Journal of Global Accounting
Vol. 6 No. 2 September, 2019. ISSN: 1118-6828
www.unizikjga.com

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Nnamdi Azikiwe University,
Awka

PENSION FUND ASSET INVESTMENT AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

The objective of this study was to assess the relationship between Pension Fund Asset Investment and Economic Growth in Nigeria utilizing time series data spanning for a twelve year period, from 2006 to 2017. Secondary data for the period were collected from the National Pension Commission (PenCom) Annual Reports, Central Bank of Nigeria, National Bureau of Statistics and World Bank development indicator (database) of twenty-one licensed pension fund administrator as at 31st December, 2017. The data collected were analyzed and tested for unit root, using the Augmented Dickey-Fuller test using E-Views, 9.0 statistical software. The Ordinary Least Square techniques were used to estimate three models in line with the formulated hypotheses. The results from the models revealed a significant positive relationship between pension fund assets, pension fund contribution, pension fund investment and gross domestic product at 5% level of significance. Consequently, it was recommended inter alia 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 Nigeria.

Keywords: Pension Fund, Social Security, Retirement Savings Account, Consolidated Revenue Fund.

Article Info: **Received** August 20, 2019; **Reviewed** August 24, 2019; **Accepted** August 26, 2019.

1. Introduction

Pension is a form of social security against old age, poverty and other uncertainties. It is a sum set aside for every worker (at retirement) who must have dutifully used his/her active life in serving a given organization. A worker who has worked in a given establishment for some years deserve some benefits which could take the form of pension or gratuity payable to the worker by the employer at the time of retirement. Pension, as a form of official obligation in any employment relationship, is a legal and economic obligation in which employers of labour are mandated to fulfill her contractual relationship with employees (Onyeonoru, Matthew, & David, 2013). It is a type of social security against old age, poverty and other uncertainties. Pension is a sum set aside for every worker (at retirement) who must have dutifully used his/her active life in serving a given organization. Pension fund is, therefore, fund set aside to cater for this. Pension Fund is fund from which pensions are paid, accumulated from contributions from employers, employees, or both. Pension funds are investment pools that pay for employee retirement commitments. Corporations and all levels of government provide pensions. The fund managers invest these contributions conservatively (Kimberly, 2018).

The management of Pension Fund in Nigeria is as old as Nigeria itself. Pension fund was introduced by the colonial masters to provide income and security for old age British citizens working in Nigeria upon retirement as a post-retirement benefit to employees. Pension Scheme was introduced into Nigeria by the Colonial Administration following the 1951 Pension Ordinance with retroactive effect from 1946. The Ordinance provided public servants with both pension and gratuity (Ahmad, 2006). The first pension scheme in Nigeria was set up for the employees of the Nigerian Breweries Limited in 1954, followed by United African Company in 1957. The first Social Security Scheme in Nigeria came into being in 1961 by the Act of Parliament, which established the National Provident Fund (NPF). The NPF scheme was set up to address pension matters of private organizations in Nigeria. In 1993, the National Social Insurance Trust Fund (NSITF) was set up by Decree No 73 of 1993 to replace the defunct NPF (Balogun, 2006). The public service operated an unfunded Defined Benefit Scheme and the payment of retirement benefits were budgeted annually.

In Nigeria, Pension Reform Act 2004 (PRA) was signed into law together with the Pension Reform Act 2014 and it is in effects. The act which introduced the New Contributory Pension Scheme and covers employees in the both public and private sector. Under the scheme, each employee and employer contribute a minimum of 7.5% of the employee's monthly emoluments but in the Military, an officer contributes 2.5% while the employer contributes 12.5%. An employer may elect to contribute on behalf of the employees provided that the total contribution shall not be less than 15% of the monthly emoluments of the employees. The scheme also allows for voluntary contributions to be made by employees (including those exempted by the Act) that could only be taxed at the point of withdrawal where the withdrawal was made before five years from the date the first voluntary contribution was made. To ensure that every retiree is financially independent at retirement in Nigeria, the Pension Reform Act 2014 reviewed upwards, the minimum rate of pension contribution from 15 per cent to 18 per cent of monthly emolument, where 8 per cent will be contributed by employee and 10 per cent by the employer. This is known as a defined contribution fund. The employee receives the money when he/she retires.

The new pension scheme in Nigeria is fully funded, meaning that the contribution of an employee is deducted monthly from the employee's salary while the employer will provide the counter-part contribution for the employee, which will both be transferred to the relevant retirement savings account. Thus, the pension assets are kept aside from the onset to meet future pension liabilities, and that every employee is required by law to open a Retirement Savings Account (RSA) in his name with a Pension Fund Administrator (PFA) of his choice. The act also required and specified that the pension funds' assets collected are to be invested in securities and stocks from which the returns accrued to the retirees. Pension funds represent the largest institutional investors in many nations due to the relatively large amounts of capital they control. As a result, many pension systems are now becoming asset backed. This has provided an increasing link between retirement incomes and the performance of these assets. Since pension funds are specialised in evaluating investment opportunities and the associated risks, a higher performance of its investments and thus utility maximisation is expected. As a result, the responsibility of accumulating and managing their wealth opportunities are transferred to institutional investors by way of pension funds.

Pension administration in Nigeria has been saddled with many problems, both in the public service and private sector. With weak institutions, corruption, social injustice and insecurity, it is clear that the operation of the funded pension scheme in Nigeria has been hampered as it faces a lot of challenges which threatens its prospects. It is therefore essential to ascertain whether or not its operation has contributed to the growth and development of the Nigerian economy; and whether its continuity has prospects. The following questions also beg for answers; what is the general contribution of the funded pension scheme to growth and development? To what extent has the prevalent of risk in pension fund investment affected pension fund Management in Nigeria?. One major problem facing the contributory pension scheme in Nigeria is the dearth of investment outlets. This truth is not far-fetched as there are only eleven (11) classes of investment outlets available for investment of pension fund assets, which may pose a problem of scarcity of long-term funds for long-term investment. Pension fund scheme became largely unsustainable due to lack of adequate and timely budgetary provisions. This was the reason for the soaring gap between pension fund obligations and revenues, which threaten not only economic stability but also crowed out necessary investments in education, health and infrastructure. This was exacerbated by various increases in salaries, which ultimately led to increase pension and hence undue pressure on government fiscal responsibilities.

Civil servants, prior to Pension Reform Act of 2004, bore no direct responsibility, by way of payroll tax, for the provision of pension; instead pension benefits were paid through budgetary allocations to be kept in the Consolidated Revenue Fund. In realizing the pension goals, pension industry initially relied upon pay-as-you-go (PAYG) scheme which seems cheap as there are few retirees then; however, costs rise while the population ages and hence the dependency ratio rises faster than the passivity ratio. PAYG is therefore criticised for being vulnerable to the effects of population ageing, this makes PAYG engender economic distortions and unsuitable for retirees situations like early retirements, disability pensions, evasion and disincentive to save. On the contrary, the current funded scheme offers better labour market incentives as well as aiding the development of financial markets.

The social security pensions provided on the basis of pay-as-you-go are subject to political risks. The risks contemplated take three forms. The first relates to the tendency of politicians, eager to capture the votes of the electorate, to offer fabulous pension increases that they are either not going to pay or which may fall on regimes other than theirs. The second aspect of the risk refers to the fact that the pension account, in not being distanced from political control, falls easy 'prey' to politicians who dip hands into pension funds to cushion up temporary fiscal shocks. The third relates to the socio-political indifference to the plight of pensioners by politicians. Another weakness found in the public sector system concerns the less than dignifying manner with which the senior citizens are treated. One observes how weak and frail-looking elderly citizens are compulsorily required to travel long distances to the point of pension payment. Worse still, they are left, under inclement weather for long hours and sometimes for days, before collecting their stipends. Some pensioners were claimed to have died while standing in a queue waiting to receive pension money.

The studies of various scholars on the attempt to ascertain the relationship between pension fund asset investment and economic growth have yielded divergent views, contradictory and inconsistency results. For instance, Ndugbu, Ojiegbe, Uzowuru, and Okere (2015) found a negative relationship between pension fund asset investment and economic growth. On the other hand, Ofoeda, Gariba, and Amoah (2016) documented a positive relationship between pension fund asset investment and economic growth, while Rousseau and Wachtel (2011) found no relationship between pension fund asset investment and economic growth. In the light of the foregoing, there is a clear gap in knowledge which this study tends to fill. Most of the studies reviewed employed descriptive statistics which may not give a clear and robust results of the relationship between pension fund asset investment on Gross Domestic Product, hence this study seek to close gap in knowledge through the use of a more robust econometric tool via regression analysis using Pension Fund Assets, Pension Fund Contribution and Pension Fund Invested in Specialized Investment, which previous study failed to employ. Furthermore in an attempt of resolving the periodic gap, this present study is extended to 2017 as the scope of previous study ended in 2016. It is against this backdrop that this study tends to evaluate the relationship between Pension Fund Asset Investment and Economic Growth in Nigeria from 2006 to 2017.

Based on these, the study formulates the following hypothesis in the null form as follows:

H_1: There is no significant relationship between Pension Fund Assets and Gross Domestic Product of Nigeria.

H_2: There is no significant relationship between Pension Fund Contribution and Gross Domestic Product of Nigeria.

H_3: There is no significant relationship between Pension Fund Investment and Gross Domestic Product of Nigeria.

2. Review of Related Literature

2.1 Conceptual Framework

2.1.1 Pension

Pension as a series of periodic money payments made to a person who retires from employment because of age, disability, or the completion of an agreed span of service. The payments generally continue for the remainder of the natural life of the recipient, and sometimes to a widow or other survivor. Abubakar (2014) posits that pension consists of lump sum payment paid to an employee upon his disengagement from active service. A pension scheme is a transfer programme that serves as a channel for redistributing income to the elderly or retirees, after a stipulated number of service years (Odia & Okoye, 2012). A pension is usually a regular payment made by the government or by private companies or organizations to their retirees as a form of social security against old-age risks and uncertainties. In some countries, especially those that are economically advanced , pensions are usually extended to other categories of people apart from retirees, such as widows, orphans, disabled people (in the form of disability pensions), and the elderly or the aged. Pension programmes are usually put in place to serve as protection for the elderly and retirees against old-age risks, poverty and other uncertainties. In addition, they are also used to promote a ‘saving culture’ among current employees, and this stimulates savings.

2.1.2 Pension Funds

Pension Funds, can be defined as financial intermediaries, usually sponsored by non-financial companies, which collect and invest funds on a pooled basis for eventual payment to members in the form of pensions. Pension funds are among the most important institutions in certain national financial markets. Pension Funds are institutions established under the social security policy of a jurisdiction. Social security means any kind of collective measures or activities designed to ensure that members of a society meet their basic needs and are protected from the contingencies to enable them maintain a standard of living consistent with social norms. Social security is defined in its broadest meaning by the International Labour Organization (ILO) as the protection measures which society provides for its members, through a series of public measures against economic and social distress that would otherwise be caused by the stoppages or substantial reduction of earnings resulting from sickness, maternity, employment injury, unemployment, disability, old age, death, the provision of medical care subsidies for families with children (Yartey, 2008).

2.1.3 Pension Fund Assets

Pension funds' assets are defined as assets bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. The pension fund is a pool of assets forming an independent legal entity. This indicator is measured in millions of USD or as a percentage of GDP. A pension fund is any plan, fund, or scheme that provides retirement income. The National Pension Commission (PenCom) said that the total pension fund assets stood at N8.14 trillion as at May 2018. The assets rose from N7.52 trillion in December 2017, to N8.14 trillion in May 2018 (Pencom, 2018). The pension assets as at December 2017 stood at N7.52tn, it moved up to N7.8 trillion as at February and soared to N7.94 trillion in March, then to N8.14 trillion in May. Pencom (2018) also posited that N5.2 trillion has been invested in Federal Government Securities by the Pension Fund Administrators (PFAs). The investment represented 70.08 per cent of the N8.14 trillion pension assets.

A breakdown of the investment is FGN bonds got N3.96 trillion; treasury bills, N1.68 trillion, agency bond like the Nigeria Mortgage Refinancing Company (NMRC) and the Federal Mortgage Bank of Nigeria (FMBN) got N6.54 billion, Sukuk bonds got N51.98 billion and green bond got N8.26 billion. The state government securities gulped N154.02 billion; corporate bonds, N393.27 billion; corporate infrastructure bonds, N8.36 billion; banks, N662.80 billion; commercial papers, N71.75 billion and estate properties, N228.86 billion. Other classes of assets include, supra-national bonds, N8.21 billion; open/close end funds, N10.16 billion; mutual funds, N1987 billion; private equity fund N3727 billion; infrastructure fund, N8.95 billion and cash & other assets N96.13 billion (Pencom, 2018).

2.1.4 Pension Fund Contributions

A Pension contributory scheme is a scheme designed to ensure employees derive the benefit of being paid their pension adequately and as when due upon retirement. The Pension Commission regulates the fund. It is designed in such a way as to ensure your employer has no control over how your pension is invested and paid to you. Employees are expected to contribute 8% of their (Basic+Housing+Transport allowance) every month. Your employer deducts this amount from your salary every month. Your employers also contribute a minimum of 10% of your (Basic+Housing+Transport allowance) every month on your behalf. The total contribution of at least 18% of your Basic, Housing and Transport Allowance is then transferred at the end of the month to your Retirement Savings Account (RSA), which is opened in your name by your Pension Fund Custodian. The amount is then assessed by your Pension Fund Administrators who help you invest the money. An employee can contribute more than the 8% stipulated. Your employer can also contribute more than the 8% or even contribute the whole 18% on your behalf. One can also contribute any lump sum amount on your own provided you have complied with the 8% contribution. Meaning you can just contribute voluntarily should you have excess cash. Any amount payable as a retirement benefit under the Act is not taxable. However, any income earned from any voluntary contribution made (as indicated above) shall be subject to tax at the point of withdrawal where the withdrawal is made before the end of 5 years from the date the voluntary contribution was made.

According to the Act, any employee who has three years (or less) left to retire prior to the commencement of the act is exempted. This means only those who were due to retire three years before 2004 are exempted from the act as such all employees are currently not exempted. The categories of person mentioned in section 291 of the Constitution of the Federal Republic of Nigeria 1999 shall be exempted from the Scheme. This refers to judicial officers such as Supreme Court Justices, Judges etc. Members of the Armed Forces are also exempted. The Pension Fund Administrators are very well regulated by the Pension Commission and have a set of guidelines upon which they operate. As such, they are only expected to invest your money in certain authorised markets and with limits. Currently, they can invest in stocks, treasury bills, bonds, real estate and other investments as approved by the Pension Commission (Pension Reform Act, 2004).

2.1.5 Pension Fund Investment

The main goals of pension investment are to ensure adequate, affordable and sustainable benefits to contributors, secure safety and security of funds, ensure adequate liquidity to pay all pension benefits of contributors as and when due, achieve an optimal trade-off of risk and return through strategic asset allocation. The asset class of investment include government securities, corporate bonds /debt (including real estate investment trust {REITs}, mortgage and asset backed securities), money market instruments, ordinary share, open and close – end funds (Eyamba, 2018). Under the new fund structure, all active young contributors under 49 years would be under Fund 2, with about 60 to 70 per cent of contributions to be invested in bonds and treasury bills. The balance would go into money market and other instruments (Bassey, 2018). Fund 3, which is a pre-retirement fund, would be for those in the 50 to 60 years old bracket, with 80 per cent of the funds to be invested in bonds and treasury bills. The 4th fund would be a retirees fund set aside for those aged 60 years and above. The introduction of multi-fund investment structure for Retirement Savings Account (RSA) funds would address the varying risk appetite of contributors, as the different funds are tailored to fit the ages and risk profiles of contributors (Bassey, 2018).

Expanding the scope of allowable investment instruments and fund classes available to contributors would also improve returns on pension funds, as minimal limits have been set for variable income instruments which generally give higher returns over a given period. Apart from boosting returns on pension funds, the initiative would help resolve the challenge of asset- liability risk management by pension funds by better aligning the risk return expectations of contributors, better matching of pension assets and liabilities and diversifying pension fund portfolios (Eyamba, 2018). Increased pension fund assets representing about N270 billion followed enrollment of Contributory Pension Scheme by over 390,000 contributors, from 7.50 million as at March 31, 2017 to 7.90 million in February 28, 2018 (PenCom, 2018).

2.1.6 Economic Growth

Economic growth is generally defined in terms of increase in Gross Domestic Product (GDP). Economic growth refers to an increase in a country's national output of goods and services or increase in the volume of output of goods and services within a specific period. Growth is usually taken to mean economic progress which is the rate at which the annual output of goods and services grow in real terms but economic development on the other hand is a less precise and more complex term which cannot be easily reduced to quantitative measurement in monetary terms alone. It involves a multitude of variables all of them dealing with man's existence (Okeke, Mbonu, & Amahalu, 2018). According to Okoye, Amahalu, Nweze, and Obi (2016), economic growth is related to quantitative sustained increase in a country's per capital output or income accompanied by expansion in its labour force, consumption, capital and volume of trade, while economic development is a wider concept than economic growth. It relates to qualitative change in economic wants, goods, incentives, institutions, productivity and knowledge. It is the upward movement of the entire social system. This implies that an economy can grow but cannot develop because poverty, unemployment and inequalities may continue to persist. Thus, economic growth is the increase in the total output of an economy over a certain period of time.

2.1.6 Gross Domestic Product

Gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. GDP includes all private and public consumption, government outlays, investments, private inventories, paid-in construction costs and the foreign balance of trade (exports are added, imports are subtracted) (Okoye, Okoye, & Amahalu, 2015). GDP is a broad measurement of a nation's overall economic activity.

GDP is commonly used as an indicator of the economic health of a country, as well as a gauge of a country's standard of living. Since the mode of measuring GDP is uniform from country to country, GDP can be used to compare the productivity of various countries with a high degree of accuracy. Adjusting for inflation from year to year allows for the seamless comparison of current GDP measurements with measurements from previous years or quarters. In this way, a nation's GDP from any period can be measured as a percentage relative to previous periods (Amahalu, Egolum & Okoye, 2014).

2.1.7 Pension Fund Asset Investment and Economic Growth

Pension schemes help to mitigate the large gender inequalities that exist particularly in developing countries with respect to formal pension coverage. In addition to moral or ideological opinions on pension schemes and their different types, academic research has identified a variety of mechanisms for how pension scheme can improve the welfare and economic growth in a country. Ponczek (2012) has shown that pension schemes are beneficial for the elderly, their families and, in particular, children residing in an elderly household. Ravallion, Chen, and Sangraula (2007) showed that extending pension coverage to poor black elderly in South Africa significantly improved the health of these elderly. Long and Pfau (2008) found that increases in social pensions have been a main source of poverty reduction in Thailand.

2.2 Theoretical Framework

This study is anchored on the life cycle theory, since it was discovered that the development of pension fund can be seen in three stages namely, start-up, growth and maturity stages. The life cycle theory explains the three stages of development of pension fund administrators and their respective financing needs. The Life-Cycle Hypothesis (LCH) is an economic theory that pertains to the spending and saving habits of people over the course of a lifetime. The concept was developed by Franco Modigliani and his student Richard Brumberg in the early 1950s. LCH presumes that individuals plan their spending over their lifetimes, taking into account their future income. Accordingly, they take on debt when they are young, assuming future income will enable them to pay the debt off. They then save during middle age in order to maintain their level of consumption when they retire. This results in a "hump-shaped" pattern in which wealth accumulation is low during youth and old age, and high during middle age (Modigliani, 1966 in Deaton, 2005). Thus, the theory posits that the sources of pension fund administrators financing are linked to their respective stages of development and hence, economic growth.

2.3 Empirical Review

Odo and Okeke (2016) examined the influence of the contributory pension scheme on the financial system development in Nigeria. Evidence accumulated from both theoretical and empirical literature point to the power of contributory pension to deepen the financial system. An empirical work earlier done showed that the total domestic savings (TDS) increased during the post-pension period; and that the capital market capitalization rose significantly over the period. It was also observed that its implementation has created an impressive scenario whereby new pension funds account for 30% and 8% bond and stock markets capitalization, respectively. This was beside the increased activities in the life subsector of the insurance industry.

Musawa and Mwaanga (2017) assessed the effect of pension funds and capital market. Therefore, the study was an attempt to investigate the long run effect of pension fund's investment on the Lusaka securities exchange performance. The study used quarterly data for the period ranging from January 2009 to December 2015, and employed the cointegration and vector error correction; the results proved the existence of long run relationships between the pension funds and the market capitalization. The relationship implies that if pension funds are encouraged to invest more in equity, it will contribute to the growth of capital market, hence developing.

Agbata, Ekwueme, and Edirin (2017) determined how the administration of the Pension Scheme could be perked up in Nigeria through effective management that would reduce fraudulent practices apparent in the scheme. By following the precept of library research via the survey design, a 5-point Likert Scale questionnaire was designed to deduce primary information about pension matters from a sample of 435 knowledgeable respondents. The collected data were presented and analyzed. Three hypotheses were formulated and tested based on Multiple Regression Analysis models with the aid of Minitab version 17. The findings show that, despite the provisions of the Act (the Pension Reform Act - PRA), intents for committing Pension Fraud have not reduced to a significant extent. Also, the accumulated assets of pension funds have not been adequately diversified into profitable investment alternatives. They recommended that, among other things, amendments should concertedly be made to the PRA to at least discourage acts of pension frauds by instituting severe punitive measures for culprits, while simultaneously inculcating moral ethics among public servants in Nigeria.

3. Design and Methodology

This study adopted the ex-post facto method of research and time series design procedure. The population of this study consists of twenty-one (21) licensed pension fund administrators in Nigeria as at 31st December, 2017 (refer to appendix A). This study used secondary data from different sources: Central Bank of Nigeria (CBN) annual economic reports and financial Statistical Bulletin, World Bank economic reports and the annual publications of the Pension Commission of Nigeria as well as the National Bureau of Statistics (NBS) for a twelve (12) year period ranging from 2006-2017. The licensing of Pension Fund Administrators (PFA) by Pension Commission (PENCOM) in 2006 informed the choice of the base year of 2006.

3.1 Model Specification

In order to ascertain the relationship between Pension Fund Asset Investment and Economic Growth in Nigeria, the following functional relationship was expressed as follows:

GDP = *f* (PFA, PFC, PFI).

From the above function, the following testable models were derived:

Model 1: $GDP_t = \beta_0 + \beta_1 PFA_t + \varepsilon_t$
Model 2: $GDP_t = \beta_0 + \beta_1 PFC_t + \varepsilon_t$
Model 3: $GDP_t = \beta_0 + \beta_1 PFI_t + \varepsilon_t$

Where:

GDP_t = Gross Domestic Product for 12 years period;
PFA_t = Pension Fund Assets for 12 years period;
PFC_t = Pension Fund Contribution for 12 years period;
PFI_t = Pension Fund Investment for 12 years period;
β_0 = Constant term;
β_1 = Coefficient of the parameter estimates
ε_t = Error term

Decision Rule

The decision will be based on 5% (0.05) level of significance. The null hypothesis (Ho) will be accepted, if probability value (i.e. P-value or Sig.) calculated is greater than or equal to (≥) the stated 5% level of significance, otherwise reject.

Table 1: Description of variables

Variable	
Gross Domestic Product	This was extracted from Central Bank of Nigeria Statistical Bulletin, World Bank economic reports and National Bureau of Statistics (several issues)
Pension Fund Assets	This was extracted from Pension Commission (PENCOM) annual reports (various issues)
Pension Fund Contribution	This was extracted from Pension Commission (PENCOM) annual reports (various issues)
Pension Fund Investment	This was extracted from Pension Commission (PENCOM) annual reports (various issues)

Source: Authors Compilation, 2019

4. Data Analysis and Results

4.1 Test of Reliability (Unit Root Testing)

In order to avoid the generation of spurious regression normally associated with time series data, the model specified above requires the test for the existence of unit root for each of the variables. This study makes use of the Augmented Dickey-Fuller (ADF) test.

Table 2: Detrended result

Variables	Test Statistic	Test Critical Values			Status	Prob.
	ADF	1% level	5% level	10% level	Stationary	
GDP	-4.843076	-4.420595	-3.259808	-2.771129	1(1)	0.0167
PFA	-5.181990	-4.420595	-3.259808	-2.771129	1(1)	0.0038
PFC	-5.032030	-4.420595	-3.259808	-2.771129	1(1)	0.0019
PFI	-5.742365	-4.420595	-3.259808	-2.771129	1(1)	0.0045

Source: E-Views 9.0 ADF Output, 2019

Thus, it is clear in table 2 that all the variables have unit root in their level form but at first difference the variables became stationary. Thus, the model follows integrating process.

Table 3: Pearson correlation matrix

	GDP	PFA	PFC	PFI
GDP	1.000	0.234	0.361	0.342
PFA	0.234	1.000	0.676	0.436
PFC	0.361	0.676	1.000	0.332
PFI	0.342	0.436	0.332	1.000

Source: E-Views 9.0 ADF Output, 2019

The Pearson correlation matrix as presented in table 3 indicates the existence of a positive relationship between PFA, PFC, PFI and GDP at correlation coefficients of 0.234, 0.361, and 0.342 respectively.

Journal of Global Accounting
Vol. 6 No. 2 September, 2019. ISSN: 1118-6828
www.unizikjga.com

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4.2 Test of Hypotheses

4.2.1 Test of Hypothesis One

H_1: There is significant relationship between Pension Fund Assets and Gross Domestic Product of Nigeria.

Table 4: Ordinary Least Square regression analysis testing the relationship between GDP and PFA

Dependent Variable: DGDP				
Method: Least Squares				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.122607	0.732834	4.167306	0.0008
DPFA	0.292543	0.932781	6.713625	0.0000
R-squared	0.410811	Mean dependent var		0.010909
Adjusted R-squared	0.349099	S.D. dependent var		2.026171
S.E. of regression	2.124196	Akaike info criterion		4.507629
Sum squared resid	40.60987	Schwarz criterion		4.579974
Log likelihood	-22.79196	Hannan-Quinn criter.		4.462026
F-statistic	14.98360	Durbin-Watson stat		1.587578
Prob(F-statistic)	0.000013			

Source: E-Views Output, 9.0, 2019

The model as shown in table 4 shows a good fit since it has an R-squared of about 41 per cent. This suggests that about 41% of the variation in economic growth is associated with variation in pension fund asset in the economy. In other words, only about 59% variation in economic growth is attributed to other variables other than PFA, captured by the stochastic error term. However, the p-value of 0.0000 and t-statistic values of 6.713625 suggests that PFA coefficient is statistically significant in explaining variation in economic growth. The PFA coefficient value of; β_1= 0.292543 implies that GDP positively correlates with PFA. On the basis of a priori expectation, the variable (PFA) has the expected positive signs.

GDP = 0.122607 + 0.292543PFA + μ

Decision:

Thus, this study has provided evidence that there is a significant positive relationship between Pension Fund Assets and Gross Domestic Product of Nigeria at 5% level of significance.

4.2.2 Test of Hypothesis Two

H_1: There is significant relationship between Pension Fund Contribution and Gross Domestic Product of Nigeria.

Table 5: Ordinary Least Square regression analysis testing the relationship between GDP and PFC

Dependent Variable: DGDP
Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.217050	0.659405	5.329160	0.0000
DPFC	0.629874	0.707845	6.889848	0.0000

R-squared	0.480866	Mean dependent var	0.010909
Adjusted R-squared	0.421260	S.D. dependent var	2.026171
S.E. of regression	2.047596	Akaike info criterion	4.434175
Sum squared resid	37.73383	Schwarz criterion	4.506520
Log likelihood	-22.38796	Hannan-Quinn criter.	4.388572
F-statistic	15.71829	Durbin-Watson stat	1.578144
Prob(F-statistic)	0.000010		

Source: E-Views Output, 9.0, 2019

The model as shown in table 5 shows a good fit since it has an R-squared of about 48 per cent. This suggests that about 48% of the variation in economic growth is associated with variation in pension fund contribution in the economy. In other words, only about 52% variation in economic growth is attributed to other variables other than PFC, captured by the stochastic error term. However, the p-value of 0.0000 and t-statistic values of 6.889848 suggests that PFC coefficient is statistically significant in explaining variation in economic growth. The PFC coefficient value of; β_1= 0.629874 implies that GDP positively correlates with PFC. On the basis of a priori expectation, the variable (PFC) has the expected positive signs.

$GDP = 0.217050 + 0.629874PFC + \mu$

Decision:

Thus the study upholds that there is a significant positive relationship between Pension Fund Contribution and Gross Domestic Product of Nigeria at 5% level of significance.

4.2.3 Test of Hypothesis Three

H_1: There is significant relationship between Pension Fund Investment and Gross Domestic Product of Nigeria.

Table 6: Ordinary Least Square regression analysis testing the relationship between GDP and PFI

Dependent Variable: DGDP				
Method: Least Squares				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.008487	0.652509	-0.013007	0.9899
DPFI	0.159222	0.916657	3.173699	0.0029
R-squared	0.393341	Mean dependent var		0.010909
Adjusted R-squared	0.317399	S.D. dependent var		2.026171
S.E. of regression	2.132201	Akaike info criterion		4.515152
Sum squared resid	40.91652	Schwarz criterion		4.587497
Log likelihood	-22.83334	Hannan-Quinn criter.		4.469549
F-statistic	9.030171	Durbin-Watson stat		1.666278
Prob(F-statistic)	0.002946			

Source: E-Views Output, 9.0, 2019

The model as shown in table 6 shows a good fit since it has an R-squared of about 39 per cent. This suggests that about 39% of the variation in economic growth is associated with variation in pension fund investment in the economy. In other words, only about 61% variation in economic growth is attributed to other variables other than PFI, captured by the stochastic error term. However, the p-value of 0.0029 and t-statistic values of 3.173699 suggests that PFI coefficient is statistically significant in explaining variation in economic growth. The PFI coefficient value of; β_1= 0.159222 implies that GDP positively correlates with PFI. On the basis of a priori expectation, the variable (PFI) has the expected positive sign.

GDP = -0.008487 + 0.159222PFI + µ

Decision:

This study upholds that there is a significant positive relationship between Pension Fund Investment and Gross Domestic Product of Nigeria at 5% level of significance.

4.3 Summary of Findings

The findings of the study are as follows:

1. There is a significant positive relationship between Pension Fund Assets and Gross Domestic Product of Nigeria at 5% level of significance.
2. There is a significant positive relationship between Pension Fund Contribution and Gross Domestic Product of Nigeria at 5% level of significance.
3. There is a significant positive relationship between Pension Fund Investment and Gross Domestic Product of Nigeria at 5% level of significance.

5. Conclusion and Recommendations

The broad objective of this study was to ascertain the relationship between Pension Fund Asset Investment and Economic Growth in Nigeria from 2006-2017. This research adopted the Augmented Dickey Fuller test to verify the stationarity of the data. Ordinary Least Squares regression model (OLS) was employed in examining the variables in the hypotheses. The empirical findings revealed that PFA, PFC and PFI exerted a positive and significant relationship with the GDP at 5% level of significance. Hence, it was concluded therefore that Pension Fund Asset Investment has significant impact on Nigeria economy at 5% level of significance. Following the empirical findings of this study, the following recommendations were made:

1. There should be more emphasis on the management of pension assets in the capital market as well as government bond, real estate, investment trust to boost Gross Domestic Product (GDP) of Nigeria.
2. PenCom should ensure effective monitoring, supervision and enforcement of the provision of the Pension Reform Act 2004, which are the inevitable ingredients in the Contributory Pension Scheme towards Gross Domestic Product (GDP).
3. The pooled fund should be invested in federal government securities to make resources available for economic growth and national welfare/improved standard of living

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Appendix A
List of Licensed Pension Fund Administrators

1. AIICO Pension Managers Limited
2. APT Pension Funds Managers Limited
3. ARM Pension Managers Limited
4. AXA Mansard Pensions Limited
5. Crusader Sterling Pension Limited
6. Fidelity Pension Managers Limited
7. First Guarantee Pension Limited
8. Future Unity Glanvills Pensions Limited
9. IEI-Anchor Pension Managers Limited
10. IGI Pension Fund Managers Limited
11. Investment One Pension Managers Limited
12. Leadway Pensure PFA Limited
13. Legacy Pension Managers Limited PFA
14. NLPC Pension Fund Administrators Ltd
15. NPF Pension Managers
16. Oak Pensions Limited
17. Pension Alliance Limited
18. Premium Pension
19. Sigma Pension Limited
20. Stanbic IBTC Pension Managers Limited
21. Trust Fund Pension PLC

Journal of Global Accounting
Vol. 6 No. 2 September, 2019. ISSN: 1118-6828
www.unizikjga.com

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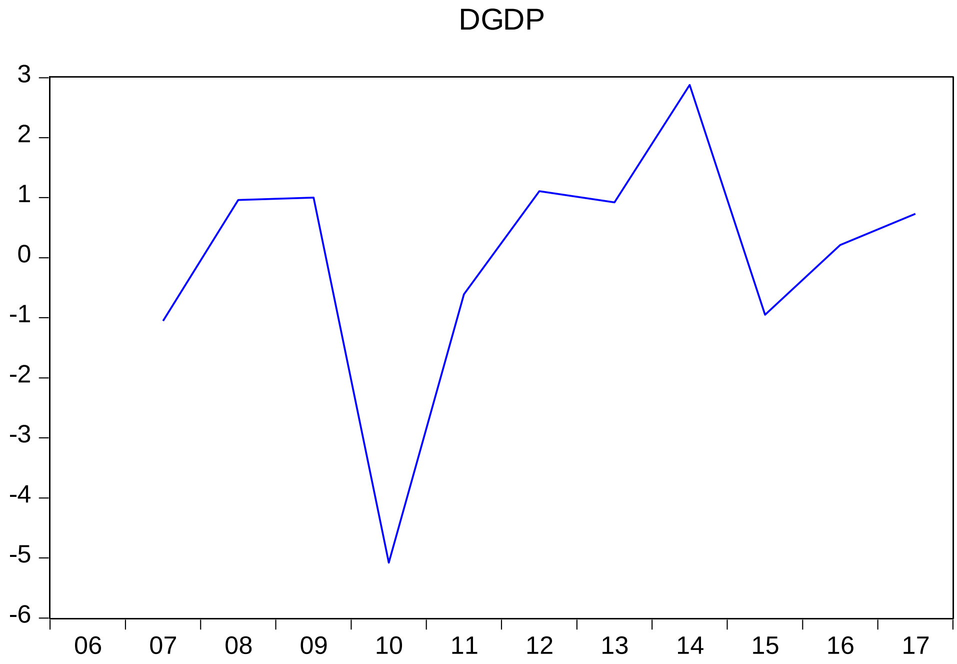
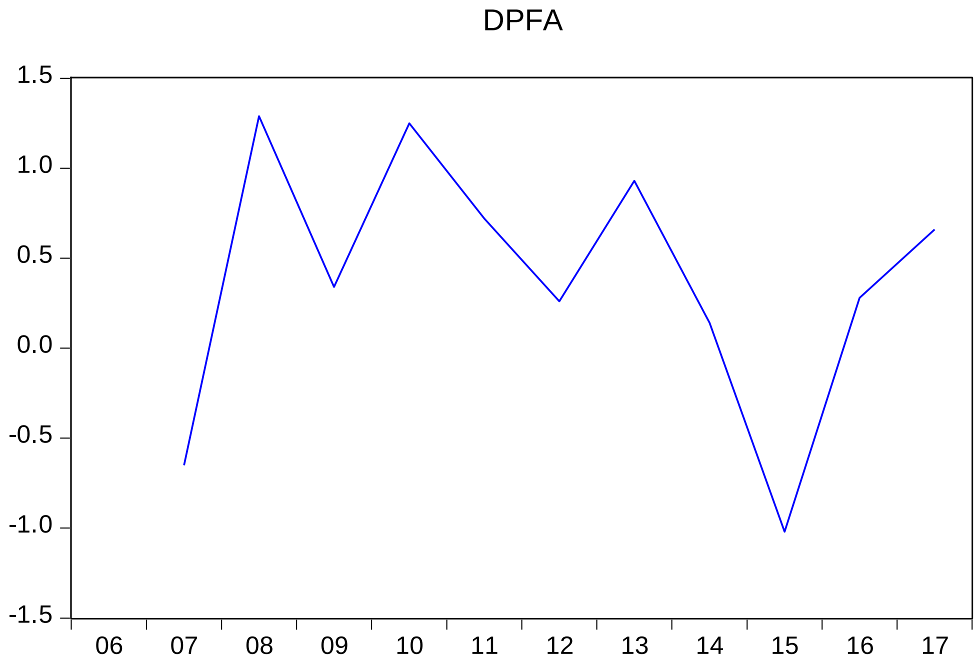
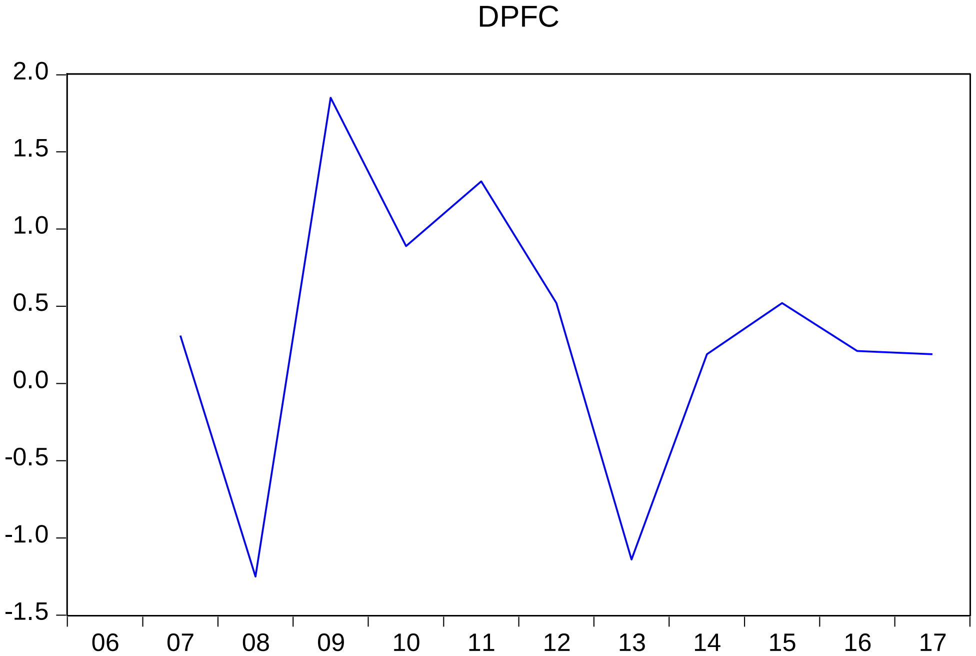
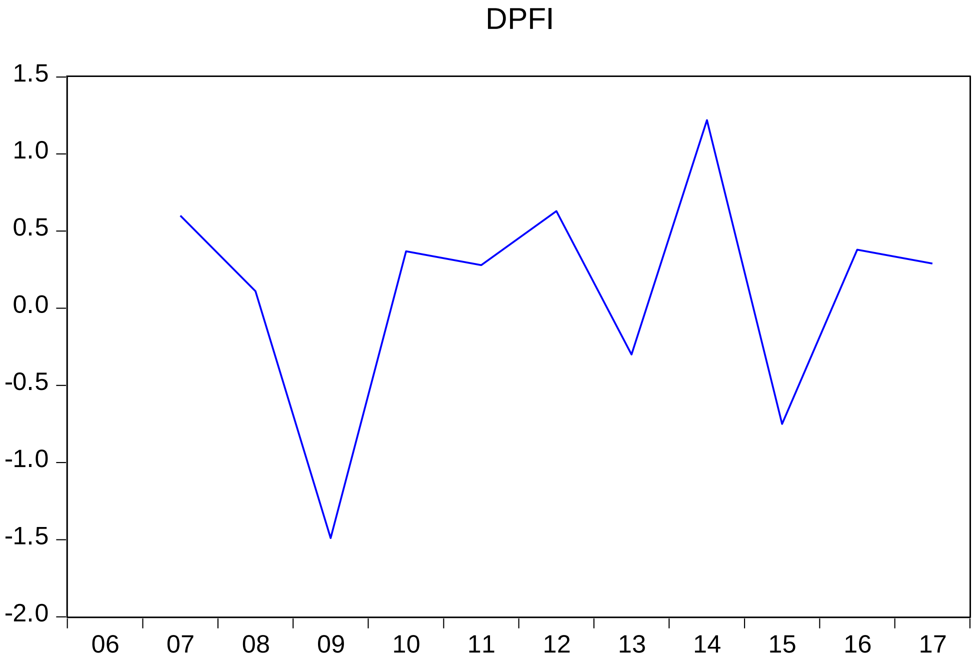
Appendix B
Line graphs for DGDP, DPFA, DPFC, and DPFI for 2006-2017






DPFC
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
06
07
08
09
10
11
12
13
14
15
16
17


DPFI
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
06
07
08
09
10
11
12
13
14
15
16
17