The Funded Pension Scheme and Economic Growth in Nigeria

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ABSTRACT

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

Keywords: Funded Pension Scheme, Economic growth, Portfolio management, ECM, Nigeria.

1. INTRODUCTION

It is generally expected in social welfare theorizing that an employee who has worked for an organization for some years is entitled to some benefits which could be in form of gratuity and pension payable to such employee by its employer at the time of retirement. Conceptually, pension is the amount paid by government or company to an employee after working for some specific period of time, considered too old or ill to work or have reached the statutory age of retirement. It is monthly sum paid to a retired officer until death because the officer has worked with the organization paying the sum. Pension is also the method whereby a person pays into pension scheme a proportion of his earnings during his working life. The contributions provide an income (or pension) on retirement that is treated as earned income. This is taxed at the investors' marginal rate of income tax. On the other hand, gratuity is a lump sum of money payable to a retiring officer who has served for a minimum period of term year, usually ten years (Adam, 2005).

In Nigeria however, life after retirement is dreaded by most workers. The fears of facing the future after retirement create an ambiance of disturbance among employees. Retirement is seen by workers as a transition that could lead to psychological, physiological and economic problems (Ogunbameru & Bamiwuye, 2004). The provoking thoughts of facing uncertain future after retirement by workers is responsible for most bureaucratic corruption (Agba, et at, 2008); and could also be responsible for low commitment to work by employees and service ineffectiveness of vital institutions in Nigeria. The extended family system, the lack of adequate social welfare for the aged, huge deficit, and the arbitrary increase in salaries/wages by the Obasanjo led administration which amplified the propensity to consume, compounded the mysteries of most employees (Awiosika, 2009).

Consequently, the pension system prior to 2004 was characterized by many problems which made the payment of the retirement benefit a failure in Nigeria. The old pension scheme lacked adequate and timely budgetary provision coupled with rising life expectancy, increasing number of employers, poor

implementation of pension scheme in the private sector due to inadequate supervision and regulation of the system and the fact that too many private sector employees were not even covered by the pension scheme. The problems associated with the old pension system in Nigeria necessitated the systematic pension reform which changed the defined benefit scheme to the defined contributory scheme (Koripamo-Agari, 2009 and Yunusa, 2009). The new Pension Reform Act, predicated upon a defined contributory scheme, was established in 2004 to ameliorate the inadequacies of the old scheme.

Ten years after the establishment, several amendments have been made to the 2004 Act. These include; the Pension Reform Amendment Act 2011, which exempts the personnel of the Military and the Security Agencies from the CPS as well as the Universities (Miscellaneous); Provisions Act 2012, which reviewed the retirement age and benefits of University Professors and the Pension Reform Act 2014. This incorporated the Third Alteration Act, which amended the 1999 Constitution by vesting jurisdiction on pension matters in the National Industrial Court (FGN, 2014). However, whether the new pension act has been able to address the problems associated with retirement schemes in the past is a major concern. Specifically, some have asked whether the Contributory Pension Act of 2004 has been able to address the problems of corruption, poor administration of pension fund, embezzlement, inadequate build-up of pension fund, poor monitoring and evaluation, and the general institutional failure which characterized pension schemes in Nigeria. This situation poses great challenge to the financial security of workers after retirement.

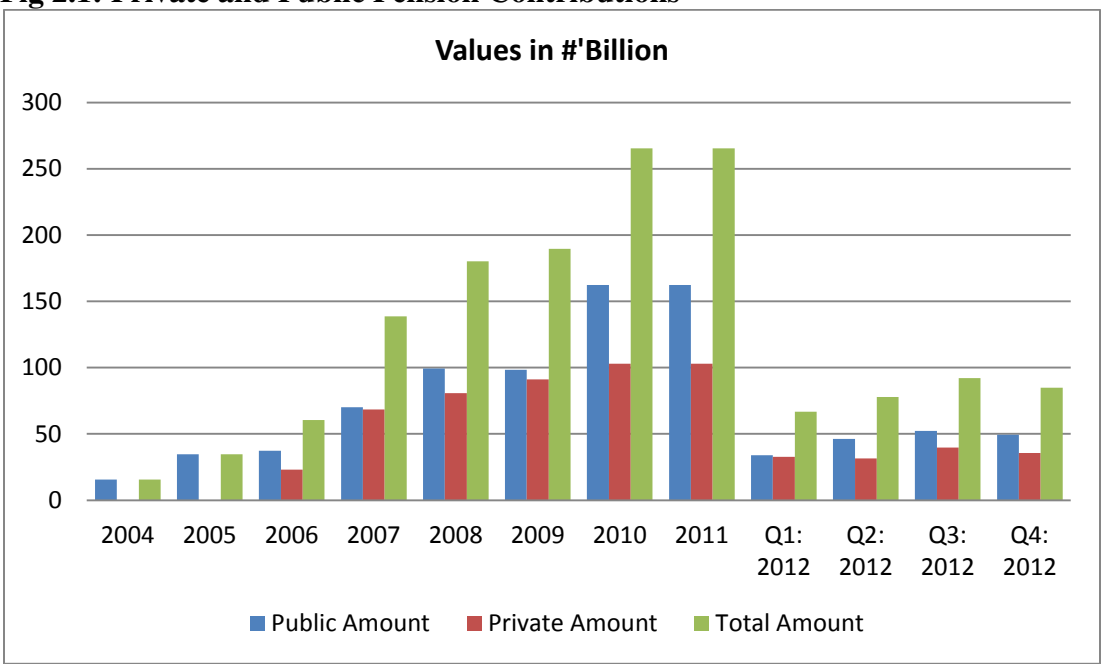
With weak institutions, corruption, social injustice and insecurity, it is clear that the operation of the funded pension scheme in Nigeria has been hampered as it faces a lot of challenges which threatens its prospects. It is therefore essential to find out whether or not its operation has contributed to the growth and development of the Nigerian economy; and whether its continuity has prospects. Other questions that beg for answers include; has the new scheme adequately served as the safety net against the observed inadequacies of previous pension schemes? What are the challenges that are negatively affecting the scheme? What is the general contribution of the funded pension scheme to growth and development? To what extent has risk prevalent in Pension Fund Investment affected Pension Management in Nigeria? Thus, the main objective of this study is to evaluate the operation of funded pension scheme in Nigeria via its contribution to the capital and money markets, employment creation and gross domestic product.

2. STYLIZED FACTS ABOUT THE CONTRIBUTION OF PENSION FUND TO ECONOMIC GROWTH

2.1 The Pension Contributions Created Liquidity

The total pension contribution by employees of both the public & private sectors was N1, 469.37 billion as at the end of the third quarter of year 2012. This marked an increase of N92.03billion; representing 6.02% over the total contributions recorded at the end of second quarter as shown in Table 2.1. The increase in total pension contributions could be explained by the increased level of compliance with the new Pension Act by State Governments and the organized private sector. A review of total contributions in the quarter shows that public sector had N879.44 billion, representing a 59.85% of the total contributions as against the private sector contributions 40.15%. Fig. 2.2 below showcases the composition of pension contribution for both private and public sectors for some selected years.

Fig 2.1: Private and Public Pension Contributions



Source: Drawn with Data from Pension Annual Reports (2012)

2.2 Investment in the Money Market

The Pension Reform Act 2004 gave the modalities for investing Pension Fund Assets in money market instruments of banks/discount houses as well as the commercial papers of corporate entities subject to a maximum portfolio limit of 35%. For instance, on pension assets under Management Infrastructure Fund, Pension Fund Assets may be invested in Infrastructure Funds subject to a maximum portfolio limit of 5%. Also, on pension assets under management Private Equity Funds, Pension Fund Assets may be invested in Private Equity Funds subject to a maximum portfolio limit of 5%. Whereas on pension assets under management Open/Close-End and Hybrid Funds including REITs; Pension Fund Assets may be invested in Open/Close-Ended Hybrid Funds registered with SEC subject to a maximum portfolio limit of 5% etc. (Yunusa, 2009). This investment framework improved the liquidity in the economy and thereby causing an increase in the investible fund. This caution also served as a buffer against risk and adverse selection.

2.3 Diversification of Investment Portfolio

The Pension Reform Act 2004 also provided that all contributions by members shall be invested by the Pension Fund Administrators with the objectives of safety and maintenance of fair returns on amount invested. Table 2.3 below showcases the portfolio analysis of pension fund for selected years. It also reveals the investment and asset composition which signifies the percentage contribution of the stakeholders in the pension industry.

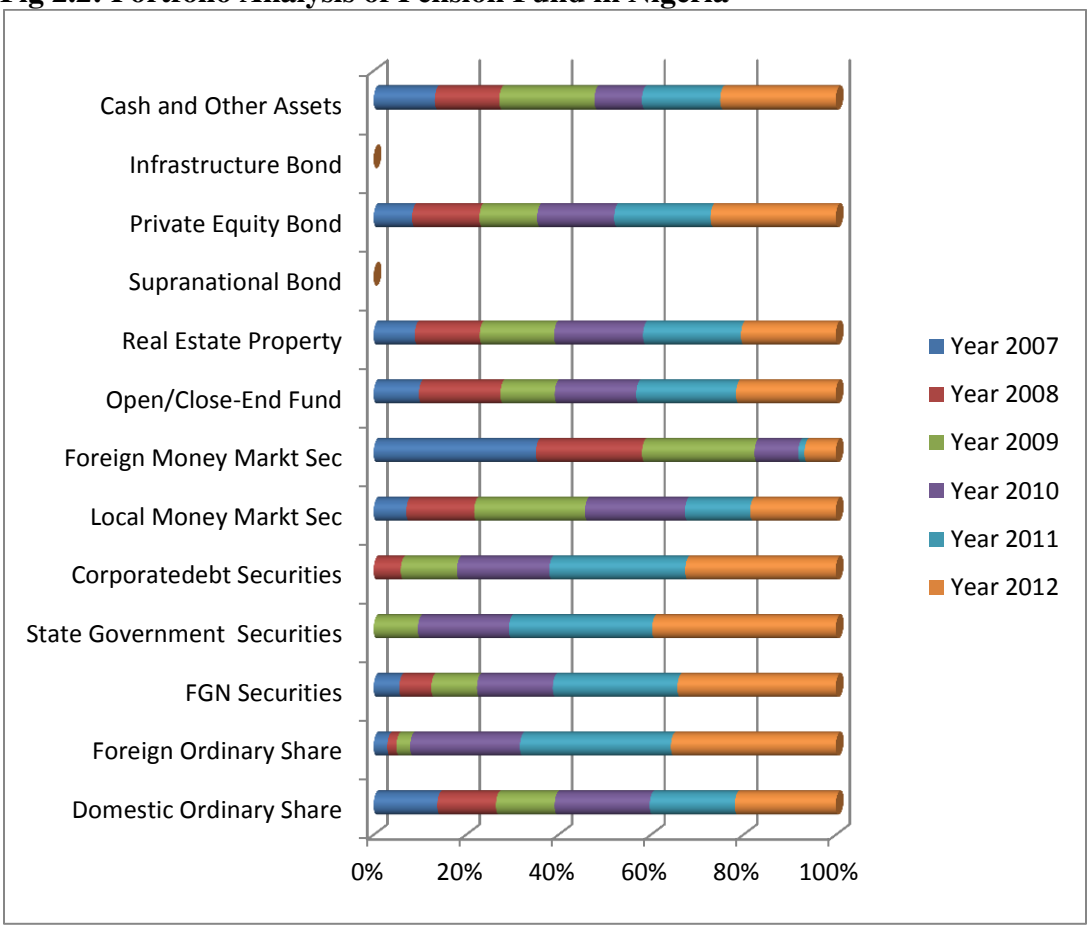
Table 2.3: Portfolio Analysis of Pension Fund from 2007-2012

ASSET	2007 #'Bil	%	2008 #'Bil	%	2009 N'Bil	%	2010 N'Bil	%	2011 #'Bil	%	2012 #'Bil	%
DOMESTIC ORDINARY SHARE	240	30	221	20	221	15	358	18	320	13	380	10
FOREIGN ORDINARY SHARE	3	0	2	0	3	0	24	1	33	1	36	1
FGN SECURITIES	280	34	351	32	499	33	829	41	1361	56	1729	64
STATE GOVERNMENT SECURITIES	0	0	0	0	34	2	70	3	110	5	141	4
CORPORATE DEBT SECURITIES	0	0	15	1	31	2	51	2	75	3	83	3
LOCAL MONEY MARKT SEC	160	20	332	30	542	35	489	24	319	13	418	10
FOREIGN MONEY MARKT SEC	26	3	17	2	18	1	7	0	1	0	5	0
OPEN/CLOSE-END FUND	5	1	9	1	6	0	9	0	11	0	11	0
REAL ESTATE PROPERTY	79	10	125	11	143	10	171	8	188	8	182	7
SUPRANATIONAL BOND	-	0	0	0	0	0	0	0	0	0	0	0
PRIVATE EQUITY BOND	4	0	7	1	6	0	8	0	10	0	13	0
INFRASTRUCTURE BOND	-	0	0	0	0	0	0	0	0	0	0	0
CASH AND OTHER ASSETS	18	2	19	2	28	2	14	1	23	1	34	1
TOTAL PENSION FUND ASSETS	**815**	**100**	**1099**	**100**	**1530**	**100**	**2030**	**100**	**2450**	**100**	**2739**	**100**

Source: Pension Annual Reports (2012)

The authorized trading markets under the Act and the investments guidelines issued by PenCom states that pension assets shall be invested in any of the following: Equities Pension Fund Assets may be invested in ordinary shares of public limited liability companies subject to a maximum portfolio limit of 25% of pension assets under management provided that such companies have made taxable profits in the preceding five years and have paid dividends of those taxable profits one of the preceding five years. However, the significant relationship between size of asset in a portfolio and its return matters. This is showcased in Fig 2.2 below:

Fig 2.2: Portfolio Analysis of Pension Fund in Nigeria



Source: Drawn with Data from Pension Annual Reports (2012)

Based on the portfolio analysis presented on the Fig 2.2 above, the diversification in the investment destinations of pension fund was evident in the years under review. Though dominated by investment in government securities, corporate debt securities and foreign ordinary share, the portfolio analysis established that preference for investment was based on the relationship between the size of asset and its returns.

3. LITERATURE REVIEW

Many studies abound in the literature that provided empirical evidence on the contributions of funded pension schemes. For instance, in an assessment of the impact of contributory pension scheme to Nigerian economic development by Edogbaya (2013), the result of correlation analysis using t-test revealed that Contributory Pension Scheme (CPS) has significant impact on the GDP while the result of ANOVA revealed that risk prevalent has positive effect on the pension fund management. The study recommended that the Pension Fund Administrators should invest in less risky portfolio to enhance prompt payment of pension to retirees. The findings of Chizueke et al, (2011) revealed that contributive pension scheme significantly affects workers commitment to work, retention and attitude towards retirement. The study recommended among others that strict measures be put in place by government to ensure the effective monitoring and implementation of the provisions of the 2004 Pension Reform Act.

Adeoti, et al, (2012) found that economic, risk and security of real estate factors were identified as the major determinants of pension fund investment and economic growth. The study concluded that variables such as

interest rate, internal control system etc., are not critical in determining investment of pension funds in Nigeria. The study also recommended that pension fund managers should develop good systems of mitigating on the enormous risks they face in their duty as investment managers.

A review of the promises and challenges of the 2004 pension reform in Nigeria by Ikeanyibe and Osadebe (2014) noted that a mandatory contributory pension scheme should be distinguished from poverty relief programme and universal social security benefits to avoid scheme overloading. Above all, the study opined that there is need for enlightenment directed towards the employees understanding their rights and demanding it from the employers as concerning private sector coverage. However, the study of Egbe, Awogbemi, and Osu (2013) about Portfolio Optimization of Pension Fund Contribution in Nigeria found that the Pen Com guided portfolio is not optimum. The findings of Ozokwere (2008) showed that the Pension Fund Administrators play their roles according to the dictates of 2004 Pension Reform Act. Such factors as finance, too many regulations and overlapping functions amongst others, affect them in playing their roles effectively and more so, those problems affecting the Pension Fund Administrators are rated as significantly high. In the light of this discovery, the study recommended the formulation of a robust policy that would enhance the capacities of the Pension Fund Administrators and boost economic growth and development.

Dagauda and Oyadiran, 2013 did an analysis of the impact of the 2004 pension policy on the welfare of the Nigerian civil servants, with emphasis on selected Federal ministries. From the analysis, findings that emerged clearly indicated that the implementation of the funded pension significantly improved the welfare of the civil servants but does not address the problem of corruption and inadequate budgetary allocation and therefore not effective in overcoming the problems of retirees in Nigeria. In view of the above findings, the study recommended among others that government and Pension Commission must strengthen monitoring and supervision unit of the commission to ensure effective monitoring, supervision, and enforcement; and effective implementation of penalties as provided by the Act on non-compliers regardless of their status in the society.

Ayegba (2013) did an evaluation of Pension Administration in Nigeria. The study advocated the need for public enlightenment on the merit of the new contributory pension scheme, the 2004 Pension Reform Act is key to enable Nigerians in Diaspora who may want to contribute to the retirement saving scheme to do so and the government should punish those who steal pensioners' funds to serve as deterrent to others. The study concluded that a well-organized structure that will ensure prompt payment of retirees and pensioners is highly desirable and this must be vigorously pursued by the government to facilitate economic development. The study recommended that the Nigerian government should encourage the option of having the banks where the salary accounts of employees are domiciled to make pension deductions on monthly basis possible and have it remitted to the Pension Fund Administrators.

The issues of influencing assessment of Pension Fund as a housing finance instrument in Nigeria was investigated by Farayibi (2015). The findings indicated that there is no significant difference in the challenges to real estate development. World over Pension Fund due to its long term nature and a booster of economic growth, has been recognized as a major source of housing finance. This made many developers in Nigeria to breadth relief after the Pension Fund reform of 2004 the study opined that in recent times, only a small sum apart from capital market investments is invested in real estate companies because the instruments prescribed for real estate investment for Pension Funds - Mortgage Backed Securities (MBS) and Real Estate Investment Trusts (REITs) are yet to be widely available in the market.

Portfolio Analysis of Pension Funds Investment in Nigeria was investigated by Ezugwu, and Itodo (2014). The findings showed that equity which had the highest percent in the portfolio also returned the highest value. The consistent increase in return over an increase in the weight of the asset classes in the portfolio suggested a direct relationship between size of asset in a portfolio and its return. The study recommended that Capital Market Operators should continuously scan the macro-economic environment and liaise with institutional investors, in order to develop investible products that will satisfy the risk-reward profile of institutional investors and improve economic growth. Also to increase in Investors' confidence; there was need for high corporate governance practices, market discipline and strict enforcement of rules in the capital market.

Gunu and Tsado, (2012) investigated the use of contributory pension system as a tool for economic growth in Nigeria. The study findings revealed that Pension Fund Investments in domestic quoted equities amounted to N240.38 billion (2.36% of total market capitalization) in 2007, 3.17% in 2008, 4.42% in 2009 and 4.53% in 2010, also the value of total Pension Fund Assets stood at N2,029 billion in 2010. The study concluded that CPS has begun to contribute to the increase in growth and development of not only the Nigerian capital market but the economy in general. The study also recommended that PenCom should encourage employers/ employees in the informal sector, nongovernmental organizations, and self-employed individuals to participate in the CPS in order to enhance mobilization of more savings.

However, despite these studies, there is still a gap in the empirical literature as regards studies that assess the overall effect of the operation of the Nigerian funded pension scheme on economic growth specifically since its inception in 2004. This is the focus of this study.

4. THEORETICAL FRAMEWORK AND METHODOLOGY

4.1 Theoretical Framework

From the theoretical view point, this study drew its bearing from the theory of pooling (Matheson, Jorge, Ramana & Anna, 2004), intermediation (Allen & Santomero, 1998), life cycle (Bailliu & Reisen, 1997) and role playing. Following Tijani (2002), these theories are adopted firstly, because most of the researches conducted using the theories are in developed economy, hence the adoption of the theories in Nigeria is very imperative. Secondly, the theories are adopted to see how the investment framework and management of the large volume of pension fund contribution and the indivisible assets such as property which are unavailable to small investors contribute to development. The theory of pooling for instance is adopted to verify whether the pension funds could compensate for the increased risk by pooling at a lower cost across assets whose returns are imperfectly correlated.

Also, the intermediation theory was adopted to enable the researcher establish whether the operation of pension funds is acting as agents of economic growth by strengthening the functions of financial systems more efficiently than the alternative such as banks and individual investors. Pension fund administrators are considered sustainable and growth oriented if and only if they are able to cover all their operating and financing costs from their own generated revenue, mainly through contributions. In adopting the life cycle theory, 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 theory also posits that the sources of pension fund administrator's financing are linked to their respective stages of development and thus, economic growth (Lapenu & Zeller, 2001 and Farington & Abrahams, 2002).

4.2 Model Specification

Following the theoretical framework and the extensive review of the new funded pension scheme, the interest in this sub-section is to attempt to model the impact of funded pension scheme on economic growth in Nigeria, taking the objectives and scope of our study into consideration. In order to achieve the objective of this analysis therefore, we include the volume of market capitalization and total pension fund asset in the final model. Taking a cue from Farayibi (2015), the function for examining how the Funded Pension Scheme has influenced the Nigerian economy since its introduction in 2004 is specified as:

$$RGDP = F(CPSPU, CPSPP, TCPS, MC, TPFA) \quad (4.1)$$

The regression form of the model specification is thus:

$$RGDP_t = \beta_0 + \beta_1 CPSPU_t + \beta_2 CPSPP_t + \beta_3 TCPS_t + \beta_4 MC_t + \beta_5 TPFA_t + \mu_t \quad (4.2)$$

$(\beta_1, \beta_2, \beta_3\ \beta_4, \beta_5 > 0)$

Where the dependent variable is RGDP and other variables on the right-hand side are independent variables.

RDGP = Real Gross Domestic Product.

CPSPU = Public Sector Pension Fund Contribution within the period.

CPSPP = Private Sector Pension Fund Contribution for the period.

TCPS = Total Pension Fund Contribution for both private and public sectors within the period.

MC = Market Capitalization.

TPFA = Total Pension Fund Asset for the period.

μ_t = Error term.

Theoretically, it is expected that pension fund contributions should have positive impact on RGDP because as the pension fund increases, it accrues to capital formation. Positive economic growth boosts propensity to save and encourages the working population to participate fully in the pension fund to safeguard their retirement. This is reflected in the increase in the volume of pension fund contributions for both the private and public sectors. Also, pension fund governance, proxy by total pension fund asset should positively contribute to economic growth as this increases capital adequacy and liquidity in the economy. The operation of funded pension scheme in Nigeria contribution to the capital and money markets as showcased by the volume of market capitalization as traded on the floor of the Nigerian stock exchange.

4. 3 Data Sources and Measurement

The quarterly time series data used for this study were obtained from various sources which include; PenCom Annual Reports (various issues from 2005-2014), Central Bank of Nigeria (CBN) Statistical Bulletin (2014) and Nigeria Stock Exchange (NSE) Database. The period covered spans from 2004 to 2014, which represents the time span of the implementation of the funded pension scheme in Nigeria. Specifically, data on contributory pension scheme for public sector (CPSPU), contributory pension scheme for private sector (CPSPP), total contributory pension scheme (TCPS) were sought from various issues of PenCom Annual Reports. Data on market capitalization (MC) were sought from Nigeria Stock Exchange (NSE) database. Data on real gross domestic product (RGDP) were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin (2014), while data on total pension fund asset (TPFA) were sourced from Annual reports of PenCom and Pension Fund Administrators for various years.

4.4 Estimation Procedure

To underscore the relationship under study, this project employed a time series estimation techniques. The study went further to engage in descriptive statistics of variables with the aim of determining the mean, median, maximum, and minimum value for each of the variables under consideration. Also, in the determination of the stationarity of the variables; traditional Augmented Dickey-Fuller and Phillips-Perron unit-root tests were employed. More so, we employed the use of error correction model (ECM) and

Johansen co-integration to capture both short-run dynamic and speed of adjustment, as well as long-run dynamics respectively.

5. RESULTS AND DISCUSSION

5.1 Descriptive statistics

Table 5.1 below shows the summary statistics of the variables drawn for the study. Deviations of variables used in the estimation did not show much variation. The results further revealed that the average CPSPP over the period was about 101.02b, with a maximum of 225.42b and minimum 23b respectively. The average CPSPU over the period was about 153.11b, with a maximum of 331.14b and minimum 15.60b respectively. The RGDP averaged 27756.61m with a maximum of 41177.82m and minimum of 11673.60m. The TCPS averaged 255.09b over the study period with a maximum of 505.57b and minimum of 15.60b. The MC was at the average of 6020.84b and it fluctuated between the upper limit of 10180.30b and a lower limit of 1926b. Also, the average TPFA during the period stood at 1899.57b, with a maximum of 4611.30b and minimum of 690m.

Table 5. 1: Summary Statistics of Data

	CPSPP	CPSPU	MC	RGDP	TCPS	TPFA
Mean	101.0200	153.1082	6020.836	27756.61	254.0936	1899.565
Median	91.21000	137.1000	6532.600	25236.06	228.3100	1529.630
Maximum	225.4200	331.1400	10180.30	41177.82	505.5700	4611.300
Minimum	23.00000	15.60000	1926.000	11673.60	15.60000	0.690000
Std. Dev.	80.46837	111.2250	2437.441	10624.31	188.9198	1856.957
Sum	1111.220	1684.190	66229.20	305322.7	2795.030	20895.21
Sum Sq. Dev.	64751.59	123710.0	59411203	1.13E+09	356907.0	34482900
Observations	11	11	11	11	11	11

Source: Author's computation

Note: *CPSPP, CPSPU, MC, RGDP, TCPS and TPFA denotes contributory pension scheme to private sector, public sector pension contribution, market capitalization, real gross domestic product, total pension fund contribution for both private and public sectors, and total pension fund assets respectively.*

5.2 Unit Root Test Results

Prior to the estimation of the empirical models, the unique characteristics of the data have to be examined. Testing the stationarity of economic time series is important since standard econometric methodologies assume stationarity in the time series while in the real sense they may not be stationary. Hence the usual statistical tests are likely to be inappropriate and the inferences drawn are likely to be erroneous and misleading. The study employed the augmented Dickey-Fuller (ADF) and Philip-Peron (PP) techniques which are based on the McKinnon critical values. The unit root tests results for stationarity for ADF and PP at levels and at first difference are presented in tables 3 and 4 respectively below;

Table 5.2: Unit Root Tests Results for Stationarity: ADF and PP at levels

Variables	ADF		PP		Order of Integration
	Intercept	Intercept and trend	Intercept	Intercept and Trend	
RGDP	-3.206318 0.0539	-1.006387 0.08838	-2.498195 0.1435	-1.373909 0.8020	Non-stationary
CPSPU	-2.444146 0.1571	0.634490 0.9969	-4.805649 0.0049	-1.139844 0.8641	Non-stationary
CPSPP	-2.179188 0.2232	-22.68387 0.0001	-4.950753 0.0040	-1.283508 0.8280	Non-stationary
TCPS	-4.618345 0.0063	-1.548069 0.7398	-14.03670 0.0000	-2.764266 0.2400	Non-stationary
MC	-2635720 0.1179	-1.972088 0.5461	-4.965355 0.0038	-2.323513 0.3875	Non-stationary
TPFA	-1.085277 0.6759	-1.326687 0.8155	-1.041713 0.6927	-1.468846 0.7697	Non-stationary

Note: significance at 1% Level and * at 5% Level. Figures within parenthesis indicate p-values.
MacKinnon (1991) critical value for rejection of hypothesis of unit root applied.
Source: Author's estimation using E-views 7.2

Table 5.3: Unit Root Test for Stationarity: ADF and PP at First Difference.

Variables	ADF		PP		Order of Integration
	Intercept	Intercept and trend	Intercept	Intercept and Trend	
RGDP	-3.408352 0.0405	-5.640669 0.0088	-3.448188 0.0383	-13.35674 0.0001	I~I(1)
CPSPU	-0.156816 0.9083	-5.890440 0.0070	-3.742314 0.0254	-11.74814 0.0001	I~I(1)
CPSPP	-12.88579 0.00000	-8.450797 0.0012	-2.474197 0.1509	-3.927797 0.0023	I~I(1)
TCPS	-1.854383 0.3353	-3.188647 0.1494	-1.733163 0.3848	-3.969513 0.0594	I~I(1)
MC	-2.758532 0.1018	-3.212893 0.1446	-2.853443 0.0889	-4.828567 0.0017	I~I(1)
TPFA	-2.568203 0.1328	-2.592625 0.2925	-2.532440 0.1394	-3.612008 0.0001	I~I(1)

Note: significance at 1% Level and * at 5% Level. Figures within parenthesis indicate p-values.
MacKinnon (1991) critical value for rejection of hypothesis of unit root applied
Source: Author's estimation using E-views 7.2

The ADF and PP results in Tables 5.2 and 5.3 show that all the variables are non-stationary at their levels. However, with their first differences, they become stationary. That is, the real gross domestic product (RGDP), public sector contributory pension scheme (CPSPU), private sector contributory pension scheme (CPSPP), total pension fund contribution (TCPS), market capitalization (MC) and total pension fund assets (TPFA) becomes stationary as indicated by the ADF and PP values of each of these variables. Hence, integration of the variables occurred at order one [I (1)].

5.3 Cointegration Test Results

With the stationarity of each of the series achieved, the next step is to search for the cointegration between the variables. For this purpose cointegration tests were conducted by using the reduced rank procedure developed

by Johansen (1988) and Johansen and Juselius (1990). This method produces asymptotically optimal estimates since it incorporates a parametric correction for serial correlation. The nature of the estimator means that the estimates are robust to simultaneity bias, and it is robust to departure from normality (Johansen 1995). The cointegration test results are presented below:

Table 5.4 : Johansen Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.997736	429.1790	95.75366	0.0001
At most 1 *	0.917030	191.6450	69.81889	0.0000
At most 2 *	0.804345	94.56336	47.85613	0.0000
At most 3 *	0.348514	30.93859	29.79707	0.0368
At most 4	0.249878	14.22710	15.49471	0.0769
At most 5	0.074368	3.013863	3.841466	0.0826

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 5.5: Johansen Unrestricted Cointegration RankTest (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.997736	237.5340	40.07757	0.0001
At most 1 *	0.917030	97.08165	33.87687	0.0000
At most 2 *	0.804345	63.62477	27.58434	0.0000
At most 3	0.348514	16.71149	21.13162	0.1861
At most 4	0.249878	11.21324	14.26460	0.1439
At most 5	0.074368	3.013863	3.841466	0.0826

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The establishment of presence of cointegration among the variables avails us the opportunity to separate long-run equilibrium relationship from the short-run dynamics.

5.3 Long Run Effects of the New Funded Pension Scheme on Economic Growth.

Table 5.6 shows that the overall significance of the OLS regression results for the model shows that it is statistically significant at 1 percent level of significance. More so, about 96 percent of the total variation in real gross domestic product (RGDP) is explained by public sector contributory pension scheme (CPSPU), private sector contributory pension scheme (CPSPP), total contributory pension scheme (TCPS), market capitalization (MC) and total pension fund assets (TPFA). The model result tells us that RGDP has a positive and significant relationship with CPSPU, CPSPP and TPFA but negative and significant relationship with TCPS and MC. Thus a 1% increase in CSPU, CPSPP and TPFA will result into about 34%, 6% and 1% increases in RGDP respectively. This implies that increase in the volume of pension fund contributions when disaggregated leads to increase in real gross domestic product. This is because increase in the volume of investible fund increases the level of production and boosts the national output. However the negative relationship between TCPS and real gross domestic product (RGDP) reveals that when aggregated, pension fund contribution do not have statistically significant effect of growth because of some leakages in the economy. Also, the negative relationship between market capitalization (MC) implies that pension

contribution do not drive the capital market but rather foreign investment and investment from other sectors of the economy.

Table 5.6: OLS Regression Result.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.022454	1529.218	6.277626	0.0015
CPSPU	0.347714	7802.037	-2.395050	0.0620
CPSPP	0.065701	7789.397	-2.397507	0.0618*
TCPS	-0.007283	7799.269	2.395905	0.0619
MC	-0.110786	0.390999	4.438244	0.0068**
TPFA	0.001634	1.393956	2.726030	0.0415
R2 = 0.959989, Adjusted R2 = 0.979659, F-statistics = 97.32567, Durbin-Watson stat = 1.988997				

***, ** denotes 5% and 10% level of significance respectively**
Source: Author's computation using E-Views 7.2

The R^2 of 0.9599 indicates that about 96% of total variation in the dependent variable (RGDP) is accounted for by the explanatory variables (i.e. CPSPU, CPSPP, TCPS, MC and TPFA). This result remains robust even after adjusting for the degrees of freedom (d.f.) as indicated by the value of adjusted R^2, which is 0.979659 (i.e. ≈ 98%). Thus, the regression has a good fit. The F-statistic, which is a test of explanatory power of the model is 97.32 with the corresponding probability value of 0.0001, is statistically significant at 1%. Therefore, this implies that the explanatory variables (CPSPU, CPSPP, TCPS, MC and TPFA) have joint significant effect on the economic growth of Nigeria using RGDP as a proxy. The Durbin-Watson statistic of 1.9889 indicates we can completely rule out autocorrelation.

5.4 Parsimonious ECM Results

The result of parsimonious error correction model is reported in Table 5.7. The result was gotten by deleting the insignificant variables from the over-parameterized ECM. The Akaike Information criterion, Schwarz criterion and log-likelihood were used to select the appropriate lag-length. The parsimonious result indicates that some of the variables are significant at their levels or current values, while others were significant at their lags. The current value of MC and lagged value of TPFA rate are statistically significant in explaining the behaviour of economic growth in Nigeria, particularly during the period under consideration. This is an indication that economic growth in Nigeria is not only influenced by current economic environment, but also predicated upon its past behaviour.

The lagged value of RGDP is positive and but not statistically significant. The result indicates that during the period under consideration, RGDP was not influenced by its past values. The coefficients of public and private sector pension contribution at their current values are neither correctly signed nor statistically significant. MC, CPSPP and TPFA at their lags do not have the correct sign and are not statistically significant. The coefficient of TCPS has the correct sign but not statistically significant.

In line with expectation, the error correction term (ECM_1) has a negative sign and is statistically significant. The absolute value of the error correction term (ECM) indicates that the variables adjust very fast towards their long-run equilibrium position. Specifically, the coefficient of the error correction terms carries the correct sign (negative) and is statistically significant at 1% with t-statistics of -2.6156 and its corresponding probability value of 0.0001. The speed of adjustment of economic parameters to equilibrium is approximately 38.1% to real gross domestic product growth rate in the short run. Hence, the ECM is able to correct about 38 percent of the deviations in the relationship between RGDP growth rate and the explanatory variables. The model is generally robust; this is shown by the value of the F-statistic which is statistically significant at 1%.

The model has a good statistical fit. The Durbin-Watson statistic, which is 2.09, suggests that the model does not suffer from first order autocorrelation.

Table 5.7: Summary of Parsimonious ECM.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	144.8722	235.6864	0.614682	0.5433
D(RGDP(-1))	0.171528	0.180448	0.950567	0.3492
D(CPSPU)	-59.91712	369.1978	-0.162290	0.8721
D(CPSPP)	-70.75641	367.8043	-0.192375	0.8487
D(CPSPP(-1))	-7.574994	20.61561	-0.367440	0.7158
D(TCPS)	63.80435	368.9577	0.172931	0.8638
D(MC)	0.985190	0.211347	4.661480	0.0001**
D(MC(-1))	-0.104960	0.250688	-0.418687	0.6783
D(TPFA)	4.415971	0.887273	4.977013	0.0000*
D(TPFA(-1))	-0.639389	1.115205	-0.573338	0.5706
ECM(-1)	-0.380945	0.145640	-2.615664	0.0001
R2 = 0.65, AIC= 17.26, SC= 17.72 , LL = -351.64, Prob. (F-statistics) = 0.00017, DW = 2.09				

***, ** denotes 5% and 1% level of significance respectively**
Source: Author's computation using E-Views 7.2

A key outcome of this study is the finding that funded pension scheme has a positive and statistically significant impact on the economic growth in Nigeria within the ten years of its introduction. This is in line with theoretical underpinning because it is believed that the operation of funded pension scheme in Nigeria should increase capital adequacy, liquidity in the economy and the volume of market capitalization as traded on the floor of the Nigerian stock exchange. Then if this transmission mechanism is sustained, it would generally lead to an increase in the nation's economic growth. This position is in line with the findings of other studies in the literature. For instance, the findings of Gunu and Tsado, (2012) revealed that Pension Fund Investments in domestic quoted equities amounted to N240.38 billion (2.36% of total market capitalization) in 2007, 3.17% in 2008, 4.42% in 2009 and 4.53% in 2010, also the value of total Pension Fund Assets stood at N2, 029 billion in 2010, and concluded that CPS has begun to contribute to the increase in growth and development of not only the Nigerian capital market but the economy in general. To corroborate this, Edogbaya (2013) found that Contributory Pension Scheme, under the auspices of Pension Fund Managers contributed immensely to Nigerian Economic Development. While the appraisal of Ozokwere (2008) and Egbe, Awogbemi & Osu (2013) about pension fund administrators in the management of the new contributory pension scheme attested that Portfolio Optimization of Pension Fund Contribution in Nigeria has greatly improved.

6.2 SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

This study has provided evidence on the effect of the operation of the funded pension scheme on economic growth in Nigeria using error correction mechanism (ECM) and Ordinary Least Square (OLS) methodology. It is clear from the analysis that increases in pension fund contributions from both private and public sectors in Nigeria positively affects economic growth. This implies that increases in pension contribution increases the pool of investible fund, which ensure capital adequacy for industrial takeoff and increase in national output. Although when disaggregated into sectors, the effect of the contributory pension fund on the economy had divergent impact. While CPSPU and CPSPP had a positive and significant effect on RGDP, their

aggregation had a negative and significant effect on the economy. This is probably due to private sector leakages and foreign direct investment as reveals in the negative and significant value of market capitalization within the period. Thus negative relationship exists among CPSPU, CPSPP, TPFA and RGDP whereas negative relationship existed between MC, TCPS and RGDP,

The study also reveals that the introduction and implementation of the funded pension scheme has had a tremendous impact the Nigerian economy as a whole. The sectoral pension fund contribution has constituted a huge investment of fund in the capital and money markets, thus creating employment opportunities as well as improving the investment climate. The regression results also reveals that both public sector and private sector pension contributions (whether in its aggregated or disaggregated form), total pension fund assets, and market capitalization have appreciable impacts on gross domestic product.

Undauntedly, the new contributory pension scheme has encouraged the release of un-invested fund and the channeling of excess liquidity into capital and money markets through instruments such as investment, bond, ordinary share, dividends etc. With good risk and portfolio management by pension fund administrators and custodians, the contributory pension has served in effective and efficient capacity in boosting the Gross Domestic Product (GDP) in Nigeria and very convenient to retirees compared to the previous defined benefit scheme. The following are the policy implications of the findings of the study:

- Adequate investment and management of the pool of fund contributed by employees and employers has immensely contributed to development of the economy.
- 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 the country (Nigeria).
- PenCom should ensure effective monitoring, supervision and enforcement of the provision of the PRA 2004, which are the inevitable ingredients in the Contributory Pension Scheme towards Gross Domestic Product (GDP).
- There should be prompt reconciliation between PFAs, PFCs and PENCOM and statements of accounts should be given to contributors regularly. This will bring transparency and accountability to the system.
- Professionals should be employed by PFAs to bring competence and professionalism to the investment of funds and risks and return thereon.

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