

Effect of Pension Industry Investments on Financial Intermediation in Nigeria**Okparaka Vincent C. (Ph.D)¹, Agbaji Benjamin Chukwuma (Ph.D)²**¹Department of Insurance, Faculty of Management Sciences, Enugu State University of Science and Technology, Enugu, Enugu State, Nigeria²Department of Insurance and Risk Management, Faculty of Management Sciences, Enugu State University of Science and Technology (ESUT), Enugu, Enugu State Nigeria***Corresponding author***Okparaka Vincent C***Article History***Received: 10.11.2018**Accepted: 23.11.2018**Published: 30.11.2018*

Abstract: This paper examined the effect of pension industry investment on financial intermediation in Nigeria. The study used Ex-post facto research design. Its specific objectives were to examine the effect of Pension fund investment in Federal government bonds, Pension fund investment in State government bonds and Pension fund investment in Private sector bonds on financial intermediation in Nigeria. Ordinary Least Square regression was used as analysis technique. It was found that Pension fund investment in Federal government bonds has positive and no significant effect on financial intermediation in Nigeria; Pension fund investment in State government bonds has negative and no significant effect on financial intermediation in Nigeria; and Pension fund investment in Private sector bonds has positive and no significant effect on financial intermediation in Nigeria. This implies that a unit change in pension fund investment do not lead to significant increase in financial intermediation. Based on the findings of the study it was concluded that pension industry investments have insignificant effect on depth and liquidity of financial intermediation in Nigeria. It was recommended that the pension industry should spread its investments beyond financial instruments in order to widen its investments portfolio and aid a larger sphere of the economy with its intermediation.

Keywords: Pension industry, Investments, Financial intermediation, Nigeria.

INTRODUCTION

The Organization for Economic, Corporation and Development [1] identified the pension industry as a credible source of continuous supply of long-term funds. OECD [1] observed that institutional investors, in particular pension funds, mutual funds and insurance have enhanced their role as collectors of savings over the past few decades. It went on to conclude that this trend is likely to continue as retirement saving grows and the increased pension saving will augment the size of capital markets. The contribution of pension fund to the economic advancement, growth, and development of any economy cannot be overstressed as global indices indicate that pension assets are playing an important role in mobilizing savings for investment in the critical sectors [2]. Pension funds contribute directly and indirectly to the economic prosperity of nations globally [3]. Since early withdrawal of funds is usually restricted or forbidden in most countries pension schemes, pension funds have long term liabilities, allowing holding of high risk and high return instruments [4]. Accordingly, monies are intermediated by pension funds into a variety of financial assets, which include corporate equities, government bonds, real estate, corporate debt (in the form of loans or bonds), securitised loans, foreign holdings of the

instruments mentioned above and money market instruments and deposits as forms of liquidity.

The introduction of funded pension systems allows pension funds to accumulate assets that can be invested in financial markets. Even in the case that pension savings crowd out other household savings such that the total savings in the economy do not increase, the accumulation of pension fund assets potentially promote depth and liquidity (for instance in the capital markets) because of the different investment behavior between households and pension funds. With accumulating assets and the longer-term nature of their liabilities, pension funds have incentives to invest more in illiquid and long-term assets that yield higher returns, and thus provide a long-term supply of funds to the capital markets [5]. Thus the pension industry is involved in financial intermediation.

Financial intermediation in Nigeria dates back to the evolution of money as a means of the exchange of goods and services. There have always been some people who possess money in excess of their immediate needs -surplus economic unit and those whose present money cannot finance their needs -deficit economic unit [6]. Initially lenders (surplus unit) and borrowers

(deficit unit) had to search for themselves and deal directly; this is known as direct financing. At this time, there were no financial intermediaries to aid in the process of transferring money from the surplus unit to the deficit unit. As the Nigerian economy grew and the needs of the deficit unit expanded, the direct financing system was not adequate enough to handle it. Financial intermediaries came in to fill the gap. Financial intermediation uses either markets (like the stock market) or institutions (like a bank, insurance, pension) to channel savings into investment.

Channarith and Wade [7] observed that pension fund assets are growing rapidly and are increasingly providing a source of investment funds to their domestic financial markets. In Nigeria the value of investment of Retiree Funds' assets in quoted ordinary shares was N2.10 billion, accounting for less than 1% of total portfolio value. This was a reduction of N420 million from N2.52 billion as at 31 December 2015. Investment in ordinary shares of the Financial Sub-Sector accounted for 58% of equity investments, more than 44% in 2015 mainly due to market valuation. Other significant sectoral investments were in Consumer Goods (23%); Oil & Gas (8%); and Industrial Goods (8%). As at 31 December 2016, investments in Federal Government Securities (bonds and treasury bills) were valued at N306.82 billion and accounted for 78% of total RSA Retiree Funds, compared to N306.71Billion (73%) in 2015. Investment in Treasury Bills (TBs) amounted to N47.54 billion, which was an increase of N19.64 billion over N27.90 billion recorded in 2015. The value of investments in State Government Bonds reduced by N2.61 billion (12.73%) from N20.51 billion in 2015 to N17.90 billion as at 31 December 2016. The reduced value was partly as a result of the maturity and full redemption of bonds issued by Imo State. investment in the bonds issued by Lagos State was the highest, with market value of N11.13 billion, which is equivalent to 62.21% of the value of total investments in State Government Bonds by Retiree Funds. Investments in Corporate Debt Securities were valued at N36.45 billion as at 31 December 2016, that is, 8% of total portfolio value and a growth in value of 54% above N23.67 billion as at 31/December 2015.

It is seen that the pension industry has been making investments that affect the domestic financial markets. In this capacity the pension industry carries out the role of financial intermediary. Yet empirical considerations have not established the extent to which the pension industry, through its investments has affected financial intermediation in Nigeria. It is on this premise that this study was conducted.

Objective of the Study

The broad objective of this study is to examine the effect of Pension fund investment on financial

intermediation in Nigeria. The specific objectives of the study are:

- To examine the effect of Pension fund investment in Federal government bonds on financial intermediation in Nigeria
- To assess the effect of Pension fund investment in State government bonds on financial intermediation in Nigeria
- To assess the effect of Pension fund investment in Private sector bonds on financial intermediation in Nigeria

Research Hypotheses

The following null hypotheses were formulated for this study:

H₀1: Pension fund investment in Federal government bonds has no positive and significant effect on financial intermediation in Nigeria

H₀2: Pension fund investment in State government bonds has no positive and significant effect on financial intermediation in Nigeria

H₀3: Pension fund investment in Private sector bonds has no positive and significant effect on financial intermediation in Nigeria

Pension industry as financial intermediaries

First, they indirectly affect the "clearing and settlement of payments" in an economy for bringing in efficiency in the overall financial system in general and securities markets in particular as they are often counted among the largest institutional investors in capital markets [8]. Second, they provide for "a mechanism for pooling of funds and subdivision of shares" as by collecting contribution from thousands and millions of depositors, pension funds are performing exactly that function. Third, pension funds have "ways of transferring economic resources" across time, as they eventually deal with different phases of lives of members, and space, as they assist members by diversifying to include international securities in their portfolios. Fourth, they demonstrate "ways and means to manage uncertainty and control risk" by providing insured retirement income to households and also by diversifying while making investment decisions. Fifth, pension funds assist in "providing price information" by requiring companies to adhere to strict disclosure norms. Lastly, pension funds also "provide ways to deal with incentive problems" by having an edge over individual investors due to voting rights and professional competence. As pension funds meet all the criteria put forth by Merton and Bodie [9], they should be rightfully recognized as financial intermediaries.

Pension funds, however, possess unique characteristics and need to be considered separately from other recognized intermediaries such as banks and insurance companies. There are many aspects that are distinctive to intermediation by pension funds in an economy. As happens in case of other forms of intermediation, pension funds also collect their funds

from households, but they have historically been less regulated than the traditional intermediaries such as banks (that specialised in short term lending), insurance companies, or thrift institutions (that catered to home loans) and hence could invest more aggressively in stocks and could lend not only to satisfy short term needs of corporates by subscribing to their commercial papers but also invest in long term projects as they could hold long -maturity funds [10].

Another aspect of pension funds is long term horizon and very stringent terms and conditions regarding premature withdrawal. This aspect of 'extent of certainty' about non-withdrawal of funds has significant repercussion regarding the kind of investment avenues that could be explored and also regarding how asset-liability matching should be reached at. Banks, the most well-known financial intermediaries, have to be content with withdrawal by a depositor at his whims and fancy- in fact their term deposits could also be broken easily. On the other hand, banks cannot demand back their disbursed loans as and when they need the money back. This dichotomy in their operations keeps banks busy in money markets while trying to meet various prudential norms. Pension funds hardly have to worry on these counts. Once money flows into their coffers, they are assured that it will flow out only at a certain future point of time unless or until some very stringent conditions/eventualities (such as death of a subscriber) occur/take place. This gives the pension funds a great leeway in choosing their investments, but then this is why the subscribers expect much better returns from their pension fund managers than from their bankers.

Theoretical Framework

The theoretical framework for the study is the Harrod- Domar growth theory. Todaro and Smith [11] revealed that one of the strategies of development necessary for any takeoff was the mobilization of domestic savings in order to generate sufficient investment to accelerate economic growth. This assertion was supported by Harrod-Domar growth model which stated that in every economy the savings ratio (s) and the capital coefficient (k) are regarded as critical factors for capital accumulation and growth assuming that all saving is used to finance fixed investment.

The rate of growth of the real stock of fixed capital (K) is:

$$\frac{\Delta K}{K} = \frac{\frac{\Delta K}{Y}}{\frac{K}{Y}} = \frac{s}{k}$$

Where, Y is the real national income. If the capital-output ratio or capital coefficient (k = K/Y) is constant, the rate of growth of Y is equal to the rate of growth of

K. This is determined by s (the ratio of net fixed investment or saving to Y) and k.

Empirical Review

Micah and Obah [12] investigated the relationship between pension fund administration and infrastructure financing in Nigeria. Findings from the study show that there is Relationship between Retirement Pension Account and Return on Economic and Social Infrastructural Financing; also the study found that there is a significant Relationship between Superannuation Pension Account and Economic and social Infrastructural Financing in Nigeria. With the pool of pension funds, investment in infrastructure projects will be very meaningful and relevant to the growth of Nigeria’s economy. Zubair [13] studied the effects of pension funds’ investments on capital market performance in Nigeria. Specifically, the study concludes that total pension investments in Nigeria improved the performance of the Nigerian capital market significantly in terms of depth and liquidity (market capitalization and value traded. Moreover, the study concludes that the interaction of macroeconomic indicators such as interest rate, inflation rate and GDP per capita with pension investments affect the capital market performance significantly. Kalu and Attamah [14] analysed the impact of Contributory Pension Scheme on employee savings and investment in Nigeria using Anambra State public workers as a case study. The empirical analysis reveals that majority of the respondents prefers to save outside any pension scheme implying that they are participating because it is compulsory. Ibiwoye and Mesike [15] used error correction Model (ECM) and Ordinary Least square in their study on Pension Reform and Financial Market Development Nexus: Evidence from Nigeria. Statistical significance of the Error Correction Model confirmed the existence of an equilibrium relationship among the variables. The performance analysis of all their variables indicated that the reform period generates long-term contractual savings and stimulates the development of securities market. Hu [16] studied the impact of Asian pension funds, in particular, the key transmission mechanisms from pension reform to financial development. With the aid of the panel error correction model, a statistical relationship between pension asset growth and development of financial and capital markets was established. Meng and Pfau [17] employed panel regression model in investigating the impacts of pension funds on capital market development across 32 developed and emerging market countries. The result revealed a positive relationship between pension fund and capital market development. However, their regression result went further to evidenced that the impact of pension fund on capital market development is only significant for countries with high financial development, and pension funds do not impact capital market development in the countries with a low level of financial development. The results suggest that countries with ‘low’ financial development

should reconsider the management approach and investment strategies for their pension funds. Dostal [18] studied pension reforms in Nigeria for the period 2006 to 2010. The study finds that the funded pension system has not had any significant impact on the development of financial market and that real sector investment was not boosted by savings from pension scheme. Catalan, Impavido and Musalem [19] in their investigation of the relationship between capital markets and contractual savings. The study found that contractual savings institutions, like pension funds, granger-cause capital market development.

METHODOLOGY

The study was based on *ex-post* facto research design. Secondary data were used in the study. The data were drawn from National Pension Commission Annual Reports of various years and Central Bank of Nigeria Statistical Bulletin publications 2016. The study adopted an industry wide coverage. It covered operations of the Pension industry from 2007 to 2016. Three univariate models were used in the study. They are specified as follows:

Model Specification

The functional relation of the models for the Hypotheses is given as:

1. $FI = \beta_0 + \beta_1 PFIFGB + \mu$
2. $FI = \beta_0 + \beta_1 PFISGB + \mu$
3. $FI = \beta_0 + \beta_1 PFIPSB + \mu$

Where: FI = Financial intermediation
 PFIFGB = Pension fund investment in Federal government bonds
 PFISGB = Pension fund investment in State government bonds
 PFIPSB = Pension fund investment in Private sector bonds
 β_0 = Intercept
 β_1 = Coefficient parameters of independent variable
 μ = the error term

Dependent Variable

Financial Intermediation: This is proxied by Broad Money (M2).

Independent Variable

Pension fund investment in Federal government bonds: This is the total value of Federal Government bonds purchased by the Pension industry.

Pension fund investment in State government bonds: This is the total value of State Government bonds purchased by the Pension industry.

Pension fund investment in Private sector bonds: This is the total value of Private sector bonds purchased by the Pension industry.

ANALYSIS AND RESULTS

Table-1: Descriptive Statistics

	DMONEYSUPPLY	DPFIFGB	DPFIPSB	DPFISGB
Mean	1735.172	245.3700	11.04000	12.25875
Median	1513.368	239.4600	15.47000	34.72000
Maximum	2880.803	658.5300	37.94000	57.30000
Minimum	1137.549	-155.5000	-30.32000	-74.26000
Std. Dev.	631.6287	284.0895	20.55172	46.17202
Skewness	0.947203	0.047887	-0.912914	-0.946330
Kurtosis	2.375600	1.741077	3.241575	2.461768
Jarque-Bera	1.326217	0.531354	1.130669	1.290619
Probability	0.515247	0.766687	0.568170	0.524500
Sum	13881.38	1962.960	88.32000	98.07000
Sum Sq. Dev.	2792684.	564948.0	2956.613	14922.99
Observations	8	8	8	8

Source: Author’s calculation using Eviews 9

The respective standard deviations of the variables in the study were all higher than their respective means except Money Supply. The low kurtosis shows that the tail data that is generally less extreme than the tails of the normal distribution. It is not more than the usual positive or negative three standard deviations from the mean that is predicted by

the normal distribution of returns. Money supply and Pension fund investment in federal government bonds were positively skewed while Pension fund investment in state government bonds and Pension fund investment in private sector bonds were negatively skewed. The Jarque-Bera result shows that the data was normally distributed.

Goodness of fit of Model

Table-2: Coefficient of Determination result

Hypothesis	Adjusted R ²
One	-0.166269
Two	-0.040227
Three	-0.122549

Source: Author’s compilation using Eviews

From Table a coefficient of determination of -0.166269 shows that only 16.6269 percent of variation in Money supply in Nigeria can be explained by model of hypothesis one. 83.3731 percent of such variation can be attributed to other factors other than Pension fund investment in Federal government bonds. With a coefficient of determination of -0.040227 percent only 95.9773 percent variation in Money supply in Nigeria cannot be explained by Hypothesis two model. At -0.122549 the coefficient of determination in Hypothesis three shows that the model is only responsible for

12.2549 percent variation in Money Supply in Nigeria. The remaining 87.7451 percent will be due to other factors.

Statement of the decision criteria for Hypotheses Tests

The decision criteria is to accept the null hypothesis if the sign of the coefficient is positive and the p-value > 0.05, otherwise reject the null hypothesis while accepting the alternate accordingly.

Table-3: Result of Hypothesis one test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1709.240	622.1500	2.747311	0.0334
PFIFGB	0.015362	0.339732	0.045217	0.9654

Source: Authors calculation using Eviews

From Table-3 the regression equation is $MS = 1709.240 + 0.015362PFIFGB$. The regression coefficient point out that Pension fund investment in Federal government bonds has a positive relationship with financial intermediation in Nigeria. In other words, one percent change in Pension fund investment in Federal government bonds will increase financial

intermediation by 1.5362 percent. Table-3 show that p-value was 0.9654. This is higher than the level of significance of 0.05 percent. Based on the Decision rule, we uphold the null hypothesis. Thus, we state that Pension fund investment in Federal government bonds has positive and no significant effect financial intermediation in Nigeria.

Table-4: Result of Hypothesis two test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2160.147	547.2793	3.947065	0.0076
PFISGB	-3.541971	4.147551	-0.853991	0.4259

Source: Authors calculation using Eviews

From Table-4 the regression equation is $MS = 2160.147 - 3.541971PFISGB$. The regression coefficient point out that Pension fund investment in State government bonds has a negative relationship with financial intermediation in Nigeria. In other words, one percent change in Pension fund investment in State government bonds will decrease financial

intermediation by 354.1971 percent. Table 4 show that p-value was 0.4259. This is higher than the level of significance of 0.05 percent. Based on the Decision rule, we uphold the null hypothesis. Thus, we state that Pension fund investment in State government bonds has negative and no significant effect financial intermediation in Nigeria.

Table-5: Result of Hypothesis three test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1443.793	645.0007	2.238437	0.0665
PFIPSB	3.564485	7.340359	0.485601	0.6445

Source: Authors calculation using Eviews

From Table-5 the regression equation is $MS = 1443.793 + 3.564485 PFIPSB$. The regression coefficient point out that Pension fund investment in Private sector bonds has a positive relationship with

financial intermediation in Nigeria. In other words, one percent change in Pension fund investment in Private sector bonds will increase financial intermediation by 356.4485 percent. Table-5 show that p-value was

0.6445. This is higher than the level of significance of 0.05 percent. Based on the Decision rule, we uphold the null hypothesis. Thus, we state that Pension fund investment in Private sector bonds has positive and no significant effect financial intermediation in Nigeria.

DISCUSSION OF FINDINGS

The following findings were made:

- Pension fund investment in Federal government bonds has positive and no significant effect financial intermediation in Nigeria;
- Pension fund investment in State government bonds has negative and no significant effect financial intermediation in Nigeria.
- Pension fund investment in Private sector bonds has positive and no significant effect financial intermediation in Nigeria.

The size of increasing impacts is larger through Pension fund investment in Private sector bonds compared to Pension fund investment in Federal government bonds. This is not as expected, as Federal government bonds were believed can yield more returns than private sector bonds. On the other hand, Pension fund investment in State government bonds pulls a large decreasing effect on financial intermediation. This is in line with expectations as State government bonds in Nigeria are usually poorly managed and take longer to yield returns.

Each regression shows a weak persistence of the independent variable, as the coefficient of the each is statistically insignificant. The insignificant effect recorded in all hypotheses test means that pension fund investment in bonds do not exert an appreciable influence sufficient to facilitate financial intermediation in Nigeria. That is to say, investments made by the pension industry do not promote considerable intermediation in terms of depth and liquidity. However, the positive nature of the coefficients of Pension fund investment in Private sector bonds and Pension fund investment in Federal government bonds show they have the most direct effect on financial intermediation in Nigeria.

The findings of the study are not in line with a number of empirical studies earlier reviewed. It differs from Zubair [13] who found that total pension investments in Nigeria improved the performance of the Nigerian capital market significantly in terms of depth and liquidity. Also, Micah and Obah [12] who showed there is a significant Relationship between Superannuation Pension Account and Economic and social Infrastructural Financing in Nigeria. Furthermore, results of the study were not in line with Ibiwoye and Mesike [15] who indicated that pension reform generates long-term contractual savings and stimulates the development of securities market. On the other hand the revelations of the study were in line with Dostal [18] who found that the funded pension system

has not had any significant impact on the development of financial market and that real sector investment was not boosted by savings from pension scheme.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study it is concluded that pension industry investments have insignificant effect on depth and liquidity of financial intermediation in Nigeria. In the light of this it is recommended that:

- The pension industry should spread its investments beyond financial instruments in order to widen its investments portfolio and aid a larger sphere of the economy with its intermediation.
- Continued investing in state owned bonds will reduce the measure of intermediation the pension industry can bring to the economy. Due to poor management and taking longer period to yield return pension industry should not invest in state government bonds as it would tie down funds for a long time with low certainty of payback. State governments use funds generated from bonds to finance their deficits or to reward politically connected but inefficient investment projects without impacting the state's development or growth.
- The long term investment horizon of pension funds makes them ideal source of funds for financing less liquid assets such as infrastructure. The industry should aid the private sector to expand its ventures in real estate. Investment of pension fund in infrastructure would provide long-term financing at reduced interest rates and thus free the pressure to borrow at high interest rates from banks to finance such projects. This would in turn increase the stock of infrastructure and thus lead to economic growth and stable prices.

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