This will make them apply for annuity through group life insurance which will increase the contribution of pension industry to financial deepening through its association with the insurance industry. Also, the pension industry can transfer part of its fund to banks which can deepen volume of savings available to the banking sector further broadening the capacity of the later to provide more financial services.*

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**Key words:** Pension, Financial Deepening

## 1.1 Introduction

A financial system is an entity made up of other subsystems. These constitute different sectors or industries. They include Banks, Insurance, Capital Market, Pension and Mortgage institutions. By institution is meant a custom, system or organization that is accepted as an important part of a society. Institutions provide the incentive structure of an economy; as that structure evolves, it shapes the direction of economic change towards growth, stagnation or decline. Institutions in the words of North (1991) define the choice set and therefore determine transaction and production costs and hence the profitability and feasibility of engaging in economic activity. Accordingly, institutions facilitate economic exchanges, determine resource allocation and efficiency of economic activities. In other words, institutions bring about financial deepening.

A well-developed financial system enables firms to expand production and provides households with the ability to obtain essential assets like a house, insure against income shocks, start a company, receive cheaper remittances, and enjoy a pension when they retire. As such, the financial sector is an engine of economic growth and household welfare. Most literature confirmed that financial market plays a vital role in the process of economic growth and development by facilitating savings and channelling funds from savers to investors (Nzotta and Okereke, 2009). Financial intermediation leads to financial deepening, which refers to the greater financial resource mobilization in the formal financial sector and the ease in liquidity constraints of banks and enlargement of funds available to finance projects (Nzotta and Okereke, 2009).

Financial deepening is a process whereby the efficiency, depth (credit intermediation and market turnover), breadth (the range of market and instruments) and reach (access) of financial markets are increased (Wyman, 2015). According to Nwaogwugwu (2008) financial deepening refers to the increased provision of financial services with a wider choice of services geared towards the development of all levels of society. Financial deepening is usually measured using the ratio of a variable to GDP (Central Bank of Nigeria, CBN, 2017). Ndebbio (2004) highlighted that it may be measured using money-based indicators or liquid liabilities like broad money supply to GDP ratio. Also, bank-based measures like bank credit to the private sector and capital market-based measures such as capitalization ratio of stock market. Financial deepening is thought to promote efficient credit allocation, risk reduction

through diversified investment in financial intermediaries and lowering of the transaction costs through information generation.

Direct measurement of how well the financial sector performs each of its functions is difficult. According to Ndebbio (2004) it is not possible to observe directly the quality and quantity of the monitoring services performed by a financial institution in the course of its service, at least not for a large country like Nigeria. Hence, researchers use proxies to measure financial deepening. Pension industry is the institution of interest to this study.

The Organization for Economic, Corporation and Development (OECD) (2009) identified the pension industry as a credible source of continuous supply of long-term funds. OECD (2009) observed that institutional investors, in particular pension funds, mutual funds and insurance have enhanced their role as collectors of savings over the past few decades. It went on to conclude that this trend is likely to continue as retirement saving grows and the increased pension saving will augment the size of capital markets. Pension industry may be seen as a form of institutional investor, which collect, pool and invest funds contributed by sponsors and beneficiaries to provide for the future pension entitlements of beneficiaries (Zubair, 2016). They thus provide means for individuals to accumulate saving over their working life so as to finance their consumption needs in retirement, either by means of a lump sum or by provision of an annuity, while also supplying funds to end-users such as corporations, other households (via securitised loans) or governments for investment or consumption. Thus the existence of pension services may add to the depth, breadth and reach (access) of financial markets available in the economy (Wyman, 2015).

## 1.2 Statement of the Problem

The pension industry in Nigeria, since the establishment of Contributory Pension Scheme has been actively involved in the Nigerian financial system. It contributes to the fund mobilization, savings, investment, diversification of financial products, and many more. By so doing it has been in extensive interactions with other financial institutions in the economy. Empirical focus on pension contribution tends to rest mainly on its financial intermediation role. Much consideration has not been given to its interactions with other financial institutions that further financial market expansion. In line with this gap this study seeks to examine the contribution of pension industry supply of financial assets to widening the capacity of the financial market in the Nigerian economy.

### 1.3 Objectives of the Study

The main objective of the study is to assess the contribution of pension industry to financial deepening in Nigeria. The specific objectives of this study are:

1. To examine the contribution of ratio of pension fund to GDP to ratio of insurance industry premium to GDP in Nigeria
2. To investigate the contribution of ratio of pension fund to GDP to ratio of credit to private sector by commercial banks to GDP in Nigeria.
3. To determine the contribution of ratio of pension fund to GDP to ratio of capital market capitalization to GDP in Nigeria

### 1.4 Research Questions

The following are research questions for the study:

1. What is the extent to which ratio of pension fund to GDP contribute to ratio of insurance industry premium to GDP in Nigeria?
2. To what measure did ratio of pension fund to GDP contribute to ratio of credit to private sector by commercial banks to GDP in Nigeria?
3. How far did ratio of pension fund to GDP contribute to ratio of capital market capitalization to GDP in Nigeria?

### 1.5 Statement of Hypotheses

The following null hypotheses were formulated for the study:

H<sub>01</sub>: Ratio of pension fund to GDP did not significantly contribute to ratio of insurance industry premium to GDP in Nigeria

H<sub>02</sub>: Ratio of pension fund to GDP did not significantly contribute to ratio of credit to private sector by commercial banks to GDP in Nigeria

H<sub>03</sub>: Ratio of pension fund to GDP did not significantly contribute to ratio of capital market capitalization to GDP in Nigeria

## Review of Related Literature

### 2.1 Conceptual Framework

#### 2.1.1 Concept of Pension

Pension is simply the amount set aside either by an employer or an employee or both to ensure that at retirement, there is something for employees to fall back on as income (Fapohunda, 2013). It is a periodic income or annuity payment made at or after retirement to employees who has become eligible for benefits through age, earnings and service. A pension

is a contract for a fixed sum to be paid regularly to a pensioner, typically following retirement from service. It is different from severance pay because the former is paid in regular installments while the latter is paid in one lump sum. The common use of the term pension is to describe the payments a person receives upon retirement, usually under pre-determined legal and/or contractual terms.

Pension is the amount paid by government or company to an employee after working for some specific period of time, considered too old or ill to work or have reached the statutory age of retirement. It is equally seen as the monthly sum paid to a retired officer until death because the officer has worked with the organization paying the sum. Adebayo (2006) asserted that pension is also the method whereby a person pays into pension scheme a proportion of his/her earnings during his working life. The contributions provide an income (or pension) on retirement that is treated as earned income. This is taxed at the investors marginal rate of income tax. In the words of Sule and Ezugwu (2009), a good pension guarantees employee's comfort and commitment to the organization during his/her active years. According to Ozor (2006), Pension consists of lump sum payment paid to an employee upon his disengagement from active service. According to him, payment is usually in monthly installments. He further stated that pension plans may be contributory or noncontributory; fixed or variable benefits; group or individual; insured or trustee; private or public, and single or multi-employer. Onifade (2001) defines pension as a sum of money paid regularly to a person who no longer works because of age, disablement, etc, or to his widow or dependent children, by the state, by his former employers or from funds to which he and his employers have both contributed.

Ugwu (2006) stated that there are four main classifications of pensions in Nigeria. These are:

1. Retiring Pension: This type of pension is usually granted to a worker who is permitted to retire after completing a fixed period of quality service usually 30 to 35 years or on attaining the age of 60 to 65 years for the public service in Nigeria and 70 years of age for professors and judges.
2. Compensatory Pension: This type of pension is granted to a worker whose permanent post is abolished and government is unable to provide him with suitable alternative employment.
3. Superannuating Pension: This type of pension plan is given to a worker who retires at the prescribed age limit as stated in the condition of service.

4. Compassionate Allowance: This happens when pension is not admissible or allowed on account of a public servants removal from service for misconduct, insolvency or incompetence or inefficiency (Amujiri, 2009).

### **2.1.2 Concept of Financial Deepening**

Popiel (1990) conducted one of the most elaborate studies on financial deepening. According to him, financial markets are deep from a qualitative standpoint when:

1. They offer savers and investors a broad range of financial instruments which differ in terms of liquidity, yields, maturities and degree of risk including debt instruments, equity instruments and in between quasi-equity instruments.
2. They encompass a diversity of sub-markets, trading in different financial instruments.
3. Mature, domestic financial markets are integrated into the international financial markets.
4. Are linked together through financial instruments.
5. Finally, the markets are linked together through various financial institutions which function as market makers and financial intermediaries.

The conclusions of Popiel above agree with the views of Shaw (1973) who contends that financial deepening is an outcome of the adoption of appropriate real finance policy and the broadening of the markets.

The World Bank (2000) further contends that financial deepening encompasses the increase in the stock of financial assets. From this perspective, financial deepening implies the ability of financial institutions in general, to effectively mobilize financial resources for development. This view accepts the fact that a financial system's contribution to the economy depends on the quality and quantity of its services and the efficiency with which it performs them. Financial sector deepening is not a goal in itself rather it is a tool for economic growth (Beck, 2007). Financial deepening is often understood to mean that sectors and agents are able to use a range of financial markets for savings and investment decisions, including at long maturities (access), financial intermediaries and markets are able to deploy larger volumes of capital and handle larger turnover, without necessitating large corresponding movements in asset prices (Kisaka, Adhiambo, Ndege and Muio, 2015). This is achieved when the financial sector can create a broad menu of assets for risk-sharing purposes.

Financial deepening plays positive as well as negative roles which have been presented in ensuing points:

### **Financial Deepening: A Positive Role**

- Financial deepening may enhances the hiding costs through providing better laws, which enables the entrepreneurs to take credit for innovative activities (Ang, 2008)
- Financial deepening may reduce the monitoring cost and screening cost that eliminate the agency problems and enhancing the rate of innovations.
- Financial deepening eliminate credit constraints through facilitating the espousal of modern technology to increase the development of technology-intensive industries (Ang,2010)
- Deepening of financial markets enhances efficiency of transforming savings into investments and economic profitability of countries. (Bumann, Hermes and Lensink,2013)
- Financial deepening can reduces the financial and economic crises in national and international contexts. (Bumann, et al, 2013)
- Financial deepening can heighten the official governmental policies through deregulating credits, restrains interest rate, eliminating entry barriers for foreign financial institutions and privatization of banking sector (Bumann, et al, 2013)
- Financial deepening strengthens the price mechanisms as well as improving market competition that increases the interest rate on deposits translating the higher saving rate and more resources available for investment purposes (Bumann, et al, 2013)

### **Financial Deepening: A Negative Role**

- Financial deepening does not solved the problem of asymmetric information that restrains the financial markets to be efficient, even without governmental interventions (Stiglitz, 2000).
- Financial deepening and increased competition may reduce the relationship lending that destroys the information capital that increases the asymmetric information (Boot 2000).
- Increased competition in financial markets may reduce the profit margin and increased financial fragility of banks. Reduction in profit margins may encourage banks to economize on monitoring efforts while making loans. Thus, financial deepening may create financial crises if excessive risks is taken in presence of increased competition(Hellmann, Murdock and Stiglitz, 2000).

## **2.2 Theoretical Framework**

### **2.2.1 Buffer theory**

This study takes its theoretical basis from buffer theory of Calem and Rob (1996). The theory is anchored on the volatility of capital adequacy ratio as well as reliability and dependability on capital for long term planning. When a financial institution faces the danger of capital base

erosion if it is unable to mobilize sufficient deposits it is considered endangered by capital adequacy ratio volatility. Therefore, the theory postulates that such institutions may prefer to hold a 'buffer' of excess capital to reduce the probability of falling under the legal capital requirements, especially if their capital adequacy ratio is very volatile. This is to hedge against prolonged under-capitalization and avoid sanctions and possible closure by the regulatory authorities which consider breach of the capital requirements as a major infringement of banking legislation.

### **Assumptions of the Buffer theory**

1. There is gap in funding available to an intermediary that is equal to a risk-weighted proportion of their asset base
2. Financial services supervisors rely continuously on capital requirements as only form of regulation
3. There exist excessive differentials in the weights applied to different categories of assets which might induce financial institutions to substitute away from highly risk-weighted assets

### **Limitations of Buffer theory**

1. In order to create capital balance financial institutions shift sharply from corporate lending to investing in government securities
2. Facing equal risk weights on different private sector loans may make the safer, lower yielding assets less attractive, leading to substitution toward higher risk investments.

In relation to this study, given the uncertainty that surround when a loss may occur financial institutions are bound to always make provisions for where they can easily source new fund from. The large capital made available by the pension industry allows other financial institutions and actors to create a long steady supply that provides buffer against capital volatility.

### **2.3 Empirical Review**

Farabiyi (2016) provided evidence on the effect of the operation of the funded pension scheme since its inception in 2004 on economic growth in Nigeria using error correction mechanism (ECM) and Ordinary Least Square (OLS) methodologies. Findings revealed that the pension fund contributions from both private and public sectors in Nigeria increased greatly and constituted a huge investment fund in the capital and money markets. This increased liquidity in the economy and created employment opportunities as well as improvement in the investment climate. The study concluded that with good risk and portfolio management by pension fund administrators and custodians, the contributory pension has the capacity to boost the Gross Domestic Product (GDP) in Nigeria and very



convenient to retirees compared to the previous defined benefit scheme. The study however recommended the removal of delay payment, administrative bottlenecks and corruption in the management of the pension fund in order to boost economic growth in Nigeria.

Micah and Obah (2016) investigated the relationship between pension fund administration and infrastructure financing in Nigeria. The study answered four research questions and also tested four hypotheses. The correlational research design was used for the study. The population of the study consisted of all the licensed pension fund administrators in Nigeria. A simple random sampling was used to select 108 respondents for the study. The secondary data and questionnaire was used to elicit information from the respondents after the reliability and validity test. The research questions were analyzed using descriptive statistics, while the hypotheses were tested using Pearson Products moment correlation via SPSS at 95% level of confidence. Findings from the study show that there is Relationship between Retirement Pension Account and Return on Economic and Social Infrastructural Financing; also the study found that there is a significant Relationship between Superannuation Pension Account and Economic and social Infrastructural Financing in Nigeria. With the pool of pension funds, investment in infrastructure projects will be very meaningful and relevant to the growth of Nigeria's economy.

Zubair (2016) studied the effects of pension funds' investments on capital market performance in Nigeria. The study is a time series analysis covering a period from 2009Q3 to 2016Q1 using the Autoregressive Integrated Moving Average (ARIMA) regression technique. The study concludes that there is a significant positive relationship between pension funds' investments and the performance of capital market in Nigeria after the 2004 major industry reform. Specifically, the study concludes that total pension investments in Nigeria improved the performance of the Nigerian capital market significantly in terms of depth and liquidity (market capitalization and value traded. Moreover, the study concludes that the interaction of macroeconomic indicators such as interest rate, inflation rate and GDP per capita with pension investments affect the capital market performance significantly. The study recommends that governments should ensure good and stable monetary policy in Nigeria so as to achieve the desired goal of the pension industry reforms, of investments capable of providing adequate resources to the retirees in Nigeria to cater for their old age needs. The study also recommends adequate regulations of the pension funds custodians and

administrators in Nigeria, and policies that favour market structure with efficient investment of portfolios.

Bayar and Ozturk (2016) conducted a study on pension funds and economic growth: evidence from OECD countries. Raising life expectancy and decreasing fertility rates have caused the public pension systems to become financially unsustainable in many countries as of 1990s. Therefore, many countries have transited from unfunded pensions to funded pensions. The private pension plans and occupational pension plans which are generally funded pension plans have become important elements of overall pension systems. Consequently considerable increases in the value of pension funds have been witnessed in the recent years. This study investigates the growing value of the assets by pension funds on the economic growth in 26 OECD (Organisation for Economic Co-operation and Development) countries during the 2001-2015 period employing Dumitrescu and Hurlin (2012) causality test. The findings revealed a bilateral causality between pension funds and economic growth.

Nwanne (2015) examined the impact of contributory pension scheme on economic growth in Nigeria for the period 2004-2012. The objectives of the study were to determine the impact of pension funds on economic growth and as well as to ascertain the impact of pension savings mobilized on economic growth. The study used Ex-post-facto research design. Ordinary Least Square Regression method was used in data analysis. The study finds that pension funds have negative and significant impact on economic growth while pension savings had positive and significant impact on economic growth. The implication of the finding is that the contributory pension scheme has achieved the objective of using pension funds to provide long term capital that will promote economic growth. It also implies that pension savings contribution is low an indication of low coverage of the scheme. It was recommended that investment outlets of pension funds should be increased and efforts should be intensified to ensure greater compliance and mobilization of savings from contributors.

Akowe, Ocheni and Daniel (2015) evaluated the contribution of portfolios of new contributory pension fund on Nigerian gross domestic product (GDP) and the relationships between the pension portfolios with the Nigerian GDP. The population of the study entails nine (9) years while six (6) years were sampled for study (2007-2012). The parameters like Domestic Ordinary Shares, Federal Government of Nigeria Securities, Local Money Market Securities and Real Estate Property of pension fund for the period under review were used. Statistical tool like Scientific Packages for Social Scientists (SPSS) version 18.0 were used to

regress the data and the hypotheses were tested using F-test and Pearson product moment correlation test. Result shows that, Domestic Ordinary Shares, Federal Government of Nigeria Securities and Real Estate Property of pension fund all have positive contributions to Nigerian gross domestic product for the period under review while Local Money Market Securities have negative contribution to Nigerian GDP. We recommended that, there should be more investment of pension fund in Domestic Ordinary Shares, Federal Government of Nigeria securities and Real estate property to boost Gross Domestic Product (GDP) of Nigeria. However, there should be a reduce investment of pension fund in Local Money Market Securities because of its negative impact on the Nigerian gross domestic product as revealed by this study.

Edogbanya (2013) carried out a study on the assessment of the impact of contributory pension scheme on Nigerian economic development for the period (2007-2010). The study used survey research design, and sample size of 30 and 70 for both staff and customers of Legacy Pension Ltd. It also adopted correlation analysis for testing secondary data and ANOVA for the primary data. The study revealed that risk prevalence has positive effect on pension fund management and that the contributory pension scheme has significant positive impact on the GDP.

Ibiwoye and Mesike (2012) used error correction Model (ECM) and Ordinary Least square in their study on Pension Reform and Financial Market Development Nexus: Evidence from Nigeria. The error correction Model (ECM) approach examines if pension reform advances the development of financial market in Nigeria. Time series data were compiled and a functional relationship was established using the OLS technique. Statistical significance of the Error Correction Model confirmed the existence of an equilibrium relationship among the variables. The performance analysis of all their variables indicated that the reform period generates long-term contractual savings and stimulates the development of securities market.

## **Methodology**

### **3.1 Research design**

The research employed *ex-post facto* method. This type of research design was adopted given that its investigation starts after the fact has occurred without interference from the researcher.

### **3.2 Nature and source of data**

Secondary data were used in the study. The data were taken from Central Bank of Nigeria Statistical Bulletin and National Insurance Commission data publication of various years

### 3.3 Area of the Study

The study was carried out in the in Nigeria. Nigeria is a multi-ethnic and culturally diverse society. Nigeria shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its coast lies on the Gulf of Guinea in the south and it borders Lake Chad to the northeast.

### 3.4 Model Specification

The model for the study was based on Okereke (2009) whose model is stated as:

$$M2/GDP = f(FS/GDP + PSC/GDP)$$

Where Financial Deepening (M2/GDP) depends on, Financial Savings/GDP ratio (FS/DGP) Private Sector Credit/GDP (PSC/GDP).

In relation to this study the model was modified to align with the specific objectives. This gave rise to:

Model one:

$$IP/GDP = f(PF/GDP)$$

Where:

IP/GDP = ratio of insurance industry premium to GDP in Nigeria

PF/GDP = ratio of pension fund to GDP in Nigeria

Model two:

$$CPS/GDP = f(PF/GDP)$$

Where:

CPS/GDP = ratio of credit to private sector by commercial banks to GDP in Nigeria

PF/GDP = ratio of pension fund to GDP in Nigeria

Model three:

$$MC/GDP = f(PF/GDP)$$

Where:

MC/GDP = ratio of capital market capitalization to GDP in Nigeria

PF/GDP = ratio of pension fund to GDP in Nigeria

### 3.5 Description of model variables

Insurance premium: This refers to the total premium generated by the insurance industry

Credit to private sector: This refers to the loans and advances given by commercial banks to individuals and organizations in the private sector.

Market capitalization: This is the total sum of market value of all publicly traded company's outstanding shares in the capital market.

Gross Domestic Product: This is the sum total value of all that was produced in the country within the period of the study.

Pension fund: This refers to the value of the total contribution generated by the pension industry.

### **Control Variable:**

Money Supply: This is the money in circulation in an economy. It was proxied by ratio of M2 to GDP.

### **3.6 Data analysis technique**

Mis-specification test was carried out to determine appropriateness of data for the study. This involved the use of Phillips Perron method of unit root test. The models were estimated using Ordinary Least Squares. This is a method for estimating the unknown parameters in a linear regression model, with the goal of minimizing the differences between the observed responses in some arbitrary dataset and the responses predicted by the linear approximation of the data (visually this is seen as the sum of the vertical distances between each data point in the set and the corresponding point on the regression line - the smaller the differences, the better the model fits the data). The goodness of fit of each model was assessed using the Coefficient of Determination. These tests were carried out at 5 percent level of significance. Decision rule has it that where p-value is higher than the level of significance (0.05) the null hypothesis is upheld. On the other hand, where p-value is lower than the level of significance the alternative hypothesis is accepted.

## Presentation and Analysis of Data

### 4.1 Presentation of Data

Table 4.1.1 Descriptive Statistics

	CPSGDP	INSGDP	MCGDP	MSGDP	PENGGDP
Mean	0.186392	0.003096	0.207754	1.035545	0.046626
Median	0.194281	0.003244	0.185811	1.030760	0.047609
Maximum	0.207733	0.004289	0.399501	1.302550	0.066082
Minimum	0.111187	0.000927	0.158761	0.723677	0.024706
Std. Dev.	0.026275	0.000967	0.066374	0.161421	0.014205
Skewness	-2.119101	-1.038257	2.189494	-0.068088	-0.045299
Kurtosis	6.776903	3.252001	7.006382	3.068228	1.750741
Jarque-Bera	16.11367	2.187707	17.61331	0.011600	0.784427
Probability	0.000317	0.334923	0.000150	0.994217	0.675560
Sum	2.236698	0.037154	2.493050	12.42654	0.559508
Sum Sq. Dev.	0.007594	1.03E-05	0.048461	0.286623	0.002220
Observations	12	12	12	12	12

Source: Author's calculation using Eviews 9

The mean values of the respective variables are low showing that they do aggregate easily. The median values of the respective variables are also low showing that they are not spread widely. The dispersion of the respective variables surrounding the mean is low given that difference between the minimum and maximum values is low. The standard deviation of market capitalization is higher than its respective mean while the other variables are lower than their respective mean. The differences imply that volatility of market capitalization is high while that of other variables are low.

## 4.2 Analysis of Data

Test of Hypothesis one

Table 4.2.1 Result of Hypothesis one test

Dependent Variable: INSGDP

Method: ARDL

Date: 09/05/19 Time: 08:09

Sample (adjusted): 2 12

Included observations: 11 after adjustments

Maximum dependent lags: 1 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (1 lag, automatic): PENGDP

Fixed regressors: MSGDP C

Number of models evaluated: 2

Selected Model: ARDL(1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
INSGDP(-1)	0.221157	0.302099	0.732069	0.4917
PENGDP	0.206892	0.086589	2.389366	0.0541
PENGDP(-1)	-0.247353	0.083998	-2.944742	0.0258
MSGDP	0.002770	0.001441	1.923073	0.1028
C	0.000448	0.002566	0.174792	0.8670
R-squared	0.813141	Mean dependent var	0.003087	
Adjusted R-squared	0.688569	S.D. dependent var	0.001013	
S.E. of regression	0.000566	Akaike info criterion	-11.81462	
Sum squared resid	1.92E-06	Schwarz criterion	-11.63376	
Log likelihood	69.98039	Hannan-Quinn criter.	-11.92862	
F-statistic	6.527454	Durbin-Watson stat	1.933981	
Prob(F-statistic)	0.022440			

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

Source: Author's calculation using Eviews 9

Table 4.2.1 shows that the p-value of ratio of pension fund to GDP was 0.0541. It is higher than the level of significance (0.05%). In line with the decision rule the null hypothesis is upheld. Therefore, it is concluded that ratio of pension fund to GDP did not significantly contribute to ratio of insurance industry premium to GDP in Nigeria.

**Test of Hypothesis two**

Table 4.2.2    Result of Hypothesis two test  
 Dependent Variable: CPSGDP  
 Method: ARDL  
 Date: 09/05/19    Time: 08:18  
 Sample (adjusted): 2 12  
 Included observations: 11 after adjustments  
 Maximum dependent lags: 1 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (1 lag, automatic): PENGDP  
 Fixed regressors: MSGDP C  
 Number of models evaluated: 2  
 Selected Model: ARDL(1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
CPSGDP(-1)	0.049799	0.190804	0.260994	0.8028
PENGDP	3.813332	1.547807	2.463700	0.0489
PENGDP(-1)	-3.399721	1.492375	-2.278061	0.0630
MSGDP	0.009055	0.030198	0.299875	0.7744
C	0.141451	0.053259	2.655919	0.0377
R-squared	0.573503	Mean dependent var	0.193228	
Adjusted R-squared	0.289172	S.D. dependent var	0.011933	
S.E. of regression	0.010061	Akaike info criterion	-6.057384	
Sum squared resid	0.000607	Schwarz criterion	-5.876523	
Log likelihood	38.31561	Hannan-Quinn criter.	-6.171392	
F-statistic	2.017023	Durbin-Watson stat	3.044378	
Prob(F-statistic)	0.211056			

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

Source: Author’s calculation using Eviews 9

Table 4.2.2 shows that the p-value of ratio of pension fund to GDP was 0.0489. It is lower than the level of significance (0.05%). In line with the decision rule the alternative hypothesis is accepted. Therefore, it is concluded that ratio of pension fund to GDP did significantly contribute to ratio of credit to private sector to GDP in Nigeria.



Test of Hypothesis three

Table 4.2.3      Result of Hypothesis three test

Dependent Variable: MCGDP

Method: ARDL

Date: 09/05/19      Time: 08:20

Sample (adjusted): 2 12

Included observations: 11 after adjustments

Maximum dependent lags: 1 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (1 lag, automatic): PENGDP

Fixed regressors: MSGDP C

Number of models evaluated: 2

Selected Model: ARDL(1, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
MCGDP(-1)	0.382689	0.152874	2.503294	0.0408
PENGDP	0.540091	0.728343	0.741535	0.4825
MSGDP	-0.114196	0.065391	-1.746354	0.1243
C	0.205288	0.071620	2.866365	0.0241
R-squared	0.513381	Mean dependent var	0.190323	
Adjusted R-squared	0.304830	S.D. dependent var	0.028898	
S.E. of regression	0.024095	Akaike info criterion	-4.338368	
Sum squared resid	0.004064	Schwarz criterion	-4.193679	
Log likelihood	27.86102	Hannan-Quinn criter.	-4.429574	
F-statistic	2.461656	Durbin-Watson stat	2.720789	
Prob(F-statistic)	0.147203			

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

Source: Author's calculation using Eviews 9

Table 4.2.3 shows that the p-value of ratio of pension fund to GDP was 0.4825. It is higher than the level of significance (0.05%). In line with the decision rule the null hypothesis is upheld. Therefore, it is concluded that ratio of pension fund to GDP did not significantly contribute to ratio of market capitalisation to GDP in Nigeria.

### 4.3 Discussion of Findings

Results of hypothesis one test showed pension fund as a ratio of GDP had a coefficient of 0.206892. The coefficient shows it has a positive relationship with ratio of insurance industry premium to GDP. It implies that a unit increase in ratio of insurance industry premium to GDP is dependent on 0.206892 basis point increase in pension fund as a ratio of GDP. An adjusted coefficient of determination of 0.688569 shows that pension fund as a ratio of GDP can only explain 68.8569 percent of variation in ratio of insurance industry premium to GDP in the model used. The remaining 31.1431 percent can be attributed to other variables not used in the model. The p-value of 0.0541 which was higher than the level of significance showed there was statistical insignificance. It shows there was indirect contribution by pension fund as a ratio of GDP to ratio of insurance industry premium to GDP. This implies that magnitude of contribution of pension fund as a ratio of GDP to ratio of insurance industry premium to GDP was very low. The finding of hypothesis one test disagreed with Ibiwoye and Mesike (2012) who found that pension reform generates long-term contractual savings and stimulates the development of financial market.

Results of hypothesis two test showed pension fund as a ratio of GDP had a coefficient of 3.813332. The coefficient shows it has a positive relationship with ratio of credit to private sector to GDP. It implies that a unit increase in ratio of credit to private sector to GDP is dependent on 3.813332 basis point increase in pension fund as a ratio of GDP. An adjusted coefficient of determination of 0.289172 shows that pension fund as a ratio of GDP can only explain 28.9172 percent of variation in ratio of credit to private sector to GDP in the model used. The remaining 71.0828 percent can be attributed to other variables not used in the model. The p-value of 0.0489 which was lower than the level of significance showed there was statistical significance. It shows there was direct contribution by pension fund as a ratio of GDP to ratio of insurance industry premium to GDP. This implies that magnitude of contribution of pension fund as a ratio of GDP to ratio of credit to private sector to GDP was high. The finding of hypothesis two test agreed with Ibiwoye and Mesike (2012) who found

that pension reform generates long-term contractual savings and stimulates the development of financial market.

Results of hypothesis three test showed pension fund as a ratio of GDP had a coefficient of 0.540091. The coefficient shows it has a positive relationship with ratio of market capitalisation to GDP. It implies that a unit increase in ratio of market capitalisation to GDP is dependent on 0.540091 basis point increase in pension fund as a ratio of GDP. An adjusted coefficient of determination of 0.304830 shows that pension fund as a ration of GDP can only explain 30.4830 percent of variation in ratio of market capitalisation to GDP in the model used. The remaining 69.517 percent can be attributed to other variables not used in the model. The p-value of 0.4825 which was higher than the level of significance showed there was statistical insignificance. It shows there was indirect contribution by pension fund as a ratio of GDP to ratio of market capitalisation to GDP. This implies that magnitude of contribution of pension fund as a ratio of GDP to ratio of market capitalisation to GDP was very low. The finding of hypothesis three test disagreed with Farabiyi (2016) who provided evidence that pension fund contributions increased liquidity in the capital and money markets.

### **5.1 Summary of Findings**

The following are the findings of the study:

1. Ratio of pension fund to GDP did not significantly contribute to ratio of insurance industry premium to GDP in Nigeria.
2. Ratio of pension fund to GDP did significantly contribute to ratio of credit to private sector to GDP in Nigeria.
3. Ratio of pension fund to GDP did not significantly contribute to ratio of market capitalisation to GDP in Nigeria.

### **5.2 Conclusion**

Financial institutions play a vital role in an economy when they facilitate savings and channelling funds from savers to investors (Nzotta and Okereke, 2009). This is further enhanced when they mobilise greater financial resource. This widens financial deepening - the increase in degree of financial services available to members of the society. This study looked at contribution of pension industry to financial deepening in Nigeria. Based on the findings of the study it was concluded that the pension industry contribution to financial deepening was significant only through its involvement in the capital market.

### 5.3 Recommendations

Based on the findings of the study it is recommended that:

1. The pension industry should strive to win over businesses in the informal sector into its scheme. This will make them apply for annuity through group life insurance which will increase the contribution of pension industry to financial deepening through its association with the insurance industry.
2. The pension industry can transfer part of its fund to banks which can deepen volume of savings available to the banking sector further broadening the capacity of the latter to provide more financial services.
3. Pension assets under management should continue to be invested in the capital and money market. This will continue the financial deepening relevance of the pension sector to market capitalization.

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