Pension fund, financial development and output growth in Nigeria

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Abstract

This study examines the indirect effect of pension fund on economic growth in Nigeria through the financial system. Using Autoregressive Distributive Lag (ARDL) model, the study found out that pension fund contribution is effective in stimulating growth through investment in portfolios that yield short term returns; this implies that pension fund contribution cannot on its own without a credible financial system impact on economic growth. The policy implication of this study is for Pension Fund Administrators (PFAs) to invest in portfolios with short-term returns; thus, a large chunk of funds invested in federal government securities should be unbundled to other portfolios that yield short-term returns.

Key words: Pension Funds, Financial Development, Economic Growth, Autoregressive Distributed Lag Model (ARDL)

JEL Classification: G23, G11

1. Introduction

International labour law makes provision for an employee who has rendered his services for a stipulated amount of time to be compensated immediately after retirement and, afterward, receive a sum on monthly basis till death. These are the concepts of gratuity and pensions respectively. The pension is a monthly benefit payable to a retiree until death, who has served the organization during his productive age and stopped service either due to an agreed period of service, age or disability. The payment of pension is both applicable largely to retirees of government-owned organizations as well as the privately owned organization. The pension paid serves as a source of income to the retiree immediately after service and can thus be used as a source of life sustenance.

Prior to the reform of the pension act in 2004, the money paid as a pension in Nigeria was usually a hundred percent funded by the organization (government or shareholders of private enterprises) thereby transferring zero burden to the workers. The pension scheme practiced in Nigeria up to this time took the fashion of the British system (Athley, 1980; Ubhenin, 2012) as introduced by the colonial government in 1951, called the Pensions Ordinance of 1951. This scheme provided a pension fund for African staff engaged by the government. Subsequently, the private sector followed suit by providing a pension scheme for their employees, notably the Nigerian Breweries Pension Scheme of 1954. Several amendments to the existing pension scheme were made, such as Pension Reform Act 102 and 103 of 1979 and the Nigeria Social Insurance Trust Fund of 1993 (Abdulazeez, 2015).

The old pension scheme in Nigeria was marred by poor funding as it was initially funded from budgetary allocation and as funds were released at the start of the fiscal year, it was usually not sufficient to finance the entire pensioners' liability. This led to frequent delays in payment of pensions or even outright denial of its payment; this was

peculiar to both the federal, state and local governments. The pension act was overhauled and reformed in 2004 and this was designed to ensure that both the worker and the employer contributes a certain fixed percentage that is reviewed thereafter to a pension fund administrator who will on behalf of the retiree, invest the fund and provide the funds cum returns upon retirement as a pension. The Pension Reform Act of 2004 ensures that the fund is made available for the pensioner as and when due. However, in 2014 the Act was amended by reviewing the penalties and then making the employer contribute 10% while the employee contributes 8%. Despite this innovation, the pension fund administrators (PFAs) face lots of challenges, among which is the limited array of investment opportunities. The pension fund portfolio is only limited to thirteen channels namely quoted ordinary shares, federal government securities, state government securities, corporate debt instruments, money market instruments, mutual fund, supranational bonds, private equity funds, infrastructure funds, real estate properties, foreign equities, foreign money market securities and cash & other assets (PenCom, 2017). These investment portfolios provide funds to the financial sector and have the tendency to affect financial development and thus growth.

The pension scheme also suffers from a low coverage in terms of participation as only 13.2% of the entire labour force was in the scheme as at first quarter, 2018 (PenCom, 2018; WDI, 2018). Scepticism about the credibility of pension fund administrators abound despite regulation; there also remains a large portion of workers in the informal sector who are excluded from the system and this spells untold hardship and poverty for them after retirement as they will likely have no funds to fall on. There is the mismanagement and allegations of embezzlement of pension funds in the public service. Moreover, there is even a large number of workers whose organizations are yet to remit their own share of the contributions (Akinkuotu et al., 2017, October 26). The pensions fund contribution

by the government and the private sector has experienced a considerable increase over the period. Figure 1 shows that in 2006, pensions fund contributed in the public sector was ?37.38 billion, 62.3% higher than private contribution and this grew till 2012 to a whopping ?302.24 billion, representing 89.5% higher than the private sector fund. This dwindled till 2015, declining by 33.8% of the 2012 all-time high level. However, it gained momentum in 2017, increasing to ?257.11 billion while the private sector pension contribution experienced its peak in 2015 of ?358.91 billion.
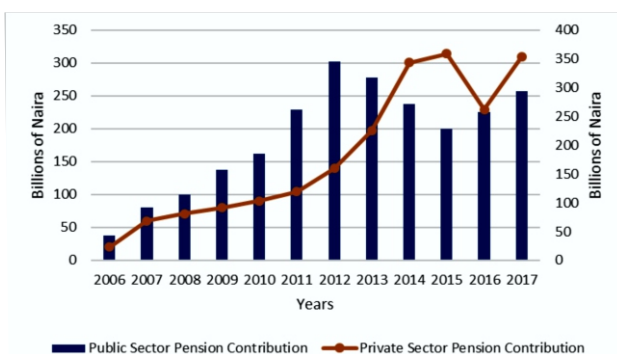
Figure 1: Public and Private Sector Contribution
Source: National Pension Commission 2017 Annual Report

Despite the fact that thirteen investment portfolios are available to pension funds, a large portion of these are restricted to federal government securities.
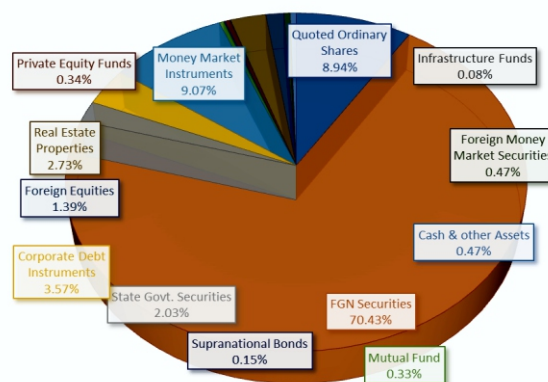
Figure 2: 2017 Pension Fund Portfolio
Source: National Pension Commission 2017 Annual Report

Figure 2 reveals that over 70.43% of the pension fund is invested in federal government securities while money market instruments attract only 9.07%; this is followed by quoted ordinary shares of 8.94% and the remaining ten investment portfolios hovered around 0.08% to 3.57%. The PFAs' overwhelmingly investment into the federal

government securities is because of the almost risk-free nature of such securities as the government in perpetuity and is thus under obligation to honour such securities irrespective of the administration in place.

Further implication drawn is that the pensions fund has largely been narrowed down to federal government securities and this has not given an opportunity for other productive sectors to benefit from the fund. It is also important to note that the pension fund investments which go into growth-enhancing sectors were a meager 20.17% and 3.68% for industrial and agricultural sectors, respectively (figure 3). This low investment levels limit the tendency of the fund to stimulate real growth.
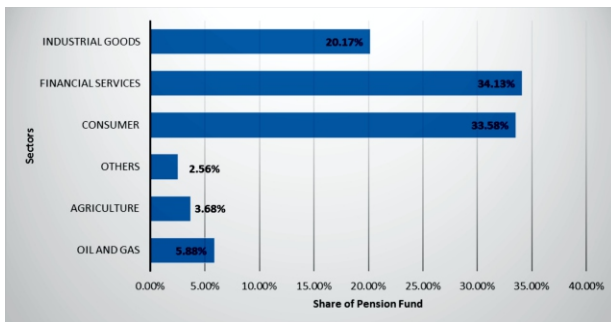

Figure 3: 2017 Pension Fund Sectoral Investments
Source: National Pension Commission 2017 Annual Report

The dwindling pension fund contribution, static investment channels of pension funds and narrow sectoral investments is alarming and thus raises important questions such as, does the pension fund have a significant effect on Nigeria's economic growth? And, does the pension fund increase the potency of financial system development to influence economic growth in Nigeria? The crux of this study, therefore, is to examine the impact of pension funds on economic growth in Nigeria and also investigate its effect on economic growth in Nigeria while interacting with the level of financial deepening. Several studies have examined the effect of pensions fund on economic growth (Farayibi, 2016; Gunu & Tsado, 2012) while others have examined how pension fund affects poverty level (Dagauda & Adeyinka, 2013; Ikeanyibe & Osadebe, 2014), however, few studies have examined how pension fund will actively interact with the level of financial deepening in affecting

growth. This study, amongst others, expands the frontier of knowledge by examining these objectives with reference to the Nigerian economy.

The study spans 2008 to 2018 second Quarter using data extracted from Central Bank of Nigeria's Statistical Bulletin for the third quarter, 2018 and the National Pension Commission 2017 Annual Report. The remaining part of this study is divided into five sections. Section two is the literature review while section three examines the theoretical framework, then section four focuses on research methodology. Section five presents the analysis of data. Section six summarizes and provides the policy implications.

2.   Review of Literature

Theories abound that provide a link between pension funds and economic growth. The life cycle theory of retirement provides the development stages in which pension fund administrators passes through; these are the start-up phase, the growth stage, and the maturity stage, these stages explain the development path through which pension fund administrators face. At the start-up stage, the ability of pension funds to impact on economic growth is very unlikely as the PFAs are still struggling to mobilize some pool of funds. At the the growth stage, pension funds become more effective in stimulating growth both for the pension fund administrators and the economy at large; this is because there is already substantial pool of funds which can be thus mobilized in form of credit to key priority sectors (Farayibi, 2016). The intermediation theory as developed by Diamond and Dybvig (1983) emphasizes that pension funds can effectively intermediate with the financial system to spur growth. Allen and Santomero (1998) propose that the traditional theory of financial intermediation is focused on the real-world market features of transactions costs and asymmetric information. These are central to the activity of banks, insurance firms and related financial institutions. Diamond and Dybvig (1983) suggests that

financial intermediaries act as delegated monitors to overcome asymmetric information, whereby diversification reduces monitoring costs. A corollary is that market finance is only available to borrowers with a reputation.

Several studies have examined the contribution of pension funds to economic growth in Nigeria, other developing countries and cross-country analysis. The findings of Kibet and Simiyu (2016) using content analysis revealed that pension fund played a major role in economic growth and economic development in Singapore but unfortunately performed below expectation in Kenya and thus, recommended that Kenya needed to expand the scope of pension fund contribution to cover every sector for it to have meaningful impact and achieve her vision 2030. This study failed to establish the link between pension funds and economic growth and development in Kenya. This paper extends the frontier of knowledge on the contribution of Dagauda and Adeyinka (2013); Chlon-Dominezak and Mora (2003) who used questionnaires and simple random technique to find that pension scheme in Nigeria improves the welfare of the citizenry only if the corruption cankerworm and poor budgetary allocation is eliminated to its barest minimum. This paper takes a new dimension by examining how another mediating factor - financial development - can play a significant role in causing pension funds to have a positive impact on economic growth.

Elechi, Kasie, and Chijindu (2017) investigated whether the Nigerian Pension scheme affected poverty reduction in the rural and urban poverty setting. Their findings revealed that the pension scheme had no contribution to poverty reduction. The reason for this result was likely the paucity of data as the sample size of 12 data points was not robust in providing a reliable result; this is the strong argument for this paper employing quarterly data of 44 data points in order to ensure that a reliable result was achieved after estimation.

This paper shifts focus and attention from

the works of Bijlsma, Ewijk, and Haaijen (2014) that examined how pension fund can have an impact on the performance of firms that depended heavily on external financing in OECD countries. The study found that pension savings had a significant effect on the performance of these firms. This paper, however, differs in terms of scope as it focuses on a developing country with a still fragile financial sector; furthermore, attention is on the whole economy and not on firms. Madukwe (2015) examined the effects of contributory pension scheme on the capital market in Nigeria from 2006 till 2012. The study concluded that the pension funds do not by any means have a significant impact on the capital market performance. This result was attributed to the global financial meltdown and economic crisis within that period.

Meng and Pfan (2010) focused their attention on identifying the effect of pension funds on developed economies and their results revealed, among others, that pension funds will only have a significant impact on capital market development for those countries with high financial development. This study re-focuses the attention of Meng and Pfan (2010) by examining the attendant consequences of pension funds on economic growth in a developing economy - Nigeria. Gunu and Tsado (2012) only employed descriptive statistics to determine the trend and pattern of pension funds and the components invested in the capital market. The findings suggested that pension funds were pro-cyclical with investments in the capital market; however, this approach was not sufficient to establish a cause and effect relationship. Also, Mesike and Ibiwoye (2012) examined the effect of pension schemes on the capital market without providing a link to the attendant consequences on growth; this study extends such frontier of knowledge by examining how pension fund can interact with financial development in spurring economic growth.

3.   Theoretical Framework

Following the financial intermediation theory, Diamond and Dybvig (1983); Allen

and Santomero (1998) proposes that the traditional theory of financial intermediation is focused on the real-world market features of transactions costs and asymmetric information. These are central to the activity of banks, insurance firms and other related financial institutions. Allocations of resources are not Pareto optimal and thus, there is a role for intermediaries to help in providing funds needed to stimulate growth.

Considering the Diamond and Dybvig (1983) model, the investors tend to be risk averse and are unsure about the timing of their future consumption needs. Without an intermediary such as the pension fund administrators and the pension funds contributed, all investors are locked into illiquid long-term investments that yield high payoffs only to those who consume late. Those who must consume early receive low payoffs because early consumption requires premature liquidation of the available long-term investments. Pension fund administrators can thus improve on a competitive market by providing better risk sharing among agents (future pensioners) who need to consume at different (random) times-retirement.

The crux of this theory is that the operation of pension funds act as agents to economic growth by empowering the functions of financial systems more efficiently in credit creation. The flow chat through which the pension fund can translate into growth through financial development is presented in figure 4. Pension fund takes up different investment portfolios such as investment in government (federal and state) securities, investment in money markets, real estate properties, infrastructure, foreign equities, and foreign money market securities and investment in private equities and mutual funds. The core sectors that investment in quoted ordinary shares of firms can take form are agriculture, industry, oil and gas, financial services and consumer goods. All these channels affect financial development which then leads to economic growth.
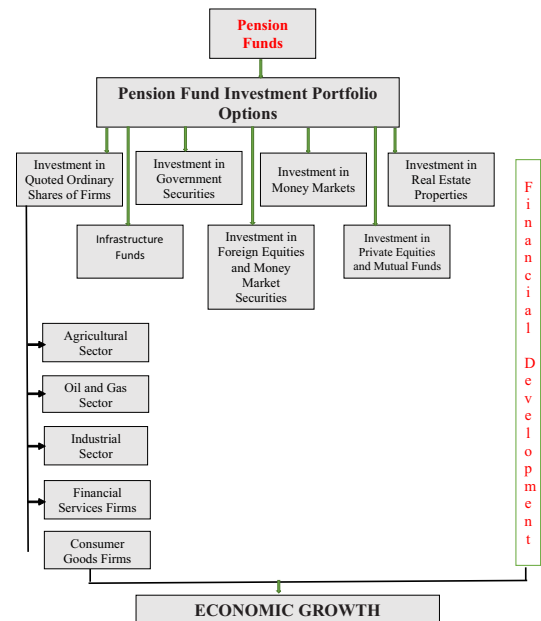

Figure 4: Pension Fund Transmission Mechanism
Source: Authors' Construct

4.   Research Methodology

This study follows the work of Farayibi (2016) as stated in equation (1).

$$RGDP_t = \beta_0 + \beta_1 PUPF_t + \beta_2 PRPF_t + \beta_3 MC_t + \mu_t \quad \text{(1)}$$

The variables of equation (1) are Real Gross Domestic Product (RGDP), Public Sector Pension Fund Contribution (PUPF), Private Sector Pension Fund Contribution (PRPF) and Market Capitalization (MC). Following the argument of the intermediation theory that pension fund creates credit and becomes effective through the financial development channel, equation (1) is thus modified so that the public and private sector pensions fund contribution is merged together; also, the new model includes financial development and the interaction between financial development and pension fund. The equation is then built to include the model without financial development (equation 2), a model having financial development (equation 3) and then the model with the interaction of financial development and pension fund (equation 4).

$$RGDP_t = \beta_0 + \beta_1 PFC_t + \beta_2 MC_t + \beta_3 EXCH_t + \beta_4 INF_t + \mu_t \quad \text{(2)}$$

$$RGDP_t = \alpha_0 + \alpha_1 PFC_t + \alpha_2 FD_t + \alpha_3 MC_t + \alpha_4 EXCH_t + \alpha_5 INF_t + \varepsilon_t \quad \text{(3)}$$

$$RGDP_t = \delta_0 + \delta_1 PFC_t + \delta_2 FD_t + \delta_3 FD_t * PFC_t + \delta_4 MC_t + \delta_5 EXCH_t + \delta_6 INF_t + \nu_t \quad \text{(4)}$$

The description, a priori expectations and sources of the data are in table i.

In order to estimate equations (2) to (4), the study uses autoregressive distributed lag (ARDL) model. The ARDL estimation technique estimates short-run and long-run components of the model. More so, it is very much applicable in estimating models that have a different order of integration of variables, I(0) and I(1) variables. When variables are found to be non-stationary at level, one option in order to get the short-run dynamics is to estimate the model by differencing the variables if these differences are stationary. However, this method will lead to a considerable loss of long-run properties of the data. Alternatively, economic variables may be combined together in levels provided that they are cointegrated. The issue of cointegration then applies when two or more series are integrated, but a linear combination of them is stationary at level I(0). In this case, the regression of one on the other is not spurious; instead, it tells us something about the long-run relationship between them (Wooldridge, 2004). The study uses the Kwiatkowski-Phillips-Schmidt-Shin test (KPSS) and Elliott-Rothenberg-Stock-ERSS (1996) unit root test techniques because they not only directly test the stationarity, but, most importantly, they are suitable for shorter time series (Arltova & Fedorova, 2016).

List of Tables

Table i: Measures, Sources and a priori Expectations of Variables

Variable	Definition	Measures	Apriori Expectation
$RGDP_t$	Real Gross Domestic Product at time t	Gross domestic product at 2010 constant basic prices (in billions of naira).	Dependent Variable
PFC_t	Pension Fund Contribution at time t	Amount in Naira	(+)
Mc_t	Market Capitalization at time t.	Amount in Naira	(+)
$EXCH_t$	Exchange Rate at time t.	Official rate of the naira to the dollar	(+)
FD_t	Financial Development at time t	A ratio of broad money supply to GDP	(+)
INF_t	Inflation rate at time t.	The rate of price change in the economy as a whole.	(+, -)

Data are all sourced from Third Quarter, CBN 2018 Statistical Bulletin

5. Presentation and Analysis of Result
Descriptive Statistics

Table ii: Descriptive Statistics

	EXCH	FD	INF (%)	MC	PFC	RGDP
Mean	187.2877	0.949308	11.92619	9.48 trillion	2.72 trillion	16.2 trillion
Median	159.3854	0.936847	11.95948	9.46 trillion	2.55 trillion	16.1 trillion
Maximum	305.9474	1.501038	18.45093	15.5 trillion	6.20 trillion	21.1 trillion
Minimum	117.3387	0.441282	7.822323	4.86 trillion	0.19 trillion	12.6 trillion
Std. Dev.	61.36795	0.290289	3.056825	2.78 trillion	1.71 trillion	1.89 trillion
Jarque-Bera	9.947666	0.808877	2.260672	1.662221	1.940991	1.059901
Probability	0.006917	0.667352	0.322925	0.435565	0.378895	0.588634
Observations	42	42	42	42	42	42

Source: Author's Computation

From table ii, it can be seen that the mean pension fund contributions received for the period under study (2008: Q1 to 2018: Q2) was ?2.72 trillion; it considerably increased over the period from a minimum of ?0.19 trillion to extent maximum of ?6.20 trillion. Moreover, real output on average was ?16.2 trillion while it ranged between ?12.6 trillion and ?21.1 trillion. Inflation throughout the period rallied between 7.8% and 18.5% and on average maintained 11.9%. The Jarque-Bera statistics tested for the null hypothesis of normality against the alternative of the distribution not being normally distributed. It is better interpreted by considering the probability value and it can be concluded that only the exchange rate was not normally distributed as its probability of 0% led to the rejection of the null of normality. However, the statistic fails to reject the null hypothesis of normal distribution for financial development, inflation rate, market capitalization, pension fund contributions and real output as their probability values were all greater than the 5% level of significance.

Table iii: Correlation Test Result

	EXCH	FD	INF	MC	PFC	RGDP
EXCH	1.00	0.83	0.57	0.41	0.79	0.26
FD		1.00	0.27	0.51	0.75	-0.04
INF			1.00	-0.30	0.23	0.08
MC				1.00	0.63	0.18
PFC					1.00	0.20
RGDP						1.00

Source: Author's Computation

It was important that the relationship between the explanatory variables were examined to ensure that there was no

perfect or near-perfect relationship between them. Table iii revealed no perfect multicollinearity between these variables (exchange rate, pension fund contribution, inflation rate, financial development, and market capitalization) as no set of correlations was greater than 0.9. Indeed, the highest was 0.79 between PFC and EXCH. It was, therefore, safe to proceed with estimation of the model.

Table iv: *Unit Root Test Result*

Variable	Method						Order
	ERSS (1996) Null Hyp: Series has a unit root			KPSS (1992) Null Hyp: Series is Stationary			
	5% C.V	Statistic At I(0)	Statistic At I(1)	5% C.V	Statistic At I(0)	Statistic At I(1)	
EXCH	2.97	41.22374*	-	0.463	0.652578*	0.168068	I(1)
FD	2.97	241.8538*	-	0.463	0.782142*	0.215076	I(1)
INF	2.97	2.272336	3.501194*	0.463	0.153411		I(1)
MC	2.97	8.726130*	-	0.463	0.456340	-	I(0)
PFC	2.97	270.7 308*	-	0.463	0.755420*	0.457163	I(1)
RGDP	2.97	2.412027	11.22977*	0.463	0.361167	-	I(1)

* Implies Statistically significant at 5%; C.V. implies Critical Value
Source: Author's Computation

However, before estimating the model, it is important that the study examines the stationarity of the variables employed; this will help to ensure that the regression estimated will not be spurious. To test for stationarity, the study employed the Elliott-Rothenberg-Stock-ERSS (1996) unit root test technique and the Kwiatkowski-Phillips-Schmidt-Shin test (KPSS) test technique. The ERSS unit root technique follows the null hypothesis that the series has a unit root against the alternative hypothesis of stationary values while the KPSS technique follows the null hypothesis that series are stationary against the alternative hypothesis of series being a unit root process. The results, from table iv, revealed that of the six variables employed, only market capitalization was stationary at level following the ERSS and the KPSS method. Other variables such as exchange rate, financial development, and pension fund were stationary at levels using ERSS method but not stationary using the KPSS method while the inflation rate was stationary at level using KPSS method but not stationary at level using ERSS method. By and large, the two methods were employed to ensure the robustness of the unit root test procedure and thus it was concluded that only market capitalization was stationary at level while others were integrated of order one.

Table V: Autoregressive Distributed Lag Model Cointegration Bound Test

Critical Value	I(0) Bound	I(1) Bound	Model 1 F - Stat	Model 1 F -Stat	Model 1 F -Stat	D.F
At 5%	2.86	4.01	6.959711			4
At 5%	2.62	3.79		4.226094		5
At 5%	2.45	3.61			4.051877	6

Source: Author's Computation

Having verified that the variables from table iv are stationary at level and also integrated of order one, it was required, as demonstrated by Pesaran, Shin and Smith (2001), that the Autoregressive Distributed Lag Model (ARDL) bound test be employed in investigating the cointegration of models for variables that are integrated at different orders. This assertion prompted this study to investigate the bound cointegrating test for the three models specified in the preceding section. In interpreting table v results, the study followed the recommendation of Pesaran et. al. (2001) that if the ARDL F-statistic is lower than the I(0) lower bound critical value, the model is concluded to be cointegrated at level. However, if the ARDL bound F-statistic is greater than the upper bound of I(1), the model is concluded to be co-integrated at first difference and if the ARDL bound F-statistic falls in between the I(0) and the I(1), the result is inclusive. Following this argument, it can, therefore, be concluded from table v that the three models are cointegrated and stationary at first difference. With this conclusion, the appropriate method to employ is the Autoregressive Distributed Lag Model (ARDL) estimation technique as presented in table vi.

Table vi: Autoregressive Distributed Lag Result
Dependent Variable: Real Gross Domestic Product (RGDP)

Variable	Model								
	Pension Fund and Growth			Pension Fund, Financial Development, and Growth			Pension Fund interacting with Financial Development and Growth		
	Coefficient	t-stat	Prob	Coefficient	t-stat	Prob	Coefficient	t-stat	Prob
	Short Run								
ΔLOG(PFC)$_t$	0.438420**	-5.17	0.0000	-0.202551**	-3.225	0.0030	-0.363600**	-8.874	0.0000
ΔLOG(MC)$_t$	0.047652	0.72	0.4792	0.041836	0.981	0.3342	-0.008446	-0.304	0.7632
Δ(EXCH)$_t$	0.002003**	3.13	0.0037	0.001528**	2.817	0.0084	0.000535	1.486	0.1480
Δ(INF)$_t$	0.002377	0.24	0.8097	0.005001	0.798	0.4308	0.007754*	2.216	0.0347
Δ(FD)$_t$	-	-	-	-0.739157**	-7.188	0.0000	-14.27935**	-8.547	0.0000
Δ(FD*PFC)$_t$	-	-	-	-	-	-	0.468589**	8.116	0.0000
LG(RGDP)$_{t-1}$	0.359840**	2.78	0.0089	0.655684**	5.52	0.0000	0.774708**	8.164	0.0000
CointEq$_{t-1}$	-0.64016**	-4.95	0.0000	-0.344316**	-2.899	0.0068	-0.225292*	-2.374	0.0244
	Long Run								
LOG(PFC)$_t$	-0.20115**	-3.74	0.0007	-0.082561	-0.741	0.4644	-0.216499	-1.755	0.0899
LOG(MC)$_t$	0.074438	0.69	0.4980	0.121504	0.923	0.3633	-0.037491	-0.314	0.7555
EXCH$_t$	0.003129**	3.46	0.0015	0.004437**	3.696	0.0008	0.002376	1.355	0.1860
INF$_t$	-0.034634*	-2.49	0.0178	-0.038928*	-2.222	0.0337	-0.030756	-1.702	0.0994
FD$_t$	-	-	-	-0.633440	-1.733	0.0930	-14.520523	-1.985	0.0567
FD*PFC$_t$	-	-	-	-	-	-	0.472922	1.868	0.0719
C	33.766830*	10.43	0.0000	29.450397**	6.107	0.0000	38.637610**	6.794	0.0000
	Result Properties								
R^2	0.628			0.863			0.969		
Adj. R^2	0.549			0.823			0.945		
F-Stat	7.953**			21.638**			63.694**		
D.W.	2.180			2.056			1.732		
Ramsey RESET F-stat	0.745 (0.3945)			0.764 (0.3889)			0.695 (0.4114)		
Glejser F-stat	1.837 (0.1130)			0.639 (0.4214)			0.772 (0.6642)		
B.G. Higher Serial F-stat	1.015 (0.3138)			0.048 (0.8289)			0.711 (0.5002)		
J-B Stat	0.716			0.588			2.921		

and ** imply statistically significant at 5% and 1%
Source: Author's Computation

From table vi, the results indicated that

pension fund growth had a negative impact on economic growth both in the short-run and in the long run although they are statistically significant at 1%. The implication of this result is that pension fund contribution cannot have a direct impact on economic growth as their impact factors were -0.438 and -0.201 in the short- and long-run, respectively. The results also suggested that without financial development, the exchange rate had a significant and positive impact on economic growth while market capitalization had a positive impact on growth but was statistically insignificant in the short-run and the long-run.

Adjusting the model by including financial development, the results do not change much with respect to pension fund. The results maintained that pension fund contribution had a negative impact on economic growth both in the short-run and in the long-run, although this was statistically significant in the short-run but not in the long-run. However, his negative impact factor declined with the introduction of financial development. Introducing financial development did not change the impact of market capitalization on economic growth both in the short- run and he long-run. The results also revealed that financial development on its own had a negative and significant impact on economic growth both in the short-run and in the long-run.

Modifying the model by interacting pension fund contribution and financial development presented a different result than the previous two models. The pension fund contribution interacting with financial development had a positive impact on economic growth both in the short-run and in the long-run. This was statistically significant at 1% in the short-run but statistically insignificant at 5% in the long-run. The results showed that pension fund contribution can have an effect on economic growth through financial development. Pension fund contribution leads to better performance of the financial sector in the investment process, which will contribute to a higher economic growth rate. The result further showed that pension fund does not directly spur economic growth but

indirectly emits positive effect on economic growth through a well-developed financial system. This, however, is effective in the short-run, implying that pension fund contribution is effective in stimulating growth through investment in portfolios that yield short term returns. The absence of interaction with financial development explains why Nwanne (2015) and Kibet and Simiyu (2016) found a negative impact of pension funds contribution to economic growth. It strengthens the argument that pension fund contribution is effective in investment in portfolios that yield short term returns. It was also noted that the effect of financial development on economic growth did not change significantly with the introduction of the interaction variable.

On the post-diagnostic analysis, the results suggested that the variations in the dependent variable ere well explained by the variations in the independent variable for the three models as 62.8%, 86.3% and 96.9% were explained for the first, second and third models, respectively. The results also showed that the model best fits the regression line as the F-statistics was statistically significant at 1% for the three equations. Also, from table iv, there was no serial correlation of Autoregressive of order one AR(1) associated with the regression result for the three models using Durbin-Watson statistics as they are all approximately 2. It was also important to subject the models to serial correlation test of higher order and this was examined by using the B.G. test. The B.G. test failed to reject the null hypothesis of no serial correlation of higher order associated with the regression result. Following this argument, it can, therefore, be concluded that there was no serial correlation of higher order associated with the regression results. The model is further subjected to heteroscedasticity test using the Glejser test that assumes the null hypothesis of homoscedasticity. It failed to reject the null hypothesis of homoscedasticity, meaning that the result was free from heteroscedasticity majorly associated with time series analysis. The results also

showed that errors likely to occur in between the short-run and the long-run were corrected for the three models and the speed of adjustment for such errors were 64.02%, 34.43% and 22.53% for models 1, 2 and 3, respectively.

6.   Conclusion and Policy Implication

This study examined the effect of pension fund contribution on economic growth through the financial system. The results led to the conclusion that pension fund contribution cannot, on its own, without a credible financial system, impact economic growth. Moreover, the current level of financial development was not growth-enhancing. However, the study further concluded that pension fund contribution was effective in stimulating growth through investment in portfolios that yielded short term returns.   In other words, a well-developed financial system would enhance the pension fund contributions to economic growth.

In view of these, pension fund administrators should invest the funds contributed in portfolio investments that have short-term returns. This implies that 70.43% of the pension fund contribution invested in federal government securities can be unbundled to other investment portfolios such as money market instruments that will yield short-term returns. This paper can also serve to guide newly-incorporated pension fund administrators such as the Nigerian University Pension Management Company (NUPEMCO) on the type of portfolio that funds can be invested in, so as to yield maximum growth impact on the economy. The government, at its best, also needs to ensure close supervision to ensure that the funds contributed as pension is effectively invested and returns made to the potential pensioner's accounts.

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