

THE IMPACT OF PENSION ASSETS INVESTED IN TREASURY BILLS ON ALL SHARE INDEX IN NIGERIA FINANCIAL MARKET

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Abstract

The study assessed the effects of treasury bill investment as pension fund asset on financial market performance in Nigeria. Literatures reviewed for this study showed that treasury bill is a key instrument in the financial market. Data were collected from quarterly reports of National Pension Commission and Central Bank of Nigeria Statistical Bulletin covering a period of 24 quarters from 2014 to 2019. The population of this study constitutes 50 firms. The research design was ex-post factor and correlational. Ordinary Least Square was used in analyzing the data collected which was from secondary source. Findings revealed that investment in treasury bills is positive and has significant effect on the financial market in Nigeria. The study recommended that substantial amount of pension assets should be invested in treasury bills so as to improve the net worth of pensioners who solely depend on this investment.

Key Words: Pension, Assets, Treasury, Bills, ASI, Victor, Falack.

Introduction

1.1 Background to the Study

In Nigeria, the pension liabilities grew as high as two trillion Naira making its continuous funding obviously impossible, it became eminent that the pension scheme was inevitably unrealistic which gave rise to the Pension Reforms in 2004 in which the Defined Benefit Scheme (DBS) metamorphosed to a contributory pension scheme (CPS) where both employer and employee are required by law to make contributions towards an employees retirement (PenCom Report, 2015). The total contributions from both the public and private sectors as at 2015 amounted to ₦3.29trillion (PenCom Report, 2015) and rose to ₦10.218trillion as at 2019 (PenCom Report, 2019). The scheme also allows for voluntary contributions to be made by employees (including those exempted by the Act) that could only be taxed at the point of withdrawal where the withdrawal was made before five years from the date the first voluntary contribution was made.

While there are substantial amounts of pension fund assets in Nigeria, there was strong demand for investigation into how the investments of treasury bills affect the performance of the financial market in Nigeria. In view of this, this study intends to investigate whether investment in treasury bills has significant quantitative effects on Nigeria financial market performance.

1.2 Statement of the Research Problem

There seem not to be a selection of the right type of investment outlet that increases economic growth in terms of GDP. For instance, there are only 11 classes of investment available for investment of pension assets (Pension Reform Act 2014). These are local ordinary shares, Federal Government of Nigeria, State Government Securities, Corporate Bonds, Financial Institution Deposits, Open and Closed-End Funds, Foreign Money Market Securities, Real Estate Properties, Unquoted Securities and Cash /Other Assets.

These various classes of pension assets have been acclaimed to have an impact on financial market performance. Investments in Local ordinary shares, FGN (Federal Government of Nigeria) Securities, Local Money Market Securities and Real Estate Properties constitute the bulk of the Pension assets as over 93% of the Pension assets are invested in these classes of assets (PenCom Reports, 2014). The individual contributions of these assets to the performance of financial market need to be known to ascertain which of these assets contribute more to it.

This study employed all share index as a better substitute for stock market performance due to its comprehensiveness compared to other measures. Based on the reviewed literature, it is apparent that the results are inconclusive, some findings indicate significant effect of pension fund on the market performance while others were insignificant. Therefore, this study to fill the existing gap in knowledge by examining the effect of treasury bills on financial market performance in Nigeria.

Literature Review

Pension funds have both quantitative and qualitative effects on financial market performance. Quantitatively, pension fund increases the capital supply to financial markets. Larger financial markets are located in countries with large pension funds to GDP ratios. Qualitatively, the managing organizations of pension funds are institutional investors who influence corporate governance and information disclosure, and therefore help establish financial markets and improve the efficiency and depth of information. There is evidence supporting this point. In 2011, the weighted average ratio of pension funds to GDP for all OECD countries was 72.4 percent (Andreas & Hoepner 2018)

Pension fund portfolios are held over a long period of time, which provides abundant funds to the financial market in the long term rather than providing short-term speculative capital. These funds are thus good for the stability of financial markets. For example, in the US, the pension scheme brings substantial long-term investment capital to Wall Street, which provides IT companies such as Microsoft, IBM and Apple the opportunity to grow capital market. The pension-holding organizations obtain constant returns from these high- quality companies. The pension and capital markets interact positively and profitably.

Pension funds indirectly stimulate financial innovation. Jackwerth and Slavutskaya (2016) studies the relationship between pension funds and financial innovation and finds that pension funds in the US play a significant role in asset securitization, derivatives, debt and the other financial innovations. Many new financial products in the US such as Zero-coupon bonds, options and futures, guaranteed securities, guaranteed mortgages and forward contracts are being created to meet the demands of pension funds.

Methodology

3.1 Research Design

Ex post-facto and correlation research designs are employed for this study. The justification for using ex-post factor research design (after the fact) design is that the source of data is historical in nature. PenCom were used from 2014 to 2019 from the CBN Statistical Bulletin. It also explains the causes and effect of one variable over another. Impliedly, this study tends to employ an existing data rather than new data specifically gathered for the study. Correlation research design is employed to explain relationships between the independent and dependent variables. The E-View 9.0 statistical software was used in analyzing the data.

3.2 Population of the Study

The population of this study consists of the following:

	Number
Pension Fund Administrators (PFAs)	24
Closed Pension Fund Administrators (CPFAs)	7
Approved Existing Schemes (AES)	19
Total	50

Source: Annual Report of PenCom 2016.

3.3 Definition of Variables and Model Specification

This refers to the description of the process by which the dependent variable is generated or influenced by the independent variable.

Variables:

Investment in Treasury Bills (INVTB) = Independent Variable

All Share Index (ASI) = Dependent Variable

Functional Relationship:

$$ASI = f(INVTB) \dots\dots\dots 1$$

Mathematical form of the model:

$$ASI = \beta_0 + \beta_1 INVTB \dots\dots\dots 2$$

The Econometric Version of the model:

This is a functional model that includes the stochastic error term.

$$ASI = \beta_0 + \beta_1 INVTB + \mu \dots\dots\dots 3$$

The ARDL Version of the model:

This is an Econometric Model that includes the lag variable of some independent variables qualifying it as an ARDL model.

$$ASI = \beta_0 + \beta_1 INVTB + ECM(-1) + \mu \dots\dots\dots 4$$

Apriori Expectation or Theoretical Expectation:

$$\beta_1 > 0$$

Data Presentation, Analysis and Interpretation

4.1 Data Presentation

4.2 Diagnostics Test

Table 4.2: ADF Unit Root Statistics

Variable	Level	t-statistic critical value 5%	First Difference	T-statistics critical Value 5%	Order of integration
ASI	-1.66	-2.9	-7.35	-2.9	I(1)
INVTB	-3.71	-3.47	-	-	I(0)

Source: Author's computation, 2022; Using E-view 9.

The ADF unit root test result presented in Table 4.2. establishes that the data series of All Share Index is stationary at first difference, that is integrated of order one i.e. the absolute value of the ADF test statistic of the variable is greater than the value of the 5% critical value of the ADF statistic. While the data series of Investment in Treasury bills is stationary at level i.e. integrated of order zero.

4.3 Bound Test for Co-Integration Analysis

Having conducted the unit root test, F-statistic test for co-integration is required to determine whether there is co-integration among the variables captured in the ARDL model. This has been estimated using the bound testing approach and the results presented in Table 4.3

Table 4.3: Bound Test Result

Dependent Variable	F-statistics	
ASI	3.901802	
	Asymptotic Critical Value for Rejecting Null Hypothesis	
Critical value	@5%	@10%
Lower Bound	2.62	2.26
Upper Bound	3.79	3.35

Source: Author's Computation Using E-views 9.0

From Table 4.3, the bound test results reveal the existence of co-integrating equations among the variables. The null hypothesis that there is no co-integration between pension fund assets and financial market is rejected at both 5 and 10% as the F-statistics, 3.091802 is greater than the critical value, 3.79 and 3.35 at the upper bound indicating there is co-integration between pension fund assets and development of financial market. In a nutshell, the bound testing has indicated the existence of strong co-integrating equations among the series as revealed by the F-statistic and the critical values; meaning that there is long-run relationship among the variables.

4.4 Inferential Statistics (Long Run Estimation Result)

Table 4.4: Long Run Estimation Result: Dependent Variable (ASI).

Variable	Co-efficient	Standard Error	t-Statistic	Probability
C	55703.49	8996.2	6.3030	0.000
INVTB	0.011852	0.001691	7.007509	0.0000
Adj. R ²			0.61	
F-statistic			23.331	
Prob. (F-stat.)			0.000	

Source; Author's Computation Using E-views 9

The long run relationship between Pension Fund Assets investment in Treasury Bills and Financial Market in Nigeria was estimated in table 4.4. The long-run analysis indicates that the coefficient of Pension Fund Investment in Treasury Bills (0.011852) exact positive and significant on financial market in Nigeria. While their p-values stand 0.0000 suggesting that they are significant at 5% level. The Adjusted R² of 0.61 also explains the changes of the dependent variable due to the explanatory power of the independent variables after taking care of degree of freedom (D.F). The p-value of the f-statistics 0.000 indicates that the model has a goodness of fit and can be used for planning and forecasting.

4.5 Estimation of Short Run Relationship Based on ARDL Model

Table 4.5: Short Run Estimation Result: Dependent Variable (ASI)

Variable	Co-efficient	Standard Error	t-Statistic	Probability
C	-210.9797	256.2345	-0.823385	0.4133
D(INVTB)	0.000683	0.001930	0.354152	0.7244
ECT(-1)	-0.115601	0.078990	-1.463504	0.1482
Adj. R ²			0.00	
F-statistic			1.03	
Prob. (F-stat.)			0.41	
Durbin-Watson			2.48	

Source: Author's Computation Using E-views 9

The short-run relationship between pension fund assets and financial marketing Nigeria is estimated using the error correction model and the results are presented in Table 4.5 as follows. From Table 4.5, the Error Correction Coefficient (ECM), which is approximately -0.11 has the expected negative sign but it is also statistically insignificant at all conventional level considering the probability value which is 0.1482. The value of the ECM implies a fairly slow speed of adjustment to equilibrium after a shock. Approximately 11 per cent of disequilibria from the previous year's shock converge back to the long-run equilibrium in the current year. For the independent variable, the short-run results shows that Investment in Treasury Bills (INVTB) has a positive but insignificant impact on Financial Market.

4.6 Discussion of Findings

The study aimed to ascertain the relationship of Pension fund investment in Treasury Bills and how it affects All Share Index in Financial Market in Nigeria. The research investigated the extent to which pension fund investment in treasury bills affects the financial market in Nigeria. The ARDL analysis revealed that **investment in treasury bills is positive and has significant effect on the financial market in Nigeria. A unit increase of pension fund investment in treasury bills will lead to a corresponding unit increase in all share Index by 0.011852.**

Conclusion and Recommendations

5.1 Conclusions

Consistent with the findings from the analysis conducted and the hypothesis, the study concludes that there is a significant positive relationship between pension funds' investments in treasury bills and the performance of capital market in Nigeria after the 2004 major industry reform. **Specifically, the study concludes that total pension investments in Nigeria improved the performance of the Nigerian capital market significantly.**

5.2 Recommendations

Based on the major findings of the study, the following recommendations are suggested:

- i. Substantial amount of pension assets should be invested in treasury bills so as to improve the net worth of pensioners who solely depend on this investment.
- ii. Government should ensure good and stable monetary policy in Nigeria so as to strengthen pension reforms on investment of pension assets capable of providing adequate resources to the retiree in Nigeria to cater for their old age needs.

- iii. More classes of assets should be included in the pension investment guidelines by the government to accommodate the huge pension savings, and the capital market should be revitalized to be more efficient.

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Appendix VI: Data Presentation

Period	INVTB	ASI
2014m1	647,356.32	40,571.62
2014m2	0	39,558.89
2014m3	631,343.13	38,748.01
2014m4	644,207.39	38,492.13
2014m5	609,381.81	41,474.40
2014m6	587,661.95	42,482.48
2014m7	581,875.45	42,097.50
2014m8	616,996.21	41,532.31
2014m9	589,861.55	41,210.10
2014m10	0	37,550.24
2014m11	488,063.18	34,543.05
2014m12	497,778.84	34,657.15
2015m1	532,851.49	29,562.07
2015m2	542,080.00	30,103.81
2015m3	548,080.44	31,744.82
2015m4	578,547.12	34,708.11
2015m5	601,653.02	34,310.37
2015m6	622,938.08	33,456.83
2015m7	679,952.53	30,180.30
2015m8	689,919.45	29,684.84
2015m9	662,861.48	31,217.77
2015m10	505,690.74	29,177.72
2015m11	480,261.31	27,617.45
2015m12	0	28,642.25
2016m1	428,921.42	23,916.15



2016m2	429,725.48	24,570.73
2016m3	448,693.33	25,306.22
2016m4	461,594.70	25,062.41
2016m5	475,638.83	27,663.16
2016m6	487,080.40	29,597.79
2016m7	566,701.26	28,009.93
2016m8	716,929.63	27,599.03
2016m9	683,917.86	28,335.40
2016m10	712,890.27	27,220.09
2016m11	749,133.72	25,333.39
2016m12	779,134.75	26,874.62
2017m1	829,803.09	26,036.24
2017m2	851,423.03	25,329.08
2017m3	931,152.24	25,516.34
2017m4	1,016,830.79	25,758.51
2017m5	1,121,675.91	29,498.31
2017m6	1,114,148.64	33,117.48
2017m7	1,214,331.29	36,864.71
2017m8	1,318,623.71	35,504.62
2017m9	1,270,404.06	35,439.98
2017m10	1,252,352.81	36,680.29
2017m11	1,206,421.44	37,944.60
2017m12	1,178,088.79	38,243.19
2018m1	1,394,678.41	44,343.65
2018m2	1,459,617.04	43,330.54
2018m3	1,659,159.50	41,504.51
2018m4	1,620,291.86	41,268.01
2018m5	1,678,510.26	38,104.54
2018m6	1,709,201.38	38,278.55
2018m7	1,646,900.29	37,017.78
2018m8	1,485,326.62	34,848.45
2018m9	1,501,892.30	32,766.37
2018m10	1,655,990.07	32,466.27
2018m11	1,685,078.20	30,874.17
2018m12	1,673,421.34	31,430.50
2019m1	1,783,513.89	30,557.20
2019m2	1,907,155.71	31,721.76
2019m3	1,936,255.06	31,041.42
2019m4	1,958,725.52	29,159.74
2019m5	1,966,443.82	31,069.37
2019m6	1,937,322.15	29,966.87
2019m7	2,044,227.50	29,851.29
2019m8	2,200,360.47	27,525.81



2019m9	2,263,693.75	27,630.56
2019m10	2,239,475.96	26,355.35
2019m11	2,119,519.78	27,002.15
2019m12	1,880,329.05	26,842.07

Source: PenCom Report; CBN Statistical Bulletin.