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# APPLICATION AND PERFORMANCE OF PENSION FUND IN REAL ESTATE INVESTMENT FINANCING IN NIGERIA

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## Abstract

This study aimed at determining the effects of the application of real estate investment instruments on the performance of pension fund in real estate investment financing in Nigeria with the view of making recommendations for improved investing. The two real estate investment instruments studied were Real Estate Investment Trusts (REITs) and investing in Direct Real Estate Property (DREP). Three objectives were set to achieve this aim. First, to determine the application of real estate instruments in the investing of pension fund in Nigeria. Second, to determine the performance of pension fund in real estate investment financing in Nigeria. Third, to establish the relationship between application of real estate investment instruments and performance of pension fund in real estate financing in Nigeria.

**Keywords:**
Application,
Performance,
Pension Fund, Real Estate,
Investment,
Financing.



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Secondary data from National Pension Commission (PenCom) was used to do this research and the study period was 2012 to 2021. Data were analysed using percentages and Multiple Regression Analysis. Findings showed that, the application of the investment instruments is poor with REIT and DREP asset classes having respective averages of 0.064% and 0.009%. Findings showed that, the performance of pension fund in real estate financing is poor with the average of 13.15%. The regression result showed that, the application of REIT has negative relationship with performance while that of DREP has positive relationship with correlation coefficients of –0.543 and 0.794 respectively. Based on findings it is concluded that, REIT asset class impacted negatively on performance while DREP asset class impacted positively. For there to be improved participation of pension fund in real estate financing it is recommended that, there must be increased investments in REIT and that, the range of investments in DREP should be maintained or most pleasantly increased. For there to be improved investing, it is further recommended that more real estate investment instruments be introduced.

## Introduction

On the 25th day of June 2004, the government of the Federal Republic of Nigeria launched a landmark pension reform, departing from, Defined Benefit Scheme (DBS) to Defined Contributory Scheme (DCS). This culminated to the enactment of the Pension Reform Act, 2004. However, due to the need to improve on pension administration and management to address emerging issues that had come to the fore as a result of changing socio-economic realities in Nigeria (National Pension Commission, 2013), the Federal Government repealed the Pension Reform Act, 2004, and enacted the Pension Reform Act, 2014. The National Pension Commission (PenCom) is the regulatory agency on all matters concerning pension and retirement benefits in Nigeria. PenCom was established by section 14, subsection 1 of the Pension Reform Act, 2004, and re-enacted by section 17, subsection 1 of the Pension Reform Act, 2014. Section 54 of the Pension Reform



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Act, 2014, asserts that, pension fund shall only be managed by the Pension Fund Administrators (PFAs) and Closed Pension Fund Administrators (CPFAs) licensed by PenCom.

Pension fund managers (PFAs and CPFAs) shall invest and manage pension fund and assets in accordance with the provisions of the Pension Reform Act, 2014 (section 55b) and as strictly stipulated by the investment regulations and guidelines issued by PenCom from time to time (section 85, subsection 2). The investment guideline/regulation of pension fund is periodically reviewed and re-published to suit the changing socio-economic environment in Nigeria. The investment guideline/regulation prescribed the instruments of investing and also set limit on investment under very stringent rules. Section 86h of the Pension Reform Act, 2014 mentioned real estate as one of the several investment options where pension fund can be spent in Nigeria. At present, there are four approved instruments of investing pension fund in real estate financing in Nigeria, they are, Mortgage-Backed Securities (MBS), Real Estate Investment Trusts (REITs), investing in Direct Real Estate Property (DREP) and investing in Residential Mortgage Equity Payment (RMEP) in favour of pension contributors.

MBS and REITs are securitised investment instruments traded at the Nigerian Stock Exchange (NSE). Direct Real Estate Property (DREP) investment entails the purchase of an already developed property or financing the development or construction of a property to generate income for the pension fund (section 1.3, Guidelines on Direct Real Estate Investments by Closed Pension Fund Administrators and Approved Existing Schemes, 2011). DREP investment is only permitted for pension fund accruing from Defined Benefit Schemes (DBS) and other Approved Existing Scheme (AES) that is not contributory. Investing in RMEP in favour of pension contributors was introduced by Section 89 (2) of the Pension Reform Act, 2014. According to its provision, pension fund managers (PFAs and CPFAs) received permission subject to guidelines to be issued by PenCom to apply some percentage of pension fund assets in the Retirement Savings Account (RSA) of a contributor towards payment of equity



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contribution for residential mortgage. It is important to note that, as at the period of this research (2012 – 2021) MBS and RMEP were yet to be available as investment instruments in Nigeria. No MBS is listed at Nigerian Stock Exchange (NSE) where it should be traded and investing in RMEP has not taken effect, therefore, both instruments lacked data for analysis.

In the context of this research, the application of pension fund in real estate investment financing implies how much of pension fund is spent in real estate investing through the approved investment instruments. To explain further, it implies the amount of pension fund invested in each real estate asset class (instrument) out of the available amount of pension fund for investment annually. The instruments of investing (asset classes) in focus here are REIT and DREP because the other two (MBS and RMEP) are not yet effective in Nigeria as investment instruments.

The performance of pension fund in real estate investment financing here implies, how pension fund has fared in real estate investment funding vis-à-vis the investment limit set for each instrument of investing by the investment regulation and guideline from PenCom. That is, how has each investment instrument (asset class) performed based on the set limit by the investment regulation/guideline? The investment instruments in focus are REIT and DREP because the other two (MBS and RMEP) are not yet effective in Nigeria and therefore lacked data for analysis.

The aim of this study is to determine the effect of the application of real estate investment instruments on the performance of pension fund in real estate investment financing in Nigeria. This is with the view of making recommendations for improved investing of pension fund in real estate financing in Nigeria. This aim is expected to be achieved through the following objectives:

i. To determine the application of real estate instruments in the investing of pension fund in Nigeria.
ii. To determine the performance of pension fund in real estate investment financing in Nigeria.



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iii. To establish the relationship between the application of real estate investment instruments and the performance of pension fund in real estate investment financing in Nigeria.

The achievement of objective one will show the differences in the application of the two real estate investment instruments (REITs and DREP). That is, it will show the real estate instrument that is applied more than the other in the investing of pension fund in Nigeria. Steps leading to the achievement of objective two will necessitate showing the individual performances of the two real estate instruments in the investing of pension fund in Nigeria. It will also give a picture of the differences in their performances. The achievement of objective three will show the effect the application of the investment instruments has on the performance of pension fund in real estate investment financing in Nigeria. Generally, the findings of this study will give an indication on the most accessible and viable real estate investment instrument which is expected give a direction to policy makers towards improving the activities of pension fund in real estate investment funding in Nigeria.

**LITERATURE REVIEW**

This study aimed at determining the effect of the application of real estate investment instruments on the performance of pension fund in real estate investment financing in Nigeria. This was achieved by establishing the relationship between the application of the investment instruments and the performance of pension fund in real estate investment financing in Nigeria. Arguably, no known study in Nigeria has investigated in this regard.

Nubi and Adewunmi (2011) examined the two main instruments (MBS and REITs) prescribed for the investment of pension fund in real estate financing in Nigeria, the problems involved in their use and factors influencing the level of their participation. Their findings showed that, pension fund managers are enthusiastic about investing in MBS and REITs but are limited in investing mainly because of risk. They did not focus on the application of the investment



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instruments and the effect they have on the performance of pension fund in real estate financing in Nigeria. One major shortcoming of Nubi and Adewunmi (2011) is that, after enumerating and discussing the challenges of MBS in Nigeria they erroneously failed to assert that no MBS is enlisted at the Nigerian Stock Exchange where it should be traded.

Oni (2013) determined the joint and individual impacts of the variables of money market indicators on pension fund contributions from which finance could be drawn for real estate development in Nigeria. The author used Pearson's product moment correlation model to analyse secondary data from Central Bank of Nigeria (CBN) and PenCom. Findings showed that, all the money market indicators have high and positively correlated relationships amongst each other and that they reacted positively towards invigorating the participation of pension fund in real estate investment financing. Oni (2013) investigated the relationship between money market indicators and pension fund contribution while this study investigated the relationship between the application of the investment instruments and the performance of pension fund in real estate financing in Nigeria.

Adjekophori (2014) examined the viability of pension fund as a veritable source of financing real estate development in Nigeria. The method adopted was convenient random sampling where He sampled 42 respondents comprising of 18 pension fund managers and 24 real estate developers and the data was analysed through simple descriptive statistics. He found out that, pension fund is a viable real estate financing instrument but its performance is hindered by the restriction imposed by the investment regulation/guideline from PenCom. The difference between this study and that of Adjekophori (2014) is that, He measured performance by comparing real estate investment instruments with none real estate investment instruments, while this study measured performance by comparing the cumulative value of what is invested against the cumulative value limit of what is expected to be invested in the two real estate instruments as prescribed by the investment regulation/guideline from PenCom. Most importantly, this study differs from that of Adjekophori (2014)



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because it determined the impact the application of the investment instruments has on the performance of pension fund in real estate investment financing in Nigeria.

Eke *et al.* (2018) tested the relationship between investment in housing infrastructure and safety-equity factor in Nigeria's public pension fund management. They adopted ex post facto method of analysis from primary and secondary sources of data in their methodology. Their finding is that, investment of pension fund in housing infrastructure showed strong relationships with safety of funds and equity in the distribution of investment returns to the investors. Eke *et al.* (2018) focused on the relationship between investing in housing infrastructure and safety-equity factor of pension fund while this study focussed on the relationship between the application of the investment instruments and the performance of pension fund in real estate financing in Nigeria.

Umeh and Okonu (2018) wrote on, "Real estate performance in Nigeria pension fund". The authors examined the contribution of real estate to the performance of mixed-asset portfolio of the Nigerian pension fund. They used descriptive statistics to analyse data on capital values collected from PenCom from 2007 to 2016. Their findings showed that, there is diversification benefit resulting from integrating real estate to other assets of the Nigerian pension fund, and that the fund's portfolio performed better when real estate is integrated in the asset mix. The performance in focus by Umeh and Okonu (2018) and study period (2007 – 2016) is different from that of this study though both studies worked on instruments of investing pension fund in Nigeria. One key difference is that, this study determined the relationship between application of investment instruments and performance from 2012 – 2021.

Okeahialam and Nwanekezie (2023) used secondary data from PenCom to determine the extent of the application of real estate instruments (REITs and DREP) in the investing of pension fund in Nigeria from 2012 to 2021. They further determined the significance of the difference in the extent of

the application. The extent of the application which implies the magnitude of pension fund invested in each real estate instrument (asset class) was measured based on the amount invested out of the available amount of pension fund for investment annually. Data were analysed using percentages and Independent Samples T-test was used to test hypothesis. Findings showed that, the extent of the application of both investment instruments is poor and the difference in the extent of the application of both of them is not significant. This present study is in furtherance to Okeahialam and Nwanekezie (2023) because it did not only determine the extent of the application of the investment instruments but also established its relationship with performance.

Okeahialam and Awa (2024) used secondary data from PenCom from 2012 – 2021 to determine between REIT and DREP, the one that has performed more than the other in the investing of pension fund in Nigeria. Their findings showed that, the performance of DREP is significantly more than that of REIT. This finding was achieved through a hypothesis using Independent Samples T-test. The basis of performance measurement is similar to that of this present study but the difference is that, this present study went further by linking the application of the investment instruments with performance to determine the impact.

Some foreign studies similar to this research were also reviewed. From the USA, Zimoch (2014) tested the effects of real estate property assets on the performance of pension fund. The performance was measured based on the safety/security of the pension fund. Findings showed that performance of pension fund improved because real estate property reacted positively to safety of pension fund. Based on findings, the author observed that, the problem of failure of the pension system can be solved by using real estate property as insurance for pension fund. The author posited that, this could be made possible by transforming the capital raised from real estate assets into liquid funds to the equity release market which offers two main financial products namely; reverse mortgage and home reversion. The identified gap



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here is that Zimoch only focussed on direct real estate property and did not test to see whether the performance of other real estate investment instruments reacted positively to safety/security of pension fund.

From the United Kingdom (UK), Farrelly and Moss (2014) analysed the implications of combining public real estate with direct real estate allocation in UK's defined contributory pension fund. By using actual fund rather than index data, the historic performance of blended portfolios was simulated and the resulting risk and return characteristics analysed. Their findings showed that the public real estate component caused small and gradual increase in the performance of the blended real estate portfolio. The two instruments of investing blended by Farrelly and Moss (2014) are similar to the two investigated by this present study. Pubic real estate implies listed real estate investment instruments such as REITs while private real estate (unlisted) implies Direct Real Estate Property (DREP). The summary of their findings is that, REITs effect on performance in a blended real estate portfolio is positively small and gradual. Besides geographical gap the major difference is that Farrelly and Moss (2014) focussed on a blended portfolio while this present study linked the two instruments of investing (REIT and DREP) with performance in isolation to each other to determine the effect on performance.

Andonov *et al.* (2012) employed CEM database from 1990 – 2009 comprising of 884 U.S., Canadian, European Union and Australian/New Zealand pension funds to examine the performance of their investments in REITs and DREP in terms of their size and value added from intermediated money managers. Andonov *et al.* (2013) used CEM database to study the real estate investment approach, cost, and performance for a global panel of 884 pension funds from the U.S., Canadian, European Union and Australian/New Zealand. Andonov *et al.* (2015) used the same CEM database and evaluated globally the economics of financial intermediation in alternative assets by investigating the allocation and performance of pension fund investments in real estate.



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As can be seen in these three different studies, the authors used CEM database from 1990 – 2009 comprising of 884 U.S., Canadian, European Union and Australian/New Zealand pension funds and they broadly categorized the methods of investing into REITs and DREP. In pursuit of the focus of these three different studies, they authors ascertained the amount invested in REITs and DREP by the 884 pension funds. With the figures, they determined the performance of the two real estate investment instruments (REITs and DREP) which they expressed in percentages. These three studies failed to determine the relationship between the application of the investment instruments and the performance of pension fund in real estate investment financing. There is also geographical gap between these three studies and that of this present study.

**METHODOLOGY**

This study was done using quantitative data from PenCom during the period under review which is from 2012 to 2021. The data are numeric figures sourced from PenCom's official website. The data was sourced from PenCom because as the sole regulator of the pension industry in Nigeria, PenCom aggregate and publishes on regular basis the activities of the pension fund managers in the investing and management of pension fund assets.

Data for objective one comprises of the amount of pension fund available for investment annually. It also comprises of the amount of investment spending by pension fund annually in all the investment instruments. From these figures, the amount invested in the two real estate instruments (DREP and REIT) were sieved. After sieving, the figures were deduced to achieve objective one of this study which is, to determine the application of real estate instruments in the investing of pension fund in Nigeria. The application of real estate investment instruments are quantitative figures measured in Naira (₦) and also expressed in percentage (%).

Data for objective two comprises of cumulative annual value of total pension fund assets, cumulative annual value of expected investment limit in each



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instrument and cumulative annual value of investments made in each instrument during the period under review (2012 – 2021). From these figures, data for the two real estate investment instruments (REITs and DREP) were sieved and deduced to achieve objective two of this study which is, to determine the performance of pension fund in real estate investment financing in Nigeria. To achieve this, the individual performances of REITs and DREP were ascertained and aggregated. The performance of pension fund in real estate investment financing were expressed in Naira (₦) and also in percentage (%).

Findings from objective one and two were linked to achieve objective three which is, to establish the relationship between the application of real estate investment instruments and the performance of pension fund in real estate investment financing in Nigeria. This was achieved through test of hypothesis. The hypothesis stated in null form is thus – the application of real estate instruments in the investing of pension fund has no significant relationship with the performance of pension fund in real estate investment financing in Nigeria.

Data is presented in tabular form. Objective one and two were analysed descriptively with percentages. Objective three is analysed inferentially with regression analysis.

**FINDINGS**

Objective one of this study is to determine the application of real estate instruments in the investing of pension fund in Nigeria. The application (level of use) here implies the magnitude of pension fund invested in each real estate instrument (asset class). The application was determined based on the amount invested out of the available amount of pension fund for investment annually. The two real estate investment instruments (asset classes) are Real Estate Investment Trusts (REITs) and Direct Real Estate Property (DREP). The period under review is 2012 to 2021. The application expressed in figures and percentages is presented in Table 1.



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**Table 1: The application of real estate instruments in the investing of pension fund in Nigeria from 2012 to 2021.**

| Period | Available Amount for Investment (₦) | Asset Class and Amount Invested in ₦ and % | | | |
|---|---|---|---|---|---|
| | | REIT (₦) | (%) | DREP (₦) | (%) |
| 2012 | 745,090,000,000.00 | -19,724,174,000.00 | -2.65 | 43,120,000,000.00 | 5.79 |
| 2013 | 904,330,000,000.00 | 4,431,217,000.00 | 0.49 | 3,320,000,000.00 | 0.37 |
| 2014 | 554,180,000,000.00 | -1,163,778,000.00 | -0.21 | 21,180,000,000.00 | 3.82 |
| 2015 | 691,140,000,000.00 | 6,151,146,000.00 | 0.89 | 690,000,000.00 | 0.10 |
| 2016 | 861,880,000,000.00 | 6,205,536,000.00 | 0.72 | 19,700,000,000.00 | 2.29 |
| 2017 | 1,356,403,570,000.00 | 6,983,470,000.00 | 0.51 | -30,991,450,000.00 | -2.28 |
| 2018 | 1,122,384,790,000.00 | -890,640,000.00 | -0.8 | 26,353,870,000.00 | 2.35 |
| 2019 | 1,580,316,860,000.00 | -4,441,750,000.00 | -0.28 | -9,702,500,000.00 | -0.61 |
| 2020 | 2,088,099,710,000.00 | 73,939,600,000.00 | 3.54 | -60,306,040,000.00 | -2.89 |
| 2021 | 1,118,663,200,000.00 | -856,140,000.00 | -0.08 | -2,908,100,000.00 | -0.26 |
| **Total** | **11,022,488,130,000.00** | **70,634,487,000.00** | **0.64** | **10,455,780,000.00** | **0.09** |

Source: Compiled by the researcher using data from PenCom.

Year 2020 and 2014 recorded the highest and lowest available amount for investment respectively, and the average available amount for investment in the 10-year period under review is approximately ₦1.10 trillion. Year 2020 and 2013 recorded the highest and lowest investment in REIT respectively, while year 2012 and 2021 recorded the highest and lowest divestments respectively. The average investment of pension fund in REIT during the period under review is ₦7.06 billion. Year 2012 and 2015 recorded the highest and lowest investment in DREP respectively, while year 2020 and 2021 recorded the highest and lowest divestments respectively. The average investment of pension fund in DREP during the period under review is ₦1.05 billion. During the period under review the highest application of REIT (3.54%) and DREP (5.79%) happened in 2020 and 2012 respectively. When aggregated the application of REIT and DREP during the period under review (2012 – 2021) are 0.64% and 0.09% respectively and their averages are 0.064% and 0.009% respectively too. Based on the findings it



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will not be wrong to conclude that, during the period under review, the application of real estate instruments in the investing of pension fund in Nigeria is poor.

Objective two of this study is to determine the performance of pension fund in real estate investment financing in Nigeria. The performance of the two real estate investment instruments (REIT and DREP) was firstly determined and later aggregated to get the performance of pension fund in real estate investment financing in Nigeria. The performance was determined based on the cumulative actual value of investment against the cumulative expected value limit. That is, the cumulative value of what is invested against the cumulative value limit of what is expected to be invested as prescribed by the investment regulation and guideline from PenCom. The period under review is 2012 to 2021. The cumulative actual value of investments which implies performance were expressed in both figures and percentages. The performance of the two real estate instruments in the investing of pension fund in Nigeria is presented in Table 2.

**Table 2: The performance of real estate instruments (REIT and DREP) in the investing of pension fund in Nigeria from 2012 to 2021.**

| Period | REIT | | | DREP | | |
|---|---|---|---|---|---|---|
| | Exp. Value Limit (B₦) | Actual Value (B₦) | Actual Value (%) | Exp. Value Limit (B₦) | Actual Value (B₦) | Actual Value (%) |
| 2012 | 639.09 | 4.60 | 0.72 | 325.13 | 188.60 | 58.00 |
| 2013 | 811.49 | 5.68 | 0.70 | 379.67 | 192.32 | 50.65 |
| 2014 | 922.32 | 5.76 | 0.62 | 395.20 | 213.50 | 54.02 |
| 2015 | 1,060.58 | 7.21 | 0.68 | 428.70 | 214.19 | 50.04 |
| 2016 | 1,231.79 | 9.44 | 0.77 | 469.70 | 233.89 | 49.80 |
| 2017 | 1,503.07 | 16.43 | 1.09 | 551.10 | 205.33 | 37.26 |
| 2018 | 1,418.94 | 15.54 | 1.09 | 616.62 | 229.71 | 37.25 |
| 2019 | 1,666.83 | 11.09 | 0.67 | 709.65 | 220.01 | 31.00 |
| 2020 | 2,006.52 | 85.03 | 4.24 | 849.58 | 158.66 | 18.68 |
| 2021 | 2,173.25 | 84.18 | 3.87 | 862.24 | 156.55 | 18.16 |

Source: Compiled by the researcher using data from PenCom.



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Value of investment limit (Expected Value Limit) was determined based on specified percentage of the value of the total pension fund assets at any point in time. As the value of the total pension fund asset is increasing annually the value of investment limit increases. Value of total pension fund assets increases through new pension contributions and investment income. Therefore, the approximate cumulative value of investment limit (Expected Value Limit) as at 2021 for REITs and DREP are ₦2.17 trillion and ₦862.24 billion respectively. The average expected value limit for REITs and DREP during the period under review is ₦1.34 trillion and ₦558.76 billion respectively. The approximate cumulative value of investment (Actual Value) made in REITs and DREP as at 2021 are ₦84.18 billion and ₦156.55 billion respectively while their averages are ₦24.50 billion and ₦201.28 billion respectively too. The highest actual value in percentage which implies performance for REITs and DREP occurred in 2020 (4.24%) and 2012 (58.00%) respectively while their lowest occurred in 2014 (0.62%) and 2021 (18.16%) respectively too. The average performance of pension fund investment in REITs and DREP are 1.45% and 40.49% respectively. Figures in Table 2 also showed that, the performance of REITs has no pattern while that of DREP showed gradual decline from 58% in 2012 to 18.16% in 2021. Based on findings, it will not be wrong to conclude that, the performance of the two real estate instruments in the investing of pension fund in Nigeria is poor. This is because none of their respective average performance is up to 50%. The average performance of DREP (40.49%) is by far more than that of REITs (1.45%) but however not up to 50%. The performance of REITs is dismal with an average of 1.45%. Table 3 presents the performance of pension fund in real estate investment financing after aggregating the performances of the two real estate investment instruments (REITs and DREP).

**Table 3: The performance of pension fund in real estate investment financing in Nigeria from 2012 to 2021.**

| Period | REIT EVL (B₦) | DREP Agg. EVL (B₦) | REIT DREP (B₦) | Agg. AV (B₦) | Performance AV (B₦) | (B₦) | (%) |
|---|---|---|---|---|---|---|---|
| 2012 | 639.09 | 325.13 | 964.22 | 4.60 | 188.60 | 193.20 | 20.04 |
| 2013 | 811.49 | 379.67 | 1,191.16 | 5.68 | 192.32 | 198.00 | 16.62 |
| 2014 | 922.32 | 395.20 | 1,317.52 | 5.76 | 213.50 | 219.26 | 16.64 |
| 2015 | 1,060.58 | 428.70 | 1,489.28 | 7.21 | 214.19 | 221.40 | 14.87 |



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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2016 | 1,231.79 | 469.70 | 1,701.49 | 9.44 | 233.89 | 243.33 | 14.30 |
| 2017 | 1,503.07 | 551.10 | 2,054.17 | 16.43 | 205.33 | 221.76 | 10.80 |
| 2018 | 1,418.94 | 616.62 | 2,035.56 | 15.54 | 229.71 | 245.25 | 12.05 |
| 2019 | 1,666.83 | 709.65 | 2,376.48 | 11.09 | 220.01 | 231.10 | 9.72 |
| 2020 | 2,006.52 | 849.58 | 2,856.10 | 85.03 | 158.66 | 243.69 | 8.53 |
| 2021 | 2,173.25 | 862.24 | 3,035.49 | 84.18 | 156.55 | 240.73 | 7.93 |

Source: Compiled by the researcher using data from PenCom.

REIT and DREP Expected Value Limit (EVL) and Actual Value (AV) respectively were aggregated annually from 2012 to 2021. Performance is expressed in percentage and is arrived at based on Aggregated (Agg) actual value against aggregated expected value limit. Figures in Table 3 shows that, the average performance of pension fund in real estate investment financing from 2012 to 2021 is 13.15%. Figures also showed that, performance suffered gradual decline from 20.04% in 2012 to 7.93% in 2021. Based on the findings showed in Table 3, it will not be wrong to infer that, the performance of pension fund in real estate investment financing in Nigeria is poor.

Objective three of this study is to establish the relationship between the application of real estate investment instruments and the performance of pension fund in real estate investment financing in Nigeria. To achieve this objective, findings from objective one and two were linked through test of hypothesis which is stated in null form thus – the application of real estate instruments in the investing of pension fund has no significant relationship with the performance of pension fund in real estate investment financing in Nigeria. This will lead to achieving the aim of this study by determining whether the application of the instruments of investing has impacted positively or negatively on performance. The information used to test the hypothesis is found in Table 4 where the application of the two investment instruments (independent variable) and the performance of pension fund in real estate financing (dependent variable) were expressed in percentages from 2012 to 2021.



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**Table 4** **Application of real estate investment instruments and performance of pension fund in real estate investment financing from 2012 to 2021.**

| Period | Application of investment instruments (%) (X) | | Performance (%) (Y) |
|---|---|---|---|
| | REIT (%) ($X_1$) | DREP (%) ($X_2$) | |
| 2012 | — 2.65 | 5.79 | 20.04 |
| 2013 | 0.49 | 0.37 | 16.62 |
| 2014 | — 0.21 | 3.82 | 16.64 |
| 2015 | 0.89 | 0.10 | 14.87 |
| 2016 | 0.72 | 2.29 | 14.30 |
| 2017 | 0.51 | — 2.28 | 10.80 |
| 2018 | — 0.8 | 2.35 | 12.05 |
| 2019 | — 0.28 | — 0.61 | 9.72 |
| 2020 | 3.54 | — 2.89 | 8.53 |
| 2021 | — 0.08 | — 0.26 | 7.93 |

Source: Compiled by the researcher using data from PenCom.

The null hypothesis states that, "the application of real estate instruments in the investing of pension fund has no significant relationship with the performance of pension fund in real estate investment financing in Nigeria". Multiple regression analysis was used to test the hypothesis. It should be noted that all statistical requirements of the multiple regression analysis were observed and checked such as multicollinearity, singularity, outliers, normality, linearity, homoscedasticity etc. The summary of the result is presented in Table 5. The decision rule is that, the null hypothesis is rejected when the probability (p) value is less than 0.05, but if the probability (p) value is more than 0.05 the null hypothesis is accepted.

**Table 5:** **Coefficient table of regression analysis between application of the investment instruments and performance.**

| Model | Unstandardized Coefficients | | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | | Correlations | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | | Lower Bound | Upper Bound | Zero Order | Partial | Part |
| 1 (Constant) | 11.855 | 1.055 | | | 11.241 | .000 | 9.361 | 14.348 | | | |
| REIT | .461 | .915 | .179 | .504 | .630 | -1.702 | 2.624 | -.543 | .187 | .114 | |
| DREP | 1.379 | .526 | .933 | 2.621 | **.034** | .135 | 2.624 | .794 | .704 | .591 | |

a Dependent Variable: Performance

Source: Coefficient table of regression analysis.



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It is evident from Table 5 that, the p-value (significant value) for DREP (0.034) is less than 0.05 while that of REIT (0.630) is more than 0.05. This implies that, there is a significant relationship between the application of DREP and performance while there is no significant relationship between the application of REIT and performance. This result is further summarized in Table 6 where action on the hypothesis is shown.

**Table 6: Action on the Hypothesis.**

| Independent Variable | Sig. Value | Remarks | Action on Hypothesis |
|---|---|---|---|
| REIT | 0.630 | No significant relationship | Accept $H_0$ |
| DREP | 0.034 | Significant relationship | Reject $H_0$ |

Source: Compiled by the researcher based on result of regression analysis.

**DISCUSSION OF FINDINGS**

For objective one, findings showed that, during the period under review (2012 to 2021), the application of the instruments of investing pension fund in real estate investment financing in Nigeria is poor. This is because the average application for REIT and DREP are 0.064% and 0.009% respectively. None of the two real estate investment instruments (REIT and DREP) recorded up to 6% level of application annually. Emphatically, the highest annual level of application for REIT is 3.54% which occurred in 2020 while that of DREP is 5.79% which occurred in 2012. Furthermore, when aggregated during this 10-year period, none of the two real estate investment instruments (asset classes) recorded up to 1% level of application (see Table 1).

As revealed by literature, the poor level of application is attributed to the challenges on investing. Some of the challenges of investing pension fund in REIT in Nigeria are; lack of wide availability of REIT in the Nigerian market, unavailability of viable REIT in the Nigerian market, and uncertainty in realizing adequate investment returns as a result of risks associated with the newness of REIT in the Nigerian market (Nubi and Adewunmi, 2011). Others are; underdevelopment of the REIT sector in Nigeria, underdevelopment of the

Nigerian stock market where REIT is traded, stock market risk in Nigeria, lack of wide acceptability of REIT in the Nigerian market and lack of depth information on the structure and mechanism of REITs to the investing public (Ogunbanjo, 2017; Onyema, 2017).

Some of the challenges of investing pension fund in DREP in Nigeria are similar to the general problems of real estate development in Nigeria. They are, the problem of land acquisition due to high cost of land in the open market and the delay and corrupt practices shrouding land allocation by government (Adetokunboh *et al.,* 2013). According to Ugonabo and Emoh (2013) the problems include: bribery and corruption by government officials during; land allocation, land title registration, approval of building plan and discharge of development control functions. Other problems are: high cost of building construction, multiplicity of development charges and taxes, restriction by development control measures and delay and cost of land registration and titling (Ukoje and Kanu, 2014; Olofa and Nwosu, 2015).

The implication of the continued poor application of pension fund in real estate investment financing is that, the stock of real estate infrastructure in Nigeria will continue to be in deficit because the expected complimentary role by pension fund in investment financing is lacked. Another implication is that, the sources of real estate investment financing will continue to be scarce in Nigeria because the expected contribution in financing by pension fund is insignificant. Further implication is that, the contribution to Nigeria's GDP by the real estate sector would be reduced because of the minimal impact in the application of pension fund in real estate investment financing. That is, pension fund has not meaningfully contributed to Nigeria's GDP through the real estate sector.

Another obvious fact from findings is that, there was no clear pattern on the level of application of the two real estate investment instruments. The level of application of the two real estate investment instruments was neither on ascending or descending order but random from 2012 to 2021. In some years there were divestments instead of investments. The reasons for the above cases could be attributed to the need to maintain profitable portfolio balance

at every point in time. This is achieved by divesting unprofitable, risky, and unviable real estate assets and securities and increasing the stock of viable ones.

The poor application of the real estate instruments in the investing of pension fund in Nigeria as revealed by this study clearly supports the earlier view of Adjekophori (2014). The only minor difference is that Adjekophori (2014) formed his opinion on poor application based on the aggregate value of contribution of pension fund in real estate investment financing since commencement in 2004, while this study formed its opinion based on the percentage amount invested annually out of the available amount of pension fund for investment from 2012 to 2021. Adjekophori (2014) was also silent on the application of REIT in the investing of pension fund. That is, He isolated REIT and dwelt on the application of DREP in the investing of pension fund while this study dwelt on both REIT and DREP.

The findings of poor application of the real estate investment instruments also supports the earlier view of Nubi and Adewunmi (2011). The difference is that Nubi and Adewunmi (2011) studied MBS and REIT while this study dwelt on REIT and DREP. However, Nubi and Adewunmi (2011) failed to assert in clear terms that, MBS does not exist in Nigeria as an investment instrument because no MBS is enlisted at the stock exchange in Nigeria where it should be traded. They only wrote on the challenges hindering the application of MBS and REIT in the investing of pension fund in Nigeria, where they asserted that, the application of MBS is hindered by its unavailability as an investment instrument in Nigeria and the application of REIT is majorly hindered by underdevelopment of the REIT sector in Nigeria.

For objective two, it was noticeable from findings that, there was no clear pattern on the performance of REITs. The performance pattern was neither in ascending nor in descending order but random from 2012 to 2021. This could be attributed to the lack of clear pattern on the application of REITs in the investing of pension fund in Nigeria as shown in Table 1. That is, investment spending on REITs asset class by pension fund lacked pattern. It could also be



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noticeable that, during the period under review, the performance of REITs was highest in 2020 at 4.24%. As shown in Table 1, this could be attributed to increased investment spending on REITs in 2020 at 3.54%. It was also noticed by this study that, the performance of REITs dropped from 4.24% in 2020 to 3.87% in 2021. This could be attributed to the divestment of REITs asset class in 2021 to the tune of ₦856.14 million, as also shown in Table 1.

It was noticed from findings that, there was a clear pattern on the performance of DREP. The performance pattern was in descending order from 58% in 2012 to 18.16% in 2021 with exception in 2014. This is because the performance in 2014 (54.02%) is higher than that of 2013 (50.65%). This could be attributed to increased investment spending in DREP asset class from 0.37% in 2013 to 3.82% in 2014, as shown in Table 1. Besides this exception, the dwindling performance from 2012 to 2021 could be attributed to the dwindling subscribers on defined benefit scheme. It could be recalled that it is only pension fund assets of defined benefit schemes that are permitted to invest in Direct Real Estate Property (DREP) and it is gradually been phased out by the contributory pension scheme.

Based on the findings of this study, it will not be wrong to conclude that, the performance of pension fund in real estate investment financing in Nigeria is poor. This is because the two instruments of investing (REITs and DREP) performed poorly during the period under review. The poor performance of the two instruments of investing when aggregated translates to the poor performance of pension fund in real estate investment financing in Nigeria. The poor performance of pension fund in real estate investment financing as revealed by this study corroborates with separate studies earlier conducted by Nubi and Adewunmi (2011) and Adjekophori (2014) where they described performance as abysmal. The difference is that both studies were less empirical and they did not apply statistical techniques to support and prove their findings. They did not determine the performances of the individual real estate investment instruments rather they aggregated them using investments made in none real estate instruments as basis of performance measurement. The

study period of both Nubi and Adewunmi (2011) and Adjekophori (2014) ended in 2011 and 2014 respectively while this study began from 2012 and ended in 2021.

The implication of the poor performance of pension fund in real estate investment financing in Nigeria has some consequences if nothing is done to improve performance. The major consequence is that, pension fund will continue not to be impactful in real estate investment financing. This will lead to declining deficit of real estate infrastructure in Nigeria and declining sources of real estate investment financing.

For objective three, test of hypothesis revealed that, the application of Direct Real Estate Property (DREP) in the investing of pension fund showed significant relationship with the performance of pension fund in real estate investment financing in Nigeria. On the other hand, the application of REIT in the investing of pension fund showed no significant relationship with the performance of pension fund in real estate investment financing in Nigeria.

Based on the result it could be interpreted that, there is no significant change in the performance of pension fund in real estate investment financing due to the application of REIT asset class. On the other hand, there is significant change in the performance of pension fund in real estate investment financing due to the application of DREP asset class. This is because with a 1% increase in the application of DREP asset class, performance will increase by 1.379% (B value). However, it is noticeable from the result that a 1% increase in the application of REIT asset class caused 0.461% increase in performance. Bearing in mind that this increase in performance was established not to be significant, it could be interpreted that it might have happened by chance.

Other aspects of the result that should at least be mentioned are the standardized coefficients (beta) and zero order correlation. Beta measures how much the dependent variable would change (in standard deviations) when the independent variable is increased by one standard deviation assuming other variables in the model remain constant. In the regression result it could be seen that, DREP has a higher beta value (0.933) than REIT (0.179).



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This means that one unit increase in standard deviation of DREP leads to an increase in performance by 0.933 standard deviation units (see Table 5).

Zero order correlation shows bivariate relationship between each independent variable and the dependent variable while ignoring the effect of other independent variables. It could be seen from the regression result that REIT has negative relationship with performance with a correlation coefficient of –0.543 while DREP has a positive relationship with performance with a correlation coefficient of 0.794. This implies that, the application of REIT asset class in investing has negative effect on the performance of pension fund in real estate investment financing while the application of DREP asset class has positive effect. Based on findings, it will not be wrong to conclude that, DREP as an investment instrument has impacted positively on the performance of pension fund in real estate investment financing in Nigeria while REIT as an investment instrument has impacted negatively.

It should be recalled that, the aim of this study is to determine the effect of the application of real estate investment instruments on the performance of pension fund in real estate investment financing in Nigeria. This is because, arguably, no earlier study attempted to research in this regard. Some of the earlier studies that researched closer to this aim only focussed on the relationship between the investment regulation and the performance of pension fund in real estate investment financing where there was unanimity in the various studies that investment regulation has impacted negatively on performance. For instance, Oni (2013) found out that, money market indicators reacted positively towards invigorating the performance of pension fund in real estate property investment but blamed the inability to achieve improved performance over the years due to constraints posed by the investment regulation. The findings of this present research corroborate with earlier findings of Oni (2013) that DREP asset class reacted positively with performance. The difference is that Oni (2013) used money market indicators and pension contributions as variables while this study linked investment instruments and performance.



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Umeh and Okonu (2018) examined the contribution of real estate property asset to the performance of mixed-asset portfolio of the Nigerian pension fund. Their result showed that, performance improved as a result of integrating real estate property in the asset mix. They however blamed the investment regulation for constraining the increase of real estate portfolio in the asset mix. The findings of this research confirmed earlier studies of Umeh and Okonu (2018) that Direct Real Estate Property (DREP) investment reacted positively with performance. The difference is that, they focussed on diversification benefits of integrating DREP in an asset mix. Another difference is that, they used descriptive statistics to analyse data on capital values while this study used inferential statistics to determine that relationship between application of the investment instruments and performance of pension fund in real estate financing. Their period of study is 2007 – 2016 while that of this present study is 2012 – 2021.

There is similarity between the findings of this research and the earlier findings of Andonov *et al.* (2012) that the performance of DREP is better than the performance of REIT in the investing of pension fund. Besides geographical gap, the slight difference is that, the authors examined performance based on the size of the pension plan sponsors and value added from their intermediated money managers while this study examined performance based on the cumulative value of what is invested against the cumulative value limit of what is expected to be invested by pension fund in real estate through the two investment instruments (REIT and DREP).

The findings of this research that DREP performs better than REIT is in line with earlier study of Andonov *et al.* (2013). The difference is that, Andonov *et al.* (2013) focussed on investment approach, cost and size of the pension plan sponsors, where they found out that, because of derivable lower cost and high returns, larger pension fund has a growing inclination of investing in direct real estate property internally. This has led to the declining performance of their investment in REIT and other securitized instruments which are invested through intermediated money managers and fund of funds. Another

difference is that the data they used came from CEM database which focussed on pension funds from advanced countries. The CEM database did not capture the pension fund of any African country like Nigeria.

The findings of this study that, the application of DREP asset class reacted positively with performance is similar to earlier findings of Zimoch (2014). The difference is that Zimoch (2014) measured performance based on the safety/security of the pension fund where he found out that, the performance of pension fund improved because real estate property asset reacted positively to safety of fund. Based on this findings Zimoch (2014) rightly observed that, the problem of failure of the pension system can be solved by using real estate property asset as insurance for pension fund. He posited that this could be made possible by transforming the capital raised from real estate assets into liquid funds to the equity release market.

The findings of the study on UK's defined contributory pension fund by Farrelly and Moss (2014) is slightly different from the findings of this present research. This research found out that the relationship between the application of REIT and performance of pension fund in real estate is negative and not significant while Farrelly and Moss (2014) found out that, the relationship is positively small and gradual. The difference in findings could be as a result of the fact that, they blended public listed real estate (REITs) with direct real estate allocation (DREP) in a portfolio. Besides, their findings of positively small and gradual is not far from the findings of this research meaning that it could have happened by chance.

## CONCLUSION AND RECCOMMENDATIONS

The findings of this study formed the basis for drawing some conclusions. It is concluded that, the application of the two real estate instruments in the investing of pension fund in Nigeria is poor. The application lacked pattern neither in ascending nor in descending order. If the poor application of the two real estate investment instruments is not redressed, the consequence is that

the performance of pension fund in real estate investment financing in Nigeria will continue to be dismal.

It is concluded that the performance of pension fund in real estate investment financing in Nigeria is poor. This is because the performance of the two instruments of investing is poor. The consequence of this is that, pension fund is less impactful in real estate investment financing in Nigeria, and, if nothing sustainably meaningful is done to improve on investing, which will translate to improved performance, the less impactful consequence will worsen. Also, the expected complimentary role by pension fund in real estate investment funding will continue to be elusive. This will continue to worsen the scarcity of sources of real estate investment financing which Udo and Okeahialam (2016) had described as scarce in Nigeria.

Findings showed that the application of DREP asset class in the investing of pension fund impacted positively on performance while the application of REIT asset class impacted negatively. Consequently, it is concluded that, for REIT asset class to make a significant positive influence on performance the extent of its application in the investing of pension fund must be meaningfully increased. Consequently also, for DREP asset class to maintain the significant positive influence on performance, the extent of its application in the investing of pension fund must be maintained or most preferably increased.

The findings of this study provided the basis for making some recommendations towards improving the participation of pension fund in real estate investment financing in Nigeria. It is recommended that, the pension fund managers (PFAs and CPFAs) should increase investments in real estate using the two presently available instruments (REIT and DREP). It is recommended that PenCom should advise SEC, NSE and other relevant governmental and none governmental bodies to ensure that, in one hand, REIT becomes widely available as an investment instrument in Nigeria, and, on the other hand, Mortgaged Backed Security (MBS) becomes available in Nigeria as an investment instrument. The unavailability of MBS as an investment



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instrument in Nigeria has hindered the improved participation of pension fund in real estate financing.

It is recommended that pension fund managers should from hence forth increase investment in REIT so that it can measure fairly reasonably with its expected value limit. If what is invested can measure fairly reasonably with expected value limit, performance will be improved. It is recommended that pension fund managers should sustainably be increasing investments in DREP to check its declining performance. Findings showed that, the application of DREP in the investing of pension fund correlated positively with performance. To maintain this positive impact on performance it is recommended that, the fairly reasonable application of DREP in the investing of pension fund should be sustained or increased and not allowed to decline as revealed by findings.

Because of the significant positive relationship between the application of DREP and performance, this study is recommending that PenCom should allow retirement savings of Defined Contributory Schemes (DCS) to invest in DREP. It would be recalled that the investment regulation and guideline from PenCom only permitted retirement savings of Defined Benefit Schemes (DBS) to invest in DREP. It would also be recalled that, the DBS is gradually been wound up in Nigeria. Findings showed that the gradual winding up caused the declining application and performance of DREP asset class. The continued restriction of DCS from investing in DREP implies that DREP asset class would gradually be phased out as an investment instrument in Nigeria. Why allow an asset class that performs well to gradually phase out? If it were not to be a viable instrument it would not have been performing well.

It is suggested that further research in the future should focus on using the same variables over an elongated period of time to see whether there will be any difference in findings. In the situation where new real estate investment instruments are introduced in the future by PenCom, it is also suggested that this study be repeated to determine the impact on performance. It is important for studies to be conducted to investigate the factors preventing the availability of MBS as an investment instrument in Nigeria. It is also suggested



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that, the study should be repeated in the future using different statistical analysis techniques to see if there will be any difference in findings.

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