



Impact of Contributory Pension Investment on Economic Growth in Nigeria (2007-2019)

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ABSTRACT

This study examined impact of contributory pension fund on economic growth in Nigeria from 2007-2019. Its specific objectives were to examine the impact of pension industry investment in foreign money market security on gross domestic product in Nigeria; to assess the impact of pension industry investment in local money market security on gross domestic product in Nigeria; and to examine the impact of pension industry investment in quoted ordinary shares on gross domestic product in Nigeria. The study adopted ex-post facto design. Three hypotheses formulated were analyzed using autoregressive distributed lag model. The results reveal that pension industry investment in foreign money market security had significant impact on gross domestic product in Nigeria. Next was that pension industry investment in local money market security had no significant impact on gross domestic product in Nigeria. Also, pension industry investment in quoted ordinary shares had no significant impact on gross domestic product in Nigeria. The implication of the findings is that pension industry investment in foreign money market security facilitated economic growth in Nigeria. On the other hand, pension industry investment in local money market security did not enhance the capacity of domestic firms invested in to engender economic growth. Finally, economic growth was not enhanced through the institutional investment of pension industry in companies quoted on the Nigerian stock exchange. Based on the findings of the study it was concluded that investments of pension industry through short term financial instruments had mixed significance on economic growth in Nigeria. In line with the findings of the study it was recommended that the pension industry investment in foreign financial instrument should be in instruments offered by firms and governments with proven capacity to fulfill their obligations as and when due. Also, investments in local money market instruments should be in such that are proven to be highly liquid, and can be converted to cash at a relatively low cost with low risk premia. Lastly, the investment of the pension industry in quoted companies should tend towards reducing dependence on foreign manufacturers by their investing in cottage factories. This will stir up manufacturing development in the economy.

Keywords: Contributory Pension Investment; Economic Growth; Nigeria

1. Introduction

Economic growth is one of the most important indicators of a healthy economy. One of the biggest impacts of long-term growth of a country is that it has a positive impact on national income and the level of employment, which increases the standard of living. As the country's GDP is increasing, it is more productive which leads to more people being employed. This increases the wealth of the country and its population (Agarwal, 2017). Nigeria's Gross Domestic Product (GDP) grew by 2.01% (year-on-year), in real terms, in the first quarter of 2019 (Nigerian Bureau of Statistics, NBS, 2019). Compared to the first quarter of 2018, which recorded real GDP growth rate of 1.89%, the Q1 2019 growth rate represented an increase of 0.12% points. However, relative to the preceding quarter (fourth quarter of 2018), real GDP growth rate declined by -0.38% points. Economic growth requires adequate stock and allocation of capital to the various sectors of the economy. These resources are needed to strengthen the operational capacity of entrepreneurs, firms and provision of infrastructure to encourage private sector investments, initiatives and growth.

Adequate stock and allocation of capital can be when there is huge capital outlay available in the economy. The introduction of contributory pension scheme in Nigeria facilitated the generation of pension funds. The introduction of the Contributory Pension Scheme (CPS) in 2004, paved way for the accumulation of long-term funds available for investment. A significant increase has been recorded in pension fund assets from N15.60 billion in 2004 to 11.83trillion in 2018 (PENCOM, 2018a).

Fund raised from pension are not allowed to be idle, rather they are invested. Section 85 (1) of Pension Act 2014 provides that all contributions made under the Pension Reform Act 2014 shall be invested by the Pension fund administrators with the objectives of safety and maintenance of fair returns on amount invested. Therefore, compulsorily the pension industry has to allocate part of its fund to various sectors of the economy.

A breakdown of pension industry investment portfolio indicates that the pension fund assets were mainly invested in Federal Government Securities, (FGN Bonds: 52 percent, Treasury Bills: 19 percent, Sukuk Bonds: 1 percent while Agency Bonds and Green Bonds: less than 1 percent) with an allocation of 73 percent of the total pension assets. This was due to a number of factors, such as subdued investor sentiment that characterized the financial markets leading up to the general elections in 2019 (PENCOM, 2018b). This prompted pension operators to adopt a 'flight to safety' strategy by investing in FGN Securities pending the outcome of elections and a clearer view of the direction of macro/micro economic policy.

Further investments indicate that the value of investments in quoted ordinary shares was N606.20 billion (7.02 percent of industry portfolio value) as at 31 December, 2018, indicating an increase of N4.14 billion compared to the value of N 602.06 billion as at 30 September, 2018. The increase in the value of investments in quoted equities was primarily due to new investment in ordinary shares. However, there was market price depreciation of some stocks during the period, as the All Share Index (NSE-ASI) and Market Capitalization depreciated by 4 percent and 1.92 percent respectively, from 32,740.64 bps and N11.95 trillion, as at 30 September 2018, to 31,430.50 bps and N11.72 trillion, as at 31 December 2018. The value of investments in FGN Bonds and FGN Agency bonds increased by N208.22 billion and N768.74 million; while investments in Treasury Bills decreased by N171.53 billion (PENCOM, 2018b).

A look at the investments focus of the pension industry points out that they invest in instruments that facilitate the extension of such capital to various sectors of the economy. Such investments are usually made with long term purpose in mind. However, the pension industry also invests on short term bases. It does so through investing in foreign money market security, local money market security and quoted ordinary shares. These instruments allow the industry to easily recall its fund in the event that the need arises.

Available empirical literature has established that by consistently investing in financial instruments that extend capital to other sectors of the economy the pension industry facilitates economic activities in these sectors (OECD, 2009). However, most literature had focused on investment in the economy by the pension industry through long term instruments. The use of short-term instruments as vehicle for facilitating economic growth seems to receive minimal consideration. Therefore, it is the interest of this study to determine the significance of pension industry investment using short term financial instruments as facilitator of growth in the economy.

Statement of the Problem

Despite that in the past decade Nigeria economy has had annual growth of 7 percent in real terms – the kind of growth it takes for an economy to double in size every ten years – survey evidence suggests that poverty is on the rise in Nigeria (Standard Chartered, 2020). Presently, the economy of Nigeria advanced 2.55% year-on-year in the fourth quarter of 2019 compared to an upwardly revised 2.28% rise in the previous period (Trading Economics, 2020). It was the strongest expansion since the third quarter of 2015, mainly driven by the oil sector (6.36% vs 6.49% in Q3), amid higher crude oil production (2.00 million barrels per day, up from 1.91 mbpd in the same period a year earlier) and more favorable prices. The non-oil sector increased 2.26%, quickening from a downwardly revised 1.84% advance in the prior period, boosted by telecommunications & information services (10.26% vs 12.16% in Q3), crop production (2.52% vs 2.41%), financial services (22.33% vs 0.61%) and manufacturing (1.24% vs 1.10%). On a quarterly basis, the GDP grew 5.59%, following a 9.23% expansion in the previous period. In 2019, the economy expanded 2.27%, the most since 2015, and compared to 1.98% in 2018 (Trading Economics, 2020).

However, Nigeria's economic potential is still constrained by many structural issues, including inadequate infrastructure, tariff and non-tariff barriers to trade, obstacles to investment, lack of confidence in currency valuation, limited foreign exchange capacity and irregular supply of long-term funds for domestic investment (USAID, 2019). A key turnaround can be achieved from having regular investment made into the economy. To combat this irregular supply of long-term funds Bayar and Ozturk (2016) observed that institutional investors, in particular pension industry have enhanced their role as collectors of savings over the past few decades. Although the industry is not restricted to making only long-term investment. Its investment is usually spread between long term, medium term and short-term financial instruments (PENCOM, 2019).

Given that the law of large numbers allows the pension industry to come up with a large pool of fund the industry becomes well positioned to facilitate economic growth as institutional investors. From year 2004 till date the pension industry has been making institutional investment in the Nigerian economy. Empirical focus on the link between investment of pension fund and economic growth has been mainly inclined towards its investment in long-term opportunities. Yet investment in financial instruments in the money market and shares of companies avails the pension industry the means to supply short-term fund to enhance economic activities. Given this background, this study examines the impact of contributory pension fund on economic growth in Nigeria.

Objectives of the Study

The broad objective of the study is to assess the impact of pension investment on economic growth in Nigeria from 2007 to 2019. The specific objectives of the study are to:

1. Examine the impact of pension industry investment in foreign money market security on gross domestic product in Nigeria
2. Assess the impact of pension industry investment in local money market security on gross domestic product in Nigeria
3. Evaluate the impact of pension industry investment in quoted ordinary shares on gross domestic product in Nigeria.

Research Questions

The following are research questions for the study:

1. What is the extent of impact of pension industry investment in foreign money market security on gross domestic product in Nigeria?
2. What is the measure of impact of pension industry investment in local money market security on gross domestic product in Nigeria?
3. What is the degree of impact of pension industry investment in quoted ordinary shares on gross domestic product in Nigeria?

Statement of Hypotheses

The following null hypotheses were formulated for the study:

- 1 Pension industry investment in foreign money market security did not positively and significantly impact on gross domestic product in Nigeria
- 2 Pension industry investment in local money market security did not positively and significantly impact on gross domestic product in Nigeria
- 3 Pension industry investment in quoted ordinary shares did not positively and significantly impact on gross domestic product in Nigeria

2. Literature Review

Review of Related Literature

2.1 Conceptual Framework

Contributory Pension Investment

The money accumulated under the Pension Scheme is not kept idle rather the Pension Fund Administrators are to invest them.

The Pension Act 2014 in Section 86 outlines the various areas in which the fund generated by the pension industry can be invested. The total value of pension fund assets based on unaudited valuation reports grew from N10.33 trillion as at March 2020 to N11.09 trillion as at June, 2020, representing a growth of 7.36% (PENCOM Q2, 2020). The growth was mainly due to market valuation of quoted equities. As at second quarter of 2020, the RSA funds (Funds I – V) had the largest portfolio, accounting for N8.56 trillion (77.18%) of the total assets under management. CPFAs and AESs assets stood at N1.37 trillion and N1.16 trillion representing 12.37% and 10.45% of the total assets under management respectively. RSA Fund (I) constituted 0.24% (N26.88 billion) of the total AUM, RSA Fund (II) constituted 43.01% (N4.77 trillion); Fund (III) 25.93% (N2.87 trillion); Fund (IV) i.e. the 'Retiree' Fund accounted for 8.00% (N886.47 billion) while RSA Fund (V) accounted for less than 1% (N32.32 million) of the Fund. Pension funds were mainly invested in Federal Government Securities, with an allocation of about 67% of the total pension assets (FGN Bonds: 57%, Treasury Bills: 9%, Sukuk Bonds: 1% while Agency Bonds and Green Bonds: less than 1%).

Foreign money market securities

This is the section of the money market that deals with financial instruments whose origin is foreign. Such securities are put up for sale by firms not based in Nigeria and traded in foreign currency (particularly the currency of the country where the issuer is based or an internationally acceptable currency).

Local money market securities

This is the section of the money market that deals with financial instruments whose origin is local. Such securities are put up for sale by Nigeria based firms and traded in the local currency (Naira).

Quoted Ordinary Shares

An ordinary share represents equity ownership in a company proportionally with all other ordinary shareholders, according to their percentage of ownership in the company (Smith, 2020). Ordinary shares must be issued by all corporations, as defined in their articles of association, with companies requiring to issue at least one ordinary share to a shareholder. In other words, someone has to be the owner of the corporation. Ordinary shareholders have the right to a corporation's residual profits. In other words, they are entitled to receive dividends if any are available after the company pays dividends on preferred shares. They are also entitled to their share of the residual economic value of the company should the business unwind; however, they are last in line after bondholders and preferred shareholders for receiving business proceeds.

Gross Domestic Product

The universal measure for the observation of the evolution of economic growth is the actual (real) Gross Domestic Product (GDP) per capita. Basically, Gross Domestic Product is a measure of the monetary value of final goods and services—that is, those that are bought by the final user—produced in a country in a given period of time (say a quarter or a year).

Economic Growth

Economic growth is an increase in the production of goods and services over a specific period (Amadeo, 2019). Economic growth creates more profit for businesses. As a result, stock prices rise. That gives company's capital to invest and hire more employees. As more jobs are created, incomes rise. Consumers have more money to buy additional products and services. Purchases drive higher economic growth. For this reason, all countries want positive economic growth. This makes economic growth the most-watched economic indicator.

2.2 Theoretical Framework

Endogenous growth theory

Endogenous growth theory is the theoretical basis for this study. This is a theory propounded by Pagano in 1993. In endogenous growth theory, an economy's long-run growth rate depends on its saving rate. The theory assumes that financial intermediation could affect economic growth through three channels namely: changing productivity of capital, savings funneled to investment and savings rate. In other words, financial development reduces the loss of resources needed to allocate resources, encourage greater savings ratio, and increase capital productivity.

Endogenous growth theory argues that economic growth is determined by forces that are internal to the economic system, particularly those forces governing the opportunities and incentives to create technological knowledge. More specifically, the theory notes that the enhancement of a nation's financial capital will lead to economic growth by means of the development of new forms of technology and efficient and effective means of production.

Of the three channels offered by Pagano (1993), savings funneled to investment is the main means by which the pension industry adds to the allocation of capital resources to other segments of the economy. By so doing investment of the pension industry improves the liquidity of these sectors empowering them to engage in more productive economic activities. This in extension can lead to economic growth.

2.3 Empirical Review

Ameh, Ajie and Duhu (2017) investigated the impact of contributory pension scheme on economic growth in Nigeria. Data for the study were analyzed using regression technique. It was found that pension fund assets and pension contribution/savings mobilized over the years have positive but insignificant impact on economic growth. The implication of this finding is that the authorities concerned have not been able to use the pension fund asset and savings mobilized to boost economic growth in Nigeria. It was therefore recommended that, there should be more emphasis on the management of pension assets in the capital market as well as government bond, real estate and investment trust to boost Gross Domestic Product (GDP) of the country (Nigeria).

Odey, Effiong and Nwafor (2017) analyzed the impact of savings and investment on the growth of the Nigerian economy. From the result of the study conducted within the period 1970 to 2015, using a battery of contemporary econometric approach involving unit root test, co-integration test and error correction model it was found that factors such as Gross Domestic Savings (GDS), Gross Fixed Capital Formation (GFCF), Labour Force (LAF) and Savings Facility (SF) are the main drivers of economic growth in Nigeria. Furthermore, evidence from the investment model shows that Real Gross Domestic Product and Gross Domestic Savings (GDS) are the two drivers of Investment in Nigeria. This means that if there is proper capital accumulation in the form of savings, investment would be great and sustainable. The multiplier effect is on the well-being of the people through increased capital and output. The study recommended among others that; the government through the Central Bank of Nigeria (CBN) should ensure the reduction of reserve requirements of commercial banks in order to make available adequate funds in form of loans and advances for investment which will boost economic growth.

Ekpulu and Bingilar (2016) examined the historical development of pension and pension fund in Nigeria, a certain aspect of the Pension Reform Act 2004 and the current Act of 2014, potential regulatory opportunities for the

investor on the investment of pension fund in Nigeria, pension fund and economic growth, and pension fund net assets value. It was a qualitative study. The study observed that part of the problems of low capital formation to drive investment is attributable to the non-inclusion of the informal sector in the 2004 pension scheme.

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. 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.

Micah and Obah (2016) investigated the relationship between pension fund administration and infrastructure financing in Nigeria. The correlational research design was used for the study. The hypotheses were tested using Pearson Products moment correlation. 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) examined the impact of pension fund investments on the performance of capital market 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 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). 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.

Bayar and Ozturk (2016) conducted a study on pension funds and economic growth: evidence from OECD countries. This study investigates the growing value of the assets by pension funds on the economic growth in 26 OECD (Organization for Economic Co-operation and Development) countries during the 2001-2015 period employing Dumitrescu and Hurlin (2012) causality test. Granger causality technique was applied. 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. 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. 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.

Kalu and Attamah (2015) analyzed the impact of Contributory Pension Scheme on employee savings and investment in Nigeria using Anambra State public workers as a case study. The paper used cross – sectional primary data sourced through a structured questionnaire administered on 387 respondents (i.e. those that have been in service for the period of 5 years and on grade level 8). Chi-square analysis technique was used. The empirical analysis reveals that majority of the respondents prefers to save outside any pension scheme implying that they are participating because it is compulsory. The study therefore concludes among others that the Nigerian government should create more awareness and enlightenment campaign on the workers' contributory pension scheme geared towards retirements.

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. 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.

Udejaja and Obi (2015) investigated the determinants of economic growth in Nigeria through the application of the Johansen cointegration technique and the vector error correction methodology. The results of the co-integrating technique suggest that there is long run relationship among domestic savings, expenditures on education and health, openness to trade, FDI, public infrastructure, and financial deepening with growth of real GDP per capita. The results of the VECM reveals that while domestic savings, expenditure on education, openness, and financial depth (in the second lag) are positive determinants of economic growth, FDI and public infrastructure do not drive economic growth in Nigeria. It was also discovered that expenditures on health had negative effects on growth. A major policy implication of our result is that concerted effort should be made by policy makers to ensure macroeconomic stability and a conducive investment climate (in terms of stable power supply) so as to increase FDI inflow, and relaxation of credit constraints in Nigeria.

Kalu and Mgbemena (2015) investigated the link between domestic private investment and economic growth in Nigeria, using the Cob-Douglas model framework. The model is estimated using Error Correction Modeling (ECM) approach and annual data covering 1970 to 2012 was used. The study shows the significance of investment on real gross domestic product (RGDP). The result of tests reveals equilibrium relationship between real GDP and its determinants in the long and short-run. An important finding of the study is that, like most other studies, Foreign Direct Investment (FDI) should at best complement domestic private investment. We therefore, conclude that macroeconomic policies and overall macroeconomic stability is quite essential for the promotion of domestic private investment.

Gap in literature

Various empirical studies have assessed the impact of pension fund on economic growth in Nigeria. Some found it had negative impact (Nwanne, 2015 and Kalu and Attamah, 2015) while others got positive impact (Ameh, Ajie and Duhu, 2017 and Akowe, Ocheni and Daniel, 2015). Others have found pension fund as having significant impact economic growth in Nigeria (Odey, Effiong and Nwafor, 2017, Farabiyi, 2016 and Nwanne, 2015) while others realized pension did not significantly impacting economic growth (Ameh, Ajie and Duhu, 2017 and Kalu and Attamah, 2015). However, there is an unaddressed issue. In relating contribution of pension industry to economic growth in Nigeria the provision of the industry towards satisfying short-term demand for capital seems to have been overlooked. Therefore, this study sought to relate pension industry to economic growth in Nigeria using the investment activities of the industry in short-term opportunities. It is this gap that this study sought to address’.

3. Methodology and Data Analyses

The research employed ex-post facto research design. This type of research design was adopted given that its investigation starts after the fact has occurred without interference from the researcher. It is a form of study in which data used is already collected and organized before the study began. The area of the study is Nigeria. It is a country in West Africa, bordering Niger in the north, Chad in the northeast, Cameroon in the east, and Benin in the west. Its coast in the south is located on the Gulf of Guinea in the Atlantic Ocean. The federation comprises 36 states and 1 Federal Capital Territory. The main latitude and longitude of Nigeria is 10° North and 8° East respectively. The total area of 923,768 square kilometer falls within the latitude and longitude of Nigeria. Nigeria is located within the Equator and the Tropic of Cancer. Secondary data were used in the study. Data were taken from the pension industry annual reports and from Central Bank of Nigeria Statistical Bulletin.

Explanation of model variables

Dependent variable:

Gross Domestic Product: This is a measure of the monetary value of final goods and services—that is, those that are bought by the final user—produced in a country in a given period of time (say a quarter or a year).

Independent variables:

Foreign money market security: This refers to money market financial instrument whose origin is foreign

Local money market security: This refers to money market financial instrument whose origin is local

Quoted ordinary shares: Shares of a company traded on the stock exchange

Model Specification

The model used in this study was based on Ameh, Ajie and Duhu (2017) who studied impact of contributory pension scheme on economic growth in Nigeria and whose model is specified as:

$$GDP = f(PFA, PFC, INVT) \quad (i)$$

Where: GDP = Gross Domestic Product

PFA = Pension Fund Assets

PFC = Pension Fund Contribution

INVT = Investment

In relation to this study the variables identified in the hypotheses formulated were substituted into the model above to derive the following models:

Hypothesis one states that pension industry investment in foreign money market security did not significantly impact on gross domestic product in Nigeria. The functional relation of the model is given as:

$$GDP = f(PIFMMS) \quad \dots (ii)$$

The model is specified as follows:

$$GDP = \beta_0 + \beta_1 PIFMMS + \mu \quad \dots (iii)$$

Where:

GDP = Gross Domestic Product

PIFMMS = Pension investment in Foreign money market security

β_0 = Constant parameter

β_1 = Coefficient parameter of PIFMMS

μ = error term

Hypothesis two states that pension industry investment in local money market security did not significantly impact on gross domestic product in Nigeria. The functional relation of the model is given as:

$$GDP = f(PILMMS) \quad \dots (iv)$$

The model is specified as follows:

$$GDP = \beta_0 + \beta_1 PILMMS + \mu \quad \dots (v)$$

Where:

GDP = Gross domestic product

PILMMS = Pension investment in Local money market security

β_0 = Constant parameters

β_1 = Coefficient parameter of PILMMS

μ = error term

Hypothesis three states that pension industry investment in quoted ordinary shares did not significantly impact on gross domestic product in Nigeria. The functional relation of the model is given as:

$$GDP = f(PIQOS) \quad \dots (vi)$$

The model is specified as follows:

$$GDP = \beta_0 + \beta_1 PIQOS + \mu \quad \dots (vii)$$

Where:

GDP = Gross domestic product

PIQOS = Pension investment in Quoted ordinary shares

β_0 = Constant parameters

β_1 = Coefficient parameter of PIQOS

μ = error term

3.6 Data Analysis Technique

The model estimate was based on autoregressive distributed lag (ARDL) model. This is an ordinary least square (OLS) based model which is applicable for both non-stationary time series as well as for times series with mixed order of integration. The autoregressive (AR) character of time series model indicates that present value of any variable is determined by its past value and some adjustment factors. Such adjustment factors are estimated from the relation of current value with past values. The study is at 5 percent level of significance. The p-value ($p < 0.05$) was used to measure statistical significance.

DATA PRESENTATION AND ANALYSIS

4.1 Presentation of Data

Below is the data on selected investment by the pension industry.

Table 2 Data on contributory pension fund investment and gross domestic product

Year	FMMS (Billion)	LMMS (Billion)	QOS (Billion)	GDP (Billion)
2007	26,000,000,000	159,920,000,000	240,380,000,000	42,922,410,000,000
2008	17,250,000,000	332,440,000,000	220,540,000,000	46,012,520,000,000
2009	17,720,000,000	542,220,000,000	220,710,000,000	49,856,100,000,000
2010	7,360,000,000	489,250,000,000	358,030,000,000	54,612,260,000,000
2011	640,000,000	312,350,000,000	319,820,000,000	57,511,040,000,000
2012	5,180,000,000	487,280,000,000	364,060,000,000	59,929,890,000,000
2013	860,000,000	471,980,000,000	592,160,000,000	63,218,720,000,000
2014	120,000,000	539,330,000,000	542,290,000,000	67,152,790,000,000
2015	130,000,000	565,810,000,000	519,790,000,000	69,023,930,000,000
2016	4,650,000,000	396,420,000,000	500,430,000,000	67,931,240,000,000
2017	35,390,000,000	681,350,000,000	672,000,000,000	68,490,980,000,000
2018	3,210,000,000	709,140,000,000	606,200,000,000	69,810,020,000,000
2019	3,210,000,000	709,140,000,000	606,200,000,000	69,810,020,000,000

Source: PENCOM industry annual reports and Central Bank of Nigeria Statistical Bulletin

Foreign money market security was at N26,000,000,000 in 2007 but dropped to N7,360,000,000 in 2010. Five years later it dropped further to N130,000,000. In 2019 it grew to 3,210,000,000. Local money market security was N159,920,000,000 in 2007 and grew to N489,250,000,000 in 2010. By 2015 it was at N565,810,000,000 and now N709,140,000,000 in 2019. Quoted ordinary shares was N240,380,000,000 in 2007 and rose to N358,030,000,000 in 2010. The rise continued to N519,790,000,000 in 2015 and by 2019 was N606,200,000,000. Gross domestic

product from N42,922,410,000,000 in 2007 rose to N54,612,260,000,000 in 2010. The growth continued to N69,023,930,000,000 in 2015 and further grew to N69,810,020,000,000 in 2019.

Table 3 Data on all variables converted to logarithm

	LNGDP	LNPIFMMS	LNPILMMS	LNPIQOS
2007	3.4465	23.9813	25.7979	26.2054
2008	3.4487	23.5710	26.5297	26.1193
2009	3.4512	23.5979	27.0189	26.1201
2010	3.4541	22.7193	26.9161	26.6038
2011	3.4557	20.2769	26.4673	26.4910
2012	3.4570	22.3680	26.9121	26.6205
2013	3.4587	20.5724	26.8802	27.1070
2014	3.4606	18.6030	27.0135	27.0190
2015	3.4615	18.6830	27.0615	26.9766
2016	3.4615	22.26013	26.7057	26.9387
2017	3.4610	24.2896	27.2473	27.2335
2018	3.4612	21.8895	27.2873	27.1304
2019	3.4618	21.8895	27.2873	27.1304

Source: Researcher's Calculation using Eviews 9

4.2 Test Statistics

4.2.1 Unit root test

To ensure the reliability and avoid misleading regressions result, the study conducted stationarity test. The test was conducted using Phillips Perron method.

Table 4.2.1 Unit Root Test

Variable	Order of integration	Calculated value	Test critical value @ 5%	Prob.
<i>lnGDP</i>	1(0)	-4.501959	-3.144920	0.0054
<i>lnPIFMMS</i>	1(1)	-3.924104	-1.977738	0.0011
<i>lnPILMMS</i>	1(0)	-9.860899	-3.875302	0.0001
<i>lnPIQOS</i>	1(1)	-5.716030	-3.175352	0.0011

Table 4 shows that the *lnPIFMMS* and *lnPIQOS* were stationary at first difference. This implies that they were integrated at order one. On the other hand, *lnPILMMS* and *lnPIGDP* were stationary at level. This implies that they were integrated at order zero.

4.2.2 Descriptive Statistics

The descriptive statistics of the time series data was estimated and the outcome presented in the table below

Table 4.2.2 Descriptive Statistics

	lnGDP	lnPIFMMS	lnPILMMS	lnPIQOS
Mean	3.456933	21.90017	26.85579	26.74588
Median	3.458762	22.26013	26.91614	26.93873
Maximum	3.461878	24.28970	27.28732	27.23352
Minimum	3.446503	18.60300	25.79794	26.11934
Std. Dev.	0.005300	1.878700	0.410867	0.408873
Skewness	-0.800002	-0.560405	-1.303418	-0.448533
Kurtosis	2.268294	2.198240	4.380754	1.694841
Jarque-Bera	1.676677	1.028643	4.713624	1.358590
Probability	0.432428	0.597906	0.094722	0.506974
Sum	44.94013	284.7022	349.1253	347.6964
Sum Sq. Dev.	0.000337	42.35418	2.025737	2.006126
Observations	13	13	13	13

Source: Author's calculation using Eviews 9

Where:

lnPIFMMS = foreign money market securities in logarithm

lnGDP = gross domestic product in logarithm

lnPILMMS = local money market securities in logarithm

lnPIQOS = quoted ordinary shares in logarithm

The mean of the distribution measures aggregating tendency of the data. The mean of lnGDP, lnPIFMMS, lnPILMMS and lnPIQOS are 3.456933, 21.90017, 26.85579 and 26.74588 respectively. The median measures the spread of the variables in the distribution. The median of lnGDP, lnPIFMMS, lnPILMMS and lnPIQOS are 3.458762, 22.26013, 26.91614 and 26.93873 respectively. Maximum and minimum are the values of the greatest and least elements of a variable. The difference between the maximum and minimum values helps to establish the dispersion around the mean. The respective maximum values of lnGDP, lnPIFMMS, lnPILMMS and lnPIQOS are 3.461878, 24.28970, 27.28732 and 27.23352. On the other hand, the respective minimum values of lnGDP, lnPIFMMS, lnPILMMS and lnPIQOS are 3.446503, 18.60300, 25.79794 and 26.11934. Standard deviations of the variables are checked against their respective means. The standard deviations of lnGDP, lnPIFMMS, lnPILMMS and lnPIQOS at 0.005300, 1.878700, 0.410867 and 0.408873 respectively are all lower than their respective means. This shows that the volatility of each variable is low. The leanness of the dataset to one side of the distribution is determined by the skewness and could be positively or negatively skewed. The skewness estimate for the individual samples suggests that all variables are negatively skewed. This suggests that probability distribution of the variables means have fatter tails to the left of the distribution. The normality of the probability distribution is justified by the Jarque-Bera statistics as we uphold the null hypothesis that the variables are not normally distributed given that the probability of Jarque-Bera statistics for lnGDP, lnPIFMMS, lnPILMMS and lnPIQOS at 0.432428, 0.597906, 0.094722 and 0.506974 respectively is higher than 0.05 (the level of significance). Thus, it is accepted that all variables are not normally distributed.

4.3 Testing of Hypotheses

The formulated hypotheses were tested using the Autoregressive Distributed Lag Model (ARDL) Base line test for hypotheses

In a stepwise testing process, the following steps were adopted in this study:

Step I: Restatement of the hypotheses in null and alternate forms,

This is done by stating both the null called negative hypotheses and alternate, expected or researchers' hypotheses which will be subjected to testing using the approved methodology. Under this, ARDL was used.

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

Presentation of data was done after estimation of the methodology. The methodology was presented without adding or subtracting any output. Interpretation was done on what was estimated and presented. Any alteration invalidates the result.

Step III: Statement of Decision criteria

This is done by adopting a special decision criterion as the base of judgment. This decision criterion must be applied to every hypothesis so that it can be tested and result deduced. The decision criteria were presented thus, Accept H₀ if the sign of the coefficient of the parameter estimates is negative, otherwise reject H₀ and accept H₁ when the coefficient of the parameter estimates is positive, or Accept H₁ if the sign of the coefficient is positive, otherwise reject H₀

Step IV: Taking a decision on the rejection or acceptance of the null or alternate hypothesis.

The decision to adopt depend on the variable coefficient, If the variable coefficient is negative, it means that the dependent variable was reduced but if it is positive, it means that the dependent variable was improved by the dependent variable. Hence, this is called the magnitude. It is this magnitude that directs the direction. The direction can be significant and non-significant. It is significant when the magnitude is high, i.e., when the magnitude is 35% and above, the direction must be less than 5%. but when it is less than 35%, it is none significant, i.e., more than 5%. Most of the time, the researcher hypotheses or alternate hypotheses is preferable but when null is accepted, it is against apporari expectation.

Hypothesis one:

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

H₀: Pension industry investment in foreign money market security did not positively and significantly impact on gross domestic product in Nigeria

H₁: Pension industry investment in foreign money market security positively and significantly impact on gross domestic product in Nigeria

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

Presentation of Test Result:

Table 4.3 Result of Hypothesis one test

Dependent Variable: LNGDP
 Method: ARDL
 Date: 08/11/20 Time: 21:24
 Sample (adjusted): 2008 2019
 Included observations: 12 after adjustments
 Maximum dependent lags: 1 (Automatic selection)
 Model selection method: Akaike info criterion (AIC)
 Dynamic regressors (2 lags, automatic): LNPIFMMS
 Fixed regressors: C
 Number of models evaluated: 3
 Selected Model: ARDL (1, 0)
 Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNGDP (-1)	0.803352	0.026197	30.66555	0.0000
LNPIFMMS	-0.000240	7.52E-05	-3.196050	0.0109
C	0.686223	0.091147	7.528736	0.0000
R-squared	0.992362	Mean dependent var		3.457803
Adjusted R-squared	0.990665	S.D. dependent var		0.004464
S.E. of regression	0.000431	Akaike info criterion		-12.44726
Sum squared resid	1.67E-06	Schwarz criterion		-12.32604
Log likelihood	77.68358	Hannan-Quinn criter.		-12.49215
F-statistic	584.6904	Durbin-Watson stat		2.091218
Prob(F-statistic)	0.000000			

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

Source: Author's calculation using Eviews 9

Pension industry investment in foreign money market securities is represented in table 5 with negative coefficient of -0.000240 and probability value of 0.0109 which is significant because it is less than 5% level of significant.

Step III: Statement of the decision criteria:

Accept Ho if the sign of the coefficient or the parameter estimates is negative, otherwise reject Ho and accept H1 when the coefficient of the parameter estimates is positive, or accept H1 if the sign of the coefficient is positive, otherwise reject Ho.

Given the coefficient of the parameter of PIFMMS as -0.000240 and the probability value of t-statistic 0.01<0.05 which is significant, it shows that it is negatively signed and statistically significant.

Step IV: Taking a decision on the rejection or acceptance of the null or alternate hypothesis.

The above result reveals that the co-efficient or the variable PIFMMS is negative and the probability is significant therefore Ho is accepted and H1 rejected. Based on this, the Ho Pension industry investment in foreign money market security did not positively and significantly impact on gross domestic product in Nigeria.

4.3.2 Test of Hypothesis two

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

Ho: Pension Industry investment in local money market security did not positively and significantly impact on gross domestic product in Nigeria.

H1: Pension industry investment in local money market security positively and significantly impact on gross domestic product in Nigeria.

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

Presentation of Test Result:

Table 6 Result of Hypothesis two test

Dependent Variable: D(LNGDP)

Method: ARDL

Date: 08/11/20 Time: 22:28

Sample (adjusted): 2010 2019

Included observations: 10 after adjustments

Maximum dependent lags: 1 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic): D(LNPILMMS)

Fixed regressors: C

Number of models evaluated: 3

Selected Model: ARDL (1, 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D (LNGDP (-1))	0.819416	0.185094	4.427019	0.0068
D(LNPILMMS)	0.001390	0.000727	1.910948	0.1142
D (LNPILMMS (-1))	0.001759	0.000599	2.935273	0.0324
D (LNPILMMS (-2))	0.000540	0.000500	1.080347	0.3293
C	-0.000217	0.000294	-0.736086	0.4947
R-squared	0.862091	Mean dependent var		0.001062
Adjusted R-squared	0.751764	S.D. dependent var		0.001014
S.E. of regression	0.000505	Akaike info criterion		-12.03550
Sum squared resid	1.28E-06	Schwarz criterion		-11.88420
Log likelihood	65.17748	Hannan-Quinn criter.		-12.20146
F-statistic	7.813971	Durbin-Watson stat		1.696624
Prob(F-statistic)	0.022285			

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

Source: Author's calculation using Eviews 9

From the result in table 6, Pension Investment in local money market securities has a positive coefficient of 0.0013 and a probability value of 0.114 which is non-significant because it is higher than 0.05 level of sign.

Step III: Statement of the decision criteria:

Accept Ho if the sign of the coefficient or the parameter estimates is negative, otherwise reject Ho and accept H1 when the coefficient of the parameter estimates is positive, or accept H1 if the sign of the coefficient is positive, otherwise reject Ho.

Given the coefficient of the parameter estimate of PILMMS to be 0.0013 and the probability of t-statistics of 0.1142 > 0.05 which is non-significant it shows that it is positively signed and statistically non-significant.

Step IV: Taking a decision on the rejection or acceptance of the null or alternative hypothesis.

Result reveals that PILMMS is positively signed the study rejected the null hypothesis and accepted the alternate hypothesis thereby concluded that Pension investment in LMMS positively had no significant impact on gross domestic product in Nigeria.

Hypothesis Three:

H0: Pension industry investment in quoted ordinary shares did not significantly impact on gross domestic product in Nigeria

H1: Pension industry investment in quoted ordinary shares did significantly impact on gross domestic product in Nigeria

Statement of the Decision Criteria:

The decision criteria are to uphold the null hypothesis if p-value is higher than the level of significance, and reject the null hypothesis where p-value is lower than the level of significance.

4.3.3 Test of Hypothesis Three

Step I: Restatement of the hypothesis in null and alternative form.

Ho: Pension industry investment in quoted ordinary shares did not positively and significantly impact on gross domestic product in Nigeria.

H1: Pension industry investment in quoted ordinary shares positively and significantly impact on gross domestic product in Nigeria.

Step II: Presentation and Discussion of the Results arrived at using the Estimation Technique

Presentation of Test Result:

Table 7 Result of Hypothesis three test

Dependent Variable: D(LNGDP)
 Method: ARDL
 Date: 08/11/20 Time: 22:36
 Sample (adjusted): 2009 2019
 Included observations: 11 after adjustments
 Maximum dependent lags: 1 (Automatic selection)
 Model selection method: Akaike info criterion (AIC)
 Dynamic regressors (2 lags, automatic): D(LNPIQOS)
 Fixed regressors: C
 Number of models evaluated: 3
 Selected Model: ARDL (1, 1)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D (LNGDP (-1))	0.746945	0.210630	3.546246	0.0094
D(LNPIQOS)	0.001115	0.001047	1.064285	0.3225
D (LNPIQOS (-1))	0.000589	0.001035	0.569115	0.5871
C	4.13E-05	0.000362	0.114001	0.9124
R-squared	0.690776	Mean dependent var		0.001197
Adjusted R-squared	0.558252	S.D. dependent var		0.001061
S.E. of regression	0.000705	Akaike info criterion		-11.40006
Sum squared resid	3.48E-06	Schwarz criterion		-11.25537
Log likelihood	66.70035	Hannan-Quinn criter.		-11.49127

F-statistic	5.212443	Durbin-Watson stat	1.413117
Prob(F-statistic)	0.033340		

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

Source: Author's calculation using Eviews 9

From table 7, Pension investment in quoted ordinary shares is represented with the coefficient of 0.001115 which is positive and probability value of 0.3225 which is non-significant.

Step III: Statement of the decision criteria:

Accept H_0 if the sign of the coefficient or the parameter estimates is negative, otherwise reject H_0 and accept H_1 when the coefficient of the parameter estimates is positive, or accept H_1 if the sign of the coefficient is positive, otherwise reject H_0 .

Given the coefficient of the parameter estimates of PIQOS is 0.001115 and the probability of t-statistics of 0.32 > 0.05 which is non-significant, it shows that it is positively signed and statistically non-significant.

Step IV: Taking a decision on the rejection or acceptance of the null or alternative hypothesis.

Result from the table on PIQOS is positively signed, the study rejected the null hypothesis and accepted the alternate hypothesis thereby concluded that PIQOS positively and had no significant impact on gross domestic product in Nigeria.

4.4 Discussion of Findings

In hypothesis one the intercept value implies that if each index for pension industry investment in foreign money market security is held constant GDP will increase by 0.686223 basis points. The coefficient of pension industry investment in foreign money market security at -0.000240 shows it has a negative relationship with GDP. It implies that for every -0.000240 basis point increase in pension industry investment in foreign money market security it facilitates a decrease in GDP. The p-value of pension industry investment in foreign money market security at 0.0109 is lower than the level of significance (0.05). It shows there was statistical significance. In other words, there was enough evidence against the null hypothesis. This statistical significance recorded in hypothesis one test shows that the degree of impact of pension industry investment in foreign money market security on economic growth is high. The findings of the study did not align with Ameh, Ajie and Duhu (2017) who found that pension fund assets and pension contribution/savings mobilized over the years have positive but insignificant impact on economic growth.

Hypothesis two intercept value implies that if each index for pension industry investment in local money market security is held constant GDP will decrease by -0.000217 basis points. The coefficient of pension industry investment in local money market security at 0.001390 shows it has a positive relationship with GDP. It implies that for every 0.001390 basis point increase in pension industry investment in local money market security there is an increase in GDP. The p-value of pension industry investment in local money market security at 0.1142 is higher than the level of significance (0.05). It shows there was statistical insignificance. In other words, there was not enough evidence against the null hypothesis. This statistical insignificance recorded in hypothesis two test shows that the degree of impact of pension industry investment in local money market security on economic growth is low. The findings of the study did not agree with Akowe, Ocheni and Daniel (2015) who found that local money market securities have negative contribution to Nigerian GDP.

In hypothesis three test the intercept value implies that if each index for pension industry investment in quoted ordinary shares is held constant GDP will increase by 0.0000413 basis points. The coefficient of pension industry investment in quoted ordinary shares at 0.001115 shows it has a positive relationship with GDP. It implies that every 0.001115 basis point increase in pension industry investment in quoted ordinary shares facilitates an increase in GDP. The p-value of pension industry investment in quoted ordinary shares at 0.3225 is higher than the level of significance (0.05). It shows there was statistical insignificance. In other words, there was not enough evidence against the null hypothesis. This statistical insignificance recorded in hypothesis three test shows that the degree of impact of pension industry investment in quoted ordinary shares on economic growth is low. The findings of the study agree with Akowe, Ocheni and Daniel (2015) whose result show that Domestic Ordinary Shares have positive contributions to Nigeria's gross domestic product.

5.1 Summary of Findings

The following are the findings of the study:

1. The regression coefficient was -0.000240. This means it had a negative relationship with GDP. It was found that pension industry investment in foreign money market security had negative and significant impact on gross domestic product in Nigeria. Therefore, the pension industry investment in foreign money market security added extensively to value of final goods and services that were produced in Nigeria.
2. The regression coefficient was 0.001390. This means it had a positive relationship with GDP. It was found that pension industry investment in local money market security had positive and no significant impact on gross domestic product in Nigeria. Therefore, value of goods and services bought by the final user in Nigeria were not enhanced by the pension industry investment in local money market security.
3. The regression coefficient was 0.001115. This means it had a positive relationship with GDP. It was found that pension industry investment in quoted ordinary shares had positive and no significant impact on gross domestic product in Nigeria. Therefore, the pension industry investment in quoted ordinary shares did not improve to a large extent the value of final goods and services that were produced in Nigeria.

5.2 Conclusion

Economic growth is one of the most important indicators of a healthy economy. Economic growth takes place when a society succeeds in increasing its average productivity, defined as the per capita output of goods and services. Economic growth requires adequate stock and allocation of capital to various sectors of the economy. The introduction of funded pension systems allows pension funds to accumulate assets that can be invested in other sectors of the economy. Therefore, the pension industry is in a position to use its fund to facilitate economic growth. In line with the findings of this study it was concluded that investments of pension industry investment in short term financial instruments had mixed significance on economic growth in Nigeria. Specifically, pension industry investment in foreign money market security was significant on economic growth while the investment in pension industry investment in local money market security and quoted ordinary shares were not.

5.3 Recommendations

In line with the findings of the study the following recommendations were made:

1. The pension industry investment in foreign financial instrument should be in instruments offered by firms and governments with proven capacity to fulfill their obligations as and when due.
2. Investments in local money market instruments should be in such that are proven to be highly liquid, and can be converted to cash at a relatively low cost with low risk premia.
3. The investment of the pension industry in quoted ordinary shares should tend towards reducing dependence on foreign manufacturers by their investing in cottage factories. This will stir up manufacturing development in the economy.

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