AN APPRAISAL OF THE PERFORMANCE OF REAL ESTATE IN PENSION FUND ASSETS IN NIGERIA

BY

IBIKUNLE, Funso Saheed
M.Tech/SET/2017/7158

DEPARTMENT OF ESTATE MANAGEMENT AND VALUATION
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE

JANUARY, 2022

AN APPRAISAL OF THE PERFORMANCE OF REAL ESTATE IN PENSION FUND ASSETS IN NIGERIA

BY

IBIKUNLE, Funso Saheed
M.Tech/SET/2017/7158

THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE NIGERIA

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF TECHNOLOGY IN ESTATE MANAGEMENT AND VALUATION
MINNA

JANUARY, 2022

DECLARATION

I hereby declare that this thesis titled: "**An appraisal of the performance of real estate in pension fund assets in Nigeria**" is a collection of my original research work and it has not been presented for any other qualification anywhere. Information from other sources (published or unpublished) used have been duly acknowledged and referenced in this thesis.

……..

IBIKUNLE, Funso Saheed Signature/Date
M.Tech/SET/2017/7158
FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA, NIGERIA .

CERTIFICATION

The thesis titled: "**An Appraisal of the Performance of real Estate in Pension Fund Assets in Nigeria**" by IBIKUNLE, Funso Saheed, Registration number MTech/SET/2017/7158, meets the regulations governing the award of the degree of Master of Technology (M.Tech) of the Federal University of Technology, Minna and it is approved for its contribution to scientific knowledge and literary presentation.

PROF I. A. OLATUNJI ...…….
SUPERVISOR Signature & Date

PROF. O. A. KEMIKI
.....……..
HEAD OF DEPARTMENT ESTATE Signature & Date
MANAGEMENT AND VALUATION

PROF. R. E. OLAGUNJU
……..…...……..…….
DEAN SCHOOL OF ENVIRONMENTAL Signature & Date
TECHNOLOGY

ENGR PROF. O. K. ABUBAKRE
…….
DEAN OF POSTGRADUATE SCHOOL Signature & Date

DEDICATION

This work is dedicated to my beloved mother, Late Prophetess Felicia ‘Bola Ibikunle for her painstaking efforts and uncommon love.

ACKNOWLEDGEMENTS

Foremost, I appreciate the Almighty God, the giver of life, for the strength, protection and divine guidance throughout the programme. My life has meaning today because of the unquantifiable sacrifice the Son of God made, I also have the privileged of a son because of this gesture. The Holy Spirit will not cease to amaze me; you are the greatest teacher.

My profound gratitude to my supervisor, ESV (Prof) I A Olatunji who despite his tight schedule spent countless hours correcting and passing across the necessary advice to obtain the right information for the successful completion of a quality research work. You are indeed a mentor.

In like manner, my appreciation goes to the Head of Department, ESV (Prof) A O Kemiki for his tireless efforts towards uplifting the standard of the department to greater heights.

To all the lecturers of the Department of Estate Management and Valuation, I am grateful and I say a big thank you. The contributions of non-teaching staff are also appreciated. My course mates, we encountered the good, the bad and the ugly. Our struggles and commitments have paid off.

I acknowledge the concerns of my siblings, your genuine criticisms and support. The tie in motherly love will not break. May the good Lord see you all through your respective endevours.

My dear mother, you always supported me from childhood. Your words are precious; your counsels are second to none. You were the father that I never had, **Iyarere**, permit me to say, *there is no one like mother to me, no matter how far she may be, I have*

travelled over land and sea…… you taught me all the good things that I know today. You are indeed a mother.

Lastly I would like to thank and acknowledge the great importance and contributions of my colleagues in the M.Tech programme and a number of friends whose names are too many to be mentioned.

My children, you are fun to be with, I had to leave you many times to attend to school. Peculiar, Excellence and Eminence, may the good Lord bless you.

Oluwafunmilola, you are the wife of my youth, my team player, soulmate, God made you a support, an encourager and a pillar of strength, thank you for taking care of the home. May the good Lord reward you.

Finally, I wish to express my profound gratitude to everyone who contributed in one way or the other and whose names has not been mentioned, may God bless you abundantly.

ABSTRACT

Pension funds are sources of long-term finance for capital investments (real estate inclusive), as there is access to longer-term funds through contributions by employers and employees towards retirement. Investment in real estate has an impact in both developed and developing economies. The impact of pension funds in real estate investment cannot be over emphasized, since it has pool of resources from contributions of employees of both public and private sector amounting to trillions of naira in their custody, conversely, performance of real estate (RE) has found short of expectation in pension fund portfolio (PFP). It is on this basis that study appraise the performance of real estate in pension fund assets in Nigeria. The study employed secondary sources of data. The employed descriptive and inferential method of analysis. The results revealed a low performance of RE in relative to other pension assets and is ranked 6th on the basis of risk-return at 59% (0.59) and having a least average return at 10.51%. the result of correlation revealed that Real Estate (RE) maintained a weak positive relationship with six assets which include FGs (federal government security), OCEF (open and close-end fund), LMMS (local money market security) , LOS (local ordinary shares) CDS (cooperate debt security) and SGs. RE maintained negative relationship with other three investment options in pension fund portfolio which include COA (cash and other asset), PEQ (private equity) and FINV (foreign investment). The study therefore concludes that for the real estate performance in PFP to add value to PFP performance, RE decision making must be linked to the strategic decision making level of the pension fund organization.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Pension is increasingly attracting attention of policy makers in many countries as a means of facilitating privately funded retirement income savings by an ageing workforce. Emele & Umeh (2013) asserted that pension fund is a major institutional investor in World Capital Markets (WCM). Nigeria pension industry and pension fund are still in its nascent stage as stated in the National Pension Commission (PenCom) report. The report further stateed that the industry is growing at an annual rate of 25 percent since the institution of the Contributory Pension Scheme (CPS) in 2004. A meager 10.93 percent or 7,589,936 of the working population of 69,470,901 (Q4, 2016) is currently enrolled on the CPS as at the second quarter of 2017 (National Bureau of Statistics, 2017). Anohu-Amazu (2016) presented that as at the first quarter of 2016, there was about 3 trillion naira untapped pension funds in Nigeria, which were expected to be diversified into real estate, infrastructure and other key aspects of the real economy.

PenCom is the regulatory body for all pension concerns in Nigeria. It provides guidelines and oversight functions to the various Pension fund operators. Pension fund is channeled towards various investment assets in mixed-asset portfolios to generate returns and match growth. PenCom through its investment supervision department supervises the investment of pension fund assets through the review of daily portfolio valuation reports of the Retirement Saving Accounts (RSA) Funds. It also reviews the monthly reports of the Closed Pension Funds Administrators (CPFAs), Authorized Existing Schemes (AESs) and other Legacy Funds. The department is primarily responsible for ensuring the safety and maintenance of fair returns on pension fund

investments by the Pension Fund Managers. Furthermore, it also ensured that pension fund assets were properly valued and complied with the stipulated regulation on the valuation of pension fund assets. Pension fund assets or investment portfolio in Nigeria as at 31st December, 2017 was N7.514 trillion.

Recent studies have shown that appropriate selection and combination of other investments with real estate within a mixed asset portfolio will enhance the performance of mixed asset (Araloyin & Ojo, 2011). However, the diversity of investment has brought the challenge of which investment to select. Olaleye (2008) opined that the problem of which investments should be selected is a fundamental problem of investment decision making. The problem of selecting investments is not limited to selecting those that will make up the portfolio but extends to the appropriate proportion of each investment to combine to make the portfolio worthwhile. The peculiarity of real estate qualifies it as an asset class to be combined with other assets to realize optimum portfolio returns (Emele & Umeh, 2013). Odia and Okoye (2012) maintained that it is of immense importance to study the level of performance of investment in real estate or property investments since only few studies have been carried out in the past.

Real estate development in Nigeria is experiencing huge deficit estimated at about 49 trillion naira (N49t), this is an impetus for massive real estate investment or financing in the country. The sourcing of funds for investment in real estate development poses a great deal of problem for the developer. This is largely due to economic instability and stringent measures imposed by most financial institutions. This is compounded by the fact that the interest rate structure has had an unfavorable impact on funding the development of real estate. Since financing of real estate development is a long term

project, it has necessitated the high interest rate that is being charged on the funds provided for such development purposes.

Real estate investment has been observed to require huge initial capital outlay which can be obtained from various sources. It is often difficult to finance large scale investment in real estate solely from personal savings. There is therefore, a need for other sources of finance such as equity or self-financing, commercial banks, merchant banks, insurance companies, mortgage institutions among others (Emele & Umeh, 2013).

One of the major issue in real estate development and investment is finance. There is no iota of doubt that funding is an important factor in real estate development and investment. The complexity and to a large extent, its capital intensive nature demands proper and adequate funding to make it realizable. The terms and availability of the needed funds determine the trend of estate operation. Availability and easy accessibility of estate finance in sufficient quantity will definitely accelerate all forms of property development.

Araloyin and Ojo (2011) opined that estate financing is concerned with the production of finance for building houses and office complexes which are basic necessities in a growing economy like Nigeria. The benefits to be derived from a rise in estate financing in Nigeria are many and include;

a) Increased rural and urban houses for the teaming Nigerian population.
b) The construction of industrial estate for the localization of industries and commerce.
c) An increase in employment for those in the construction industry.

In Nigeria, real estate is typically financed through a number of institutional sources: Budgetary appropriations, Commercial Banks, Insurance Companies, Pension Funds,

State Housing Corporations and the Federal Mortgage Bank of Nigeria (FMBN), Primary Mortgage Institutions. All of these constitute the formal institutions. Informal institutions such as thrift and credit societies, staff multipurpose cooperative societies and money lenders also contribute substantially to the financing of real estate. The impact of these informal institutions however cannot be properly quantified because they are largely uncoordinated, scattered and varied in scope and operational depth.

In view of the above therefore, this research work will appraise the performance of the real estate properties in pension fund assets in Nigeria between 2007 and 2017, search light will be beamed on the various guidelines and investment regulations pronounced by PenCom, furthermore, the performance of real estate in a mixed-asset portfolio will be analyzed and bottlenecks identified and appropriate recommendations made.

1.2 Statement of the Research Problem

Newell (2010) believed that real estate is an important asset class for pension funds, with attractive investment characteristics that match the long-term liabilities of pension funds. These characteristics include: a high-yield asset class, secured income (or less volatility than the stock market), attractive risk- return profile, portfolio diversification benefits and inflation-hedging abilities. Globally, these features have resulted in real estate being included as a key asset class in pension fund portfolios in many countries over the years.

Pension funds are sources of long-term finance for capital investments (real estate inclusive), as they have access to longer-term funds through contributions by employers and employees towards retirement (Emele, & Umeh, 2013). The Pension Reform Act, (PRA) 2004, in Section 73, permits the Pension Fund Administrators (PFAs) to engage in real estate investment. At the end of December 2017, Pension funds investment in

the real estate properties was a meager N203.38 billion, representing 2.7 per cent of pension fund's total assets. The cumulative investment portfolio of PenCom as at this same date was N7.515 trillion.

Furthermore, Section 89 (2) of the Pension Reform Act, 2014 provides that a PFA may, subject to guidelines issued by Commission, apply a percentage of pension fund assets in the RSA towards payment of equity contribution for payment of residential mortgage by a holder of the Retirement Savings Account (RSA). Section 3.5 of the draft guidelines issued by Commission states that an eligible RSA holder shall be allowed to access a maximum of 25 per cent of the RSA balance as equity contribution for a mortgage loan.

This study therefore will appraise the performance of the real estate properties in pension fund assets with an attempt to determine the viability of real estate properties in a mixed-asset portfolio.

1.3 Aim and Objectives of the Study

The aim of this study is to appraise the performance of real estate properties in pension fund assets in Nigeria in order to guide pension fund administrators in investment decision making.

In order to achieve this aim, the objectives are;

1. examine the trend in capital returns of various assets in the pension fund portfolio (2007-2017)
2. ascertain the performance of real estate asset relation to other assets in the pension fund portfolio
3. establish the relationship between real estate assets and other assets in the pension fund portfolio.

1.4 Research Questions

This research will address the following questions;

1. what are the trends in capital returns of various assets in the pension fund portfolio?
2. what is the extent of real estate performance in relation to other assets?
3. is there any significant variation in between performance of real estate and other assets?
4. is real estate significantly related to investment in other assets in pension fund portfolio?

1.5 Justification for the Study

Investment in real estate has an impact in both developed and developing economies. The impact of pension funds in real estate investment cannot be over emphasized, since they have pool of resources from contributions of employees of both public and private sector amounting to trillions of naira in their custody. There are various legislations established at different period in time mandating the pension commission to invest in real estate, such legislations include Pension Reform Act, (PRA) 2004 and Pension Reform Act 2014 (as amended).

Although PenCom is a regulator in the economy with particular mandate on pension actors, one of her core functions is to "stem the growth of outstanding pension liabilities" while applying key principles of sustainability, safety and security among others. Investment in real estate is a tenacious investment vehicle that guarantees safety of investment, certainty of yield and capital appreciation as part of the economic goals of investment. This means investments in real estate properties are not only secured, they are also sustainable.

Section 9 subsections 3 of the regulation on investment of pension fund assets maintains that "the commission shall issue further guidelines on performance measurements in the pension industry", how often are these guidelines rolled up, appraised and reviewed against benchmarks that can guarantee value addition. Some of the guidelines and frameworks drawn by PenCom is scoping out investment in real estate properties. In the world over, real estate investments provides a hedge over inflation, it also has tax treatment advantages. These are unique selling points for prudent investor.

Despite all aforementioned, the quantum of real estate properties in the pension fund asset is nothing to write home about, PenCom is shying away from financing real estate investment in Nigeria. This study is undertaken to expose their restrain in real estate financing while also analyzing the performance of real estate properties.

1.6 Scope of the Study

The scope of this study is limited to the portfolio of pension fund assets under the management of the National Pension Commission. It is restricted to the performance of the various assets in the mixed-asset portfolio of the fund.

The study is for 11 years from 2007 – 2017. The National Pension Commission was birthed and became operational in 2007 by the Pension Reform Act of 2004. The issues on real estate investment as advocated by the Pension Reform Act 2014 (as amended) will be given credence.

1.7 Significance of the Study

This research work is important and will be beneficial to many people. It will provide vital information to both the private and public sector participants with vital

information on the performance of real estate in a mixed-asset portfolio. The research work will also be useful to the following categories of people;

1. PenCom as a regulatory body that roll out guidelines and regulations on investment,
2. students and researchers who are interested in mixed-assets portfolio appraisal,
3. teachers in terms of adding to existing knowledge on viability of real estate investments and its relationship with other investment classes,
4. contributors to the pension scheme who may be interested in how pension fund is managed,
5. and to everyone who may seek information and knowledge about pension administration in Nigeria.

CHAPTER TWO

LITERATURE REVIEW

2.1 Historical Overview of Real Estate Investments in Nigeria

Investment in real estate in Nigeria prior the advent of British colonial masters was mainly in residential, agricultural and religious property. People invested in real estate for returns for cash or kind. The transformation from traditional to modern form of real estate investment occurred with the advent of colonial administration in the early 20th century with the government intervention in residential property development in 1928 by the then government of Lagos colony (Kabir & Bustani, 2011). The intervention was exclusively directed at the provision of housing for the white colonial population in specially protected and developed areas, referred to as Government Reservation Areas (GRAs). The advent of colonialism also brought with it the establishment administrative offices and other infrastructure that paved way for job opportunities for Nigerians in respective administrative headquarters (Olayiwola, *et al*, 2005).

The advent of colonialism accompanied with rapid urbanization swelled the ranks of urban dwellers and created an appreciable demand for residential and commercial real estate investments. With colonialism, large scale businesses in form of corporations, firms and related establishments attracted more natives and non natives to administrative headquarters and increased demand for offices, shops, residential and industrial real estate investments. Thus government, corporate and private individuals got interested in investing in real estate. With the attainment of political independence in 1960, real estate investment got a boost as the government in the centre and

respective regional governments embarked on different housing strategies to meet the needs of the teeming populace (Ogu, 2001). The Federal Government major intervention in residential real estate investment commenced in the Second Development Plan Period (1970-74) with the provision of residential properties for Lagos and for each of the former 11 states. Investment in commercial properties such as offices and shops also got a boost as governments, corporate and private individuals invested in real estate.

The turn of the century has witnessed a surge in Nigerian real estate market performance, with major institutional investors such as UACN Property Development Company, Stallion Property Development Company and Kontinental Development Company dominating the real estate market. Within the same period, the integration of real estate into the capital market began with the listing of UACN Property Development Company in the Nigerian Stock Exchange. The development which is in line with global trend, engineered growth and structural changes that has necessitated the needs for investors to make informed investment decisions (Olaleye, *et al* 2010).

Investment and Security Act 2007 defined real estate investment trust (REIT) as an incorporation for the sole purpose of acquiring intermediate or long-term interest in direct real estate investment. REIT schemes came from the desire to acquire resource from multiple investors which is out of the financial reach of any single investor. It started in United States in the 1960s and was introduced in Nigeria by Skye shelter fund in January 2008. Forms REIT are private and public whose mode of investment can be done by equity or debt. REIT is required to allocate 90% of it taxable income as dividend to its investors annually. Other examples of indirect real estate investment are property unit trust, property Shares Company like UACNPDC, land banking schemes and property authority investment trust. Investing in indirect real estate reduce capital

as little amount of money can buy a certain unit of investment. It involves individual purchase of share from real estate investment where the shareholders receive dividends from the rents and gain made from the sale of real estate assets. REIT is yet to gain wide acceptance in Nigeria according to (Nubi 2002) for the following reasons (i) absence of favorable tax regime, (ii) administrative bottleneck, (iii) inadequate or absence of legal backup, (iv) operating strategy for succeeding in completive market not clearly defined and (v) high cost of land transfer.

2.2 Historical Development of Pension and Pension Fund in Nigeria

The history of pension worldwide can be traced to Germany (Njuguna, 2010). According to Njuguna (2010), authors like Hoesli, and Lizier (2007), Marin (2007). Bello (2003), and Sule, *et al.*, (2011). gave credit to former German Chancellor Otto Von Bismarck for enacting a compulsory savings programme for workers in large firms who were exposed to be the socialist ideologies in 1889.

A pension fund is an investment fund/pool into which scheme members pay contributions to building up a lump sum to provide an income in retirement (Wall, 2014). In Nigeria, the development of pension scheme can be drawn from the beginning of organized workforces in the private and public sectors in the colonial era of the 20th century (Barrow, 2008). According to Barrow (2008) and Odia and Okoye (2012), the first pension law in Nigeria was known as the Pension Ordinance of 1951, which has retroactive effect from January 1, 1946. The 1951 Pension Ordinance provide for full pension rights of the colonial administrators and partial right granted at the discretion of the colonial Governor-General for Nigerian workers in the civil service at that time. This ordinance transmuted into the Pension Act of 1958 (Barrow, 2008). The above historical view was also shared by Odia and Okoye (2012). They stated that the history

of the Nigerian pension administration could be traced back to the early 1950s. They further opine that the PRA of 2004 brought into limelight the new pension scheme in Nigeria, which is a defined contributory scheme, unlike the old scheme which was largely defined benefits. However, in the old Nigerian Pension System, only public sector employees were captured through statutory compulsion. In the private sector, not all employers had the pension schemes in place. This was because there was no statutory demand on them to do so. Those who had the schemes in place related to lump sum payments at the verge of retirement known as pay-off were also not statutorily obligated (Nnanta, *et al.,* 2011).

Further, the first legislation to address pension matters of private organizations is the National Provident Fund (NPF) scheme which was established in 1961 (Sule, *et al* 2011). Eighteen (18) years later the Pension Act No. 102 of 1979 was established as well as the Armed Forces Pension Act No. 103 of the same year (Barrow, 2008). Similarly, the pension plan for the police and other Government Agencies' were enacted under Pension Act No. 75 of 1987, accompanied by the Local Government Pension Edict which crowned into the establishment of the Local Government Staff Pension Board of 1987. The defunct NPF scheme was replaced in 1993, by the establishment of the National Social Insurance Trust Fund (NSITF) scheme effective from 1st July 1994. The essence is to cater for employees in the private sector of the economy against loss of employment income in old age invalidity or death (Sule *et al*., 2011).

These Decrees remained the operative laws on public service and military pension in Nigeria until July 2004. However, several government circulars and regulations were issued to alter their provisions and implementations. For instance, compulsory retirement at the age of 60 years or 35 years of service, whichever comes earlier in

1988, and in 1992, the period to qualify for gratuity and pensions were reduced from 10 years to 5 years and from 15 years to 10 years respectively (Barrow, 2008).

According to Barrow (2008), in 1997 parastatals were given the opportunity have individual pension arrangements for their staff. They were also allowed to appoint Boards of Trustees (BOT) to oversee their pension plans as stated in a Standard Trust Deed and Rules prepared by the Office of the Head of Service of the Federation. Each BOT has the freedom to make a decision on whether to maintain an insured scheme or self-administered arrangement. Interestingly, prior to the enactment of the PRA 2004 there were three regulators in the pension industry. They include; the Securities and Exchange Commission (SEC), the National Insurance Commission (NAICOM) and the Joint Tax Board (JTB). The SEC remains the commission that licenses pension fund managers while the NAICOM is still the agency responsible for licensing and regulating insurance companies in the country. The JTB is saddled with the responsibilities of approving and monitoring all private pension schemes with enabling powers from Schedule 3 of the Personal Income Tax Decree 104 of 1993 (Bassey, *et al.,* 2010).

Further, the first legislation to address pension matters of private organizations is the National Provident Fund (NPF) scheme which was established in 1961 (Sule, *et al.,* 2011). Eighteen (18) years later the Pension Act No. 102 of 1979 (Udoji Commission) was established as well as the Armed Forces Pension Act No. 103 of the same year (Barrow, 2008). Similarly, the pension plan for the police and other Government Agencies' were enacted under Pension Act No. 75 of 1987, accompanied by the Local Government Pension Edict which crowned into the establishment of the Local Government Staff Pension Board of 1987. The defunct NPF scheme was replaced in 1993, by the establishment of the National Social Insurance Trust Fund (NSITF)

scheme effective from 1st July 1994. The essence is to cater for employees in the private sector of the economy against loss of employment income in old age invalidity or death (Sule *et al*., 2011).

These Decrees remained the operative laws on public service and military pension in Nigeria until July 2004. However, several government circulars and regulations were issued to alter their provisions and implementations. For instance, compulsory retirement at the age of 60 years or 35 years of service, whichever comes earlier in 1988, and in 1992, the period to qualify for gratuity and pensions were reduced from 10 years to 5 years and from 15 years to 10 years respectively (Barrow, 2008).

According to Balogun (2006), just like the private pension scheme, a Defined Benefit (pay-as-you-go) Scheme was also operated by most public organizations before the enactment of PRA 2004. Final entitlements were conditioned upon the length of service and terminal emoluments. Federal Government funded the Defined Benefit (DB) plan through budgetary allocation. The DB plan was also administered by Pensions Department of the Office of Head of Service of the Federation.

Notably, the PRA of 2004 is a legislation of the Federal Government aimed at providing the solution to the associated problems of the old Pension System. The PRA 2004 redefined the mandate of the Fund to accommodate not only pension but also the provision of Social Security Insurances services. It established a Pension System that is uniform for both the public and private sectors respectively. The Social Security Insurances services received statutory backing from the mandate given by section 71(2) of the PRA to NSITF when the Employee Compensation Act of 2010 was signed into law in December 2010 by the assent of the then President Goodluck E. Jonathan (GCFR).

Essentially, the most recent legislation – Pension Reform Act 2014, has been established by PenCom, who administer, supervise and regulate all pension matters in Nigeria. The Act repeals the PRA No.2, 2004. The PenCom would continue to govern and regulate the administration of the uniform Contributory Pension Scheme for both the Public and Private Sectors in Nigeria.

2.3 Theories of Property Asset Performance

2.3.1 Modern portfolio theory (MPT)

The MPT is based on the concepts of market efficiency and mean variance optimization of portfolios and that investors should try to diversify away as much security-specific risk as possible within the portfolio in order to focus on market or systemic risk. Marin (2007) explains the importance of the Modern Portfolio Theory (MPT) by way of an illustration when he states consider an equation 15/30/50 where for every $15 you put into retirement savings (presumably over a 40 year retirement life cycle), you should accumulate $35 in compounding before retirement and an added $50 postretirement, assuming you drawdown at 60 percent of your preretirement income.

This is actually quite logical if you stop to consider the compounding math and the timeframes involved in retirement cycles. And the funny point is that this assumes an investment return of only 5 percent, and if we raised that to 10 percent, almost 99 percent of the value comes from compound return earnings. The point is simply that how your money is invested is far more important than the amount you save (actually somewhere between 6 and 100 times more important). And, in addition, it only gets more important in the later periods once the retirement pool is accumulated" (Hartzell *et al* 2005).

No investment can be undertaken without an element of risk, and any investment scheme must focus on risk management on how the investment is deployed. Diversification is therefore vital in reducing risk while allowing the maximization of return. These are both critical concepts in pension fund management.

Harry Markowitz further quantified the concept of portfolio management which is based on the understanding that investors can reduce risk by investing in a varied pool of assets Markowitz's proposition was that an investor (who is assumed to be rational) will only undertake more risk if there is a possible additional return to be gained. The riskiness of an asset can be assessed by how much deviation there is from the expected returns on the assets. This is known as standard deviation which is a statistical measure of the extent to which a set of values deviates from the average or mean value. Investments should therefore be assessed on the basis of their contributions to the risks and returns on a portfolio of assets rather than in isolation (Maliza & Simon, 2004).

There are further developments with the modern portfolio theory such as efficient portfolios which Markowitz describes as diversified portfolios which optimize return for any level of risk. It would therefore be irrational for an investor to invest in a less than efficient portfolio when there is an alternative that can produce higher returns for the assumed risks (or lower risks for the expected returns).

2.3.2 Modern development theory

This theory concerns the evolution of growth and income inequalities and their presence in unified models. Financial market imperfections play a key role in modern development theories and influence decisions concerning human and physical capital accumulation. For instance, in theories regarding capital accumulation, the extent to

which the poor can borrow to invest in physical capital are determined through market imperfections and in theories, emphasizing entrepreneurship, financial market imperfections determine whether talented but not well-off individuals can raise funds to initiate projects (Newell *et al.,* 2002). The conclusion is therefore that the advancement of financial development, growth and intergenerational income dynamics are interlinked. Finance undoubtedly has an impact on the allocation of resources in the economy and opportunities for individuals.

The modern development theory highlights the key role of finance in the economy. The focus on the financial sectors has strengthened with the historical development of views on how economic growth and income inequality is linked. Due to the belief that poverty was a given in the infant stages of economic development and that rich people are more likely to save, it was always argued that the financing of large investment projects can only be achieved through wealth concentration (Stevenson, 2000). This inevitably led to what was described as a "fundamental trade-off between growth and social justice."

Modern development theories therefore argue that one of the keys to economic growth is wealth redistribution and financial growth. Therefore, if the cause of this inequality is capital market imperfections, policies that might remove these imperfections should be considered. However, researchers view capital market imperfections as a given and instead suggest various redistributive policies to promote growth and development most of which if carefully considered, could be disincentives to working and saving (Ting, 2002).

2.3.3 Institutional legislative theory

The theory of designing law to promote development focuses majorly on the potential of the law as a tool in the government's hand to solve social problems. It especially

concerns the design of detailed rules and regulations to engender transformation of historically dysfunctional institutional patterns which have threatened good governance and economic and social development.

In explaining problematic behaviours of social actors, three interrelated jurisprudential and philosophical foundations are identified: legal realism, sociology of law and problem-solving. Legal realism recognises a well-established reality; the theory of law is different from its application and drafters must therefore work to reduce the gap between the law and the practicality of applying or implementing it. In doing this, a crucial question must be addressed: why do people behave the way they do in the face of the law? The answer is believed to be on the basis of the sociology of law and the realistic school of philosophy's problem-solving methodology (Shulman & Hopkins, 2008).

2.3.4 The theory of law and development

Law and development concept is a subset the social theory of law largely based on the modernization and dependency theories which developed after the Second World War and the idea of legal liberalism being the central thesis. The thesis is that in implementing social change and institutional reform, the only tool available to governments is the law. This theory projects the interface between law and development and articulates the development functions of law. Development is a continual process of social change which requires institutional change in tandem. Government officials who make decisions on whether and how to implement government policies are therefore also institutions.

2.3.5 Market Efficiency Theory

A major area of interest in finance is whether financial markets are efficient or not. According to Mile and McCue (2005), an efficient market is defined as 'one in which prices always fully reflect available information. There are a number of perspectives from which the efficiency of capital markets can be assessed: allocative, operational and informational efficiency.

Allocative efficiency concerns how good capital markets are at allocating scarce capital to their most productive uses. For instance, allocating assets to firms that can achieve the best return. Operating efficiency is the cost efficiency of capital markets in raising capital. This means transaction costs will be reduced and long-term investors will be able to raise capital as easily as short-term investors. Information efficiency refers to 'the extent to which market prices of securities fully incorporate information and react to changes in information so that abnormal returns cannot be made on a consistent basis.

2.4 Concept of Property Asset Performance

2.4.1 Tragedy of the pension commons

The tragedy of the commons was described by William Foster Lloyd, a professor of political economy who used it to depict the tragedy of the Malthusian population growth. The term refers to the problems that become present due to reckless consumption of public resources freely available to everyone (Ting, 2002). This research proposes that the tragedy of the commons applies equally to pension and pension funds investment. Common property resources are subject to the tragedy of the commons theory which was introduced by Hardin. Tragedy of the commons is used to describe the depletion and overexploitation of resources held in common when

individuals are only concerned with securing their own benefits, without thought of the benefit of all.

The more working class are included in pension schemes, the more resources are available to the elderly as pensions. The number of workers who contribute to a pension scheme has rapidly grown in most countries and this creates a problem. Today, the fundamental problem is that there are regulatory restrictions on the use (investment) of these assets. In most developing countries, pension fund assets are thus idle (Chen *et al.,* 2005). The lesson from Hardin's theory of the tragedy of the commons is that individual rationality (greed) will lead to failure on a communal level; it is therefore essential that the community govern and manage the use of available resources (the commons) which in this instance is the pension fund assets. The community is not just the beneficiaries of the pension schemes, but the economy as a whole and the society at large. It was described and puts it this way: "The reasonableness of the decisions made in relation to the tragedy of the commons lies in their benefitting the individual who makes the decision at a particular moment.

Considering the state of the economy in most developing countries, retirees might be unable to live on their pensions alone and might possibly become a burden on the government or society. Although the effort to obtain short-term personal benefit might not necessarily cause damage at a societal level, it could cause a problem

2.4.2 The capital asset pricing model (CAPM)

The CAPM was introduced by William Sharpe in the 1960s and is similar to the MPT mentioned above. It is based on the construct that the return on shares (dividends plus capital gains) are generally higher but subject to more variation that return achieved on

government securities such as treasury bills. The minimum return that investors expect on a currency such as the US dollar is based on the yield on government securities.

A market risk premium is explained as "the excess return over the risk-free rate demanded by investors to hold a highly diversified portfolio of assets". If an individual share has the same risk profile as the market as a whole, the required return on that share is exactly the same as the market portfolio return. If pension fund managers follow the CAPM formula, they are more likely to receive higher return on their investments (Newell & Acheampong, 2002).

2.5 Conceptual Approach to Real Estate and Property (REP) Investment

Property is interests, benefits, and rights inherent in the ownership of real estate. *Real estate* is the identification of parcels or parcel of land including repairs (if any). They are parts or items that have been established or are on the ground or in the form of a permanent building, such as land, buildings, and fixtures in residential property.

The characteristics of real estate include differences in information, localized markets, heterogeneous properties, illiquidity, tax treatment, and supply restrictions (Akkaya, 2005). Differences in information means that there is asymmetric information between the buyer and seller in real estate transaction. Localized market means the markets are local in scope for the physical properties. Heterogeneous properties refer to the varieties of the characteristics among the properties. Illiquidity means that the real estate is not mobile or profitable and needs some legal institution as well as large individisibility of size. Tax treatment, specifically the tax advantages can be the key factors in an investment decision. Supply restrictions explain that the land supply is relatively inelastic.

Real estate is the physical land appurtenances affixed to land, for example structures, according to Chen *et al.* (2005). It is immobile and tangible. Legally, it includes land and all things that are natural part of land, such as trees and minerals and all things attached to land by people such as buildings and improvements Wall (2014) refers to real estate as immovable property, this includes land itself, buildings attached to land and everything permanently fastened to anything which is attached to earth and all chattels real. To the Estate Surveyor, buildings can hardly be separated from land as his definition of real estate includes lands and building on them.

Wall (2014) grouped real estate types into five major heads namely: residential real estate, commercial real estate, industrial real estate, forestry (or woodlands) and farmland (or agricultural lands). He came up with this grouping after considering the works of (Lee, 2008; Hoesli & Lizier 2007). Real estate is defined as a tangle real property consisting of land and the improvement on it which represent a considerable proportion of most investor's assets and has generated attractive return in the past for its investor (Ooi & Liow, 2004).

Real estate investment has been observed to require huge initial capital outlay which can be obtained from various sources. It is often difficult to finance large scale investment in real estate solely from personal savings. Wall (2014) state that, there is therefore the need for other sources of finance such as equity or self-financing, commercial banks, merchant banks, insurance companies, pension funds, mortgage institutions among others to be able to raise the large capital required for real estate investment. Real estate can principally be divided into two which are residential and commercial real estate. Benefits of investing in real estate include attractive total return, inflation protection, and low or moderate relationship with other investment. Historical,

real estate has presented low correlations relative to stock and bonds. This attribute is favorable when investors allocate capital within a broader portfolio.

Real estate investment is the purchase of building with the aim of maximizing profit which may not necessarily be financial but can be social, political and other. Real estate has been described as capital intensive business and has been traditionally regarded as a lumpy and illiquid investment (Araloyin & Ojo 2011). This is because it required a huge capital outlay. Real estate investment can widely classified into two which are direct real estate investment and indirect real estate investment.

According to (Hoesli & Lizier 2007) the oldest and the most common form of investment is real estate investment and it begin at the time of civilization and is rising into a more refined market with its securities which could be issued on the domestic or global capital market. Investment in real estate is unique because of the long investment horizon and the double returns which are available in form of rental income and capital appreciation. The major aim for investment in real estate is profit maximization but investors can also be driven by other motive which are non-pecuniary in nature, this motive include: social status, political reasons, prestige, inheritance, charity, financial.

2.6 Real Estate and Property Investment Attributes

2.6.1 Risk return contents

Investment decisions involve a trade-off between the return and risk. Investors should be willing to purchase a particular asset if the expected return is adequate to compensate for the risk John (2016). In the Chinese symbol of risk, risk is a combination of danger (crisis) and opportunity, representing the downside and the upside of the risk. Expected return is the anticipated return in some future period while

realized return is the actual return over some past period. Risk is the uncertainty about the actual return that will be earned on an investment (Lee & Kieu, 2009).

There are two components of return – yield and capital gain. Yield measures the cash flow of the price for the security. Capital gain (loss) is the appreciation (or depreciation) in the price of assets of the price change. Expected return can be calculated by weighted average of all possible outcomes (Lee & Kieu, 2009) while the risk can be calculated by the variance or standard deviation of actual return. The risks in physical property including lower liquidity, higher management, and transaction costs, and vacancy risk.

Gross margin ratio is a profitability ratio that measures how profitable a company can sell its inventory. According to Horrigan *et al.,* (2009) gross profit shows how much gain earned by the company after paying for variable cost of production. This term is used to explain the profit margin rations including the operating profit, operating income or return on sales. Modes of reducing the risk in property investment includes:

1. **Portfolio:** In financial asset investment, there is a theory namely Modern Portfolio Theory which is developed by Markowitz in the 1952. Markowitz said, "Don't pull all of your eggs in one basket". Portfolio diversification works to reduce the risk of a portfolio to an investor (Horrigan *et al.,* (2009).
2. **Sustainability**: Sustainability is to ensure that all businesses, public services, natural resources, the economy, and communities have the capacity to continue in the future (Horrigan *et al.,* 2009). Sustainable property can be in the form of green buildings or sustainable buildings. Green buildings are expected to deliver lower energy consumption and consequently lower CO2 emissions (Horrigan *et al.,* 2009). The examples of the application of this sustainable concept including buildings with

used mix, self-manufactured waste, and vegetation and parks supply to reduce heat and as reforestation.

3. **Property management:** Property management includes the day-to-day task of operating a development, such as selecting tenants, collecting rents, maintaining the building and grounds, making repairs, paying bills, and helping to plan and implement capital improvements (Stevenson, 2000). Professional property managers normally handle some duties, such as enforcement of the rental unit property rules and regulations, performance of rental market surveys and rental cost setting, preparation, advertisement, and showing of rental unit, preparation of accounting reports, property inspection, rent collection, repair and maintenance of the rental unit, response to tenant complaints, and tenant screening and selection (Stevenson, 2000).
4. **Assets Enhancement:** Assets enhancement is an effort to enhance the asset and to create value of retail or commercial property or sites through design innovation, enhancing viability, increasing income generation, improving marketability and minimizing life cycle operating cost. According to Wall (2014), assets enhancement works are carried out by property developers and business owners to improve the physical condition and enhance the market value. There are four types of asset enhancement, namely improvement of accessibility, improvement of visibility, improvement of facilities and equipments, and replanning of space and layout John, (2016). he found that asset enhancement in shopping center can increase the visitors.
5. **Inventory:** Inventory is an asset owned by a business that has the express purpose of being sold to a customer, including items sold to end customers or distributors, such as raw materials, work in process, and finished goods (Wall, 2014). In

property and real estate companies, land and other buildings to sell are called as inventories.

6. **Investment properties:** Investment properties consist of land, buildings, and infrastructures owned by companies that are used to earn rentals or for capital appreciation or both instead of as the production or supply of goods or services or for administrative purpose or sale in the ordinary course of business.

2.7 Performance of Real Estate and Property (REP) Investment in Nigeria

Until in recent time, real estate has been a relatively under-researched market compared to the major financial asset classes owing to the peculiar characteristics of real estate. Real estate investments are largely traded in private, non-centralized market, with inaccessible private data and often poor quality data (Hoesli & Lizier, 2007). However, the recent developments in global economy has necessitated that real estate investment decision needs to be informed.

The performance of property investment can be discussed mainly under two major headings. The first is the performance of real estate vis-à-vis other major investment media. Some prior studies considered the performances of real estate against the performance of non-property investment such as stocks and bonds (John, 2016; Lee 2008 and Olaleye *et al.*, 2010). It was shown in the review that across countries, real estate investment has generated lower return and lower risk. In most cases, real estate out performed stocks and bonds in terms of risk adjusted return, thereby pushing real estate ahead to wide acceptance by investors globally.

The second focus of prior studies is the performance of direct real estate versus indirect real estate investment. The attempt in this area was to consider which type of real property media commands higher return and generates lower risk (Oyewole, 2006).

Generally, the papers showed that indirect property investments behave partly like stocks returns (highly correlated with stocks) and partly like direct real estate (i.e. influenced by the underlying property assets) in terms of performance. Direct real estate offers high share of total return derived from the Income component. It also attracts stable income which contributes to the relatively lower overall volatility of real estate total return. However, indirect real estate investment offers greater liquidity, thereby giving opportunities to small scale investors to participate in real estate investments. In addition, listed property companies [indirect real estate investment) are more transparent in operations than non-listed property companies (direct real estate investment). In Nigeria, some research efforts have been made in the area of real estate investment performance. The focal points of Nigerian studies have been varied such as: performance of real estate portfolio; performance of real estate investment and securities, and comparative performance of direct and indirect real estate investment.

Olaleye (2000) examined portfolio management practice and performance of property portfolio in Lagos. He evaluated the performance of real estate in terms of means return measure, the standard deviation, the sharpe index and the differential return measure. The result showed that while portfolio in Ikeja performed better than the risk free rate, portfolio in Yaba performed below investor's targeted rate. In a comparative study, Bello (2003) examined the relative performance of residential real estate and securities in Lagos. He evaluated the relative performance of the assets in terms of the average annual return, risk adjusted return, income growth and capital growth. The result of the study ranks investment in ordinary shares above that of the residential real estate in terms of rate of return in absolute terms and risk adjusted return. The finding of the study also indicates that the risk associated with residential real estate is lower than that of ordinary shares.

In another comparative study, Amidu and Aluko (2006) examined the performance of listed construction companies and real estate companies in Nigeria within the period of 2001 and 2005. The risk adjusted performance of the companies assessed through Sharpe ratio shows that both listed construction companies and real estate companies performed worse than stocks, but nevertheless, offered diversification possibilities due to their low correlation with the stock market.

Oyewole (2006) examined the performance of direct real estate of non-listed property companies in Lagos and shares of UACN Property development company (indirect real estate investments) within the period of 1999 to 2004. The author used coefficient of variation, Sharpe index, mean return, income appreciation and capital appreciation measures. The result showed that indirect real estate performed better in terms of rate of return and capital appreciation, while direct real estate performed better in terms of risk adjusted return.

Amidu *et al.,* (2008) evaluated the performance of real estate security and other investment assets in the Nigerian stock market. The study analyzed the market prices of shares and dividend of sampled listed companies, all share index, consumer price index and yield on 90-days T-Bill for the period of 1999-2006 using descriptive, risk adjusted and regression models. The outcome of the study suggests that real estate performed better than the market on a nominal basis but underperformed the market stock on a risk adjusted basis over the time period of analysis. The result also shows that real estate security did not provide a good protection against inflation and was not correlated with the stock market.

With a focus on Nigerian market, Olaleye *et al.,* (2010) examined the performance of direct and indirect real estate in comparison with other securities in Nigerian Stock

Exchange over 2001 through 2007 period. The authors used the standard deviation, skewness, kurtosis and return/standard deviation ratio to investigate the return and risk characteristics of the assets. The study found that several investment options in real estate and stock over attractive return. The results also indicate that direct and indirect estate investments outperformed other investment options on nominal risk/return basis and they seemed to offer significant diversification benefits for investors of a mixed-asset portfolio.

In another study focused on the performance of real estate, Oyewole (2013) investigated the comparative performance of residential and retail commercial real estate investments in Ilorin within the period of 2000 and 2011. The capital returns of each real estate sector were analyzed with the use of mean return, the standard deviation, coefficient of variation and sharp index. The result shows that retail real estate performed better than residential real estate investment in terms of mean return, risk adjusted return, income growth and capital growth.

Brounen and Eichholtz (2003) also analyzed the diversification potential of property shares for the UK and the US for the period of 1986 to 2002, and found decreasing correlations between the asset classes. Ooi and Liow (2004) examined the historical performance of real estate stock and property related stocks listed in seven developing markets in East Asia comprising Hong Kong, Indonesia, Malaysia, Singapore, South Korea, Taiwan and Thailand between 1992 and 2002. The study adopted regression models and the findings indicated that the traded real estate sector in Hong Kong, Indonesia Malaysia, Singapore and Thailand underperformed the general stocks between 1992 and 2002.

In Nigeria, Amidu and Aluko (2006) investigated the investment performance of listed property and construction companies from 1998 to 2005 to determine their competitive and comparative advantages over shares in the stock market. Data on the average quarterly prices of the only listed property company, UACN Property Development Company Plc (UPDC) and six listed construction companies were compiled from the Nigerian Stock Exchange (NSE) for the period.

Miles and McCue (2005) used property-specific data from a large commingled real estate fund. They found that correlations among returns on portfolios of properties differentiated by property type were significantly less than correlations among portfolios differentiated by region. Property type was a more efficient means of diversification. A contrary view comes from Hartzell *et al*., (2002) who considered five ways of diversifying a real estate portfolio by: geographic region, property type, property size, metropolitan statistical area (MSA) and lease maturity. The geographical areas considered by these authors were the very broad areas of the USA used in this study (East, Mid-West, West and South). On the basis of appraisal-based data on properties for the period from 1973-1983, they found that correlations between returns in the four regions were usually low. They pointed, however, to the need for more detailed diversification categories.

A study by Grissom *et al*., (2001), using the standard four regions (East, West, Mid-West and South), showed evidence for the existence of regional markets for industrial real estate. This suggests the importance of regional diversification. Hartzell *et al*., (2002) have used a hybrid of the geographic and economic approaches. They divided the USA into eight contiguous regions based on similar underlying economic fundamentals (New England, Mid-Atlantic corridor, Old South, Industrial Mid-West, Farm belt, Mineral extraction area, Southern California and Northern California). Their

results show that eight-region diversification provides benefits that cannot be achieved from the traditional four-region diversification. This was confirmed by Malizia and Simons (2004) who used "demand" variables of population, income and employment rather than real estate returns and found that the eight-region classification used by Hartzell *et al.,* (2002) offered better diversification than either the traditional four geographical regions or an alternative eight-region geographical classification.

Shulman and Hopkins (2008) broadened the concept of economic diversification by analysing 60 MSAs, which they classified into homogeneous portfolios based on employment characteristics. These authors concluded that this classification should be superior to four- or eight-region diversification but did not provide a test of this hypothesis. An approach based on economic factors was also adopted by Corgel and Gay (2000) who investigated whether repayment risks of mortgages could be reduced. They divided employment data for the 30 largest standard metropolitan areas (SMAs) in the USA into eight industry groups, and did mean-variance portfolio analysis on the thus obtained time series. This analysis was found to outperform other diversification strategies.

Stevenson (2000) examined the potential diversification opportunities arising from the extension of real estate portfolios into an international environment. Using data for ten countries, the study compared the diversification benefits obtained from both real estate securities and hedged indices for a twenty-year period from 1978 to 1997. Stevenson could not confirm that there are diversification benefits obtainable from real estate equities in the international market especially in the context of a mixed asset portfolio. Stevenson (2003) carried out a re-examination of the diversification proposition from the perspective of a US-based investor from 1980-2002 using a mean-variance

spanning approach. Results confirm limited diversification benefits though not strongly enough to encourage the extension of REITs portfolios to international markets.

Extending their study to the new millennium, Newell et al. (2002) analyzed the performance of four listed property trusts in Malaysia over the 1991-2000 periods. The study reveals that the risk of investing in three of the listed property trust was higher than the overall stock market risk and significantly above the office real estate risk. Ting (2002) carried out a study to determine whether listed property companies achieved higher risk adjusted returns than shares and direct investment in residential properties; whether listed property companies could offer portfolio diversification potential when included in an investment portfolio; and whether listed property companies could act as substitutes for direct residential property investments.

Also Ting (2002) further found out that property development companies performed better (27.0%) than property investment companies (4.36%), listed property trusts (23.89%) and shares (13.01%) but on an overall basis, the property sector represented by the property index did not perform better than shares. In terms of correlation, the correlation matrix for all the investment options showed that property shares and the property index showed a high positive correlation with the stock market with correlation coefficients greater than 0.70 meaning that property shares could not offer portfolio diversification potentials when incorporated in a share portfolio due to its high positive correlation with the stock market returns.

Newell and Acheampong (2002) examined the changing correlation and asset risk profiles under different investment cycle conditions between 1980 and 2000 in order to determine whether the inter-asset correlations involving Listed Property Trusts (LPTs) change under different market conditions. Also, the authors verified whether the inter-

asset correlations involving LPTs increased with increasing market volatility as well as comparing the differences in the dynamics of these relationships given the significant growth of LPTs in the 1980s to the 1990. It was observed in the study that correlation between LPTs, and the stock market over the 20 years period was 0.64. The conclusion was that there was increased correlation between LPTs and shares during periods of increasing LPT volatility and increasing stock market volatility would result in reduced portfolio diversification benefits, a period when these benefits were mostly needed in a mixed-asset portfolio. In terms of the perspectives of different investors.

2.8 Real Estate Performance in the Mixed-Asset Portfolio

Property is not only an investment asset, but an asset that has clearly established itself as a strategic role player in the multi-asset portfolio due to its effectiveness as a diversifier of risk in a mixed asset portfolio. Empirical studies have also suggested that one of the principal reasons investors favour property investment relative to other investment media has been attributed to the superior investment performance (Hoesli *et al.,* 2002).

In the past, property investment decisions, based on the foregoing, was majorly an acquisition of direct investment in real property through private market that consists of buildings owned and managed by investors or their agents. But, with the development of the new financing arrangements for real estate in the capital markets, investors now have the opportunity to include property in a diversified portfolio by acquiring a security backed by direct real estate investment through public markets. The public markets consist of securities of firms specialising in the management or trading of property: property companies in the UK and Nigeria, real estate investment trusts (REITs) and real estate operating companies (REOCs) in the US.

However, it has been argued that for real estate securities to be reasonable substitute for direct real estate investment, they should provide investment characteristics similar to those of direct investment. These, according to Ooi and Liow (2004) are assumed to be competitive return/risk relationships, hedge against inflation and low correlations with the security markets returns over time. Several studies, in line with this proposition, have examined these characteristics, with the more recent ones (Ooi & Liow, 2004; Wall, 2014).

From an international perspective, Ooi and Liow (2004) examined the performance of real estate securities and observed that there are little abnormal returns to be earned in international real estate markets; although, substantial variations in real estate returns were found to exist across different markets and over different periods. A significant variation was equally observed in the performance of individual companies within a country. Ooi and Liow (2004) also examined the risk-adjusted returns of real estate securities traded in seven developing economies of Asian region. The findings indicated that the traded real estate sector in five of the countries under-performed the general stocks between 1992 and 2002. The study concluded that the risk adjusted returns of real estate stocks in the countries are dictated to a large extent by macroeconomic factors.

Chen *et al.,* (2011) established that real estate stocks exhibit low correlation with the all share index in the period before the stock market crash (1999 – 2007) but exhibit a high negative correlation after (2008 – 2010) the stock market crisis. Further analysis in the study using the Modigliani measure suggests that real estate stocks performed better in the post-stock market crash than in the pre-stock market crash period. The study recommends the inclusion of real estate in a mixed-asset portfolio in the post-stock market era. Chen *et al.,* (2011), a study was carried out to determine the role of

commercial real estate (properties owned for rental income generation and or capital gain) in a mixed-asset portfolio in the aftermath of the global economic crisis. It was discovered that diversification diminishes when it is most helpful, like in the periods of recession.

A large body of empirical studies in real estate literature points to underperformance of real estate securities relative to stocks on both nominal and risk adjusted basis. This clearly points to the fact that real estate securities may not after all provide a good substitute for direct real estate investments. It is, however, noted that these studies are based on real estate securities traded in the developed and developing economies. Little research efforts have been made; apparently because of the difficulty in developing a good information infrastructure for real estate market research and the low patronage of real estate securities, in under developed economies like Nigeria, which has different institutional and market structures from the developed and developing economies.

The pioneering attempt in real estate investment performance analysis in Nigeria was made by Olaleye (2000). The study examined the performance of property portfolio in Lagos and found that while portfolio in Ikeja performed better in terms of their means returns when compared with the risk free rate, portfolio in Yaba under-performed the investor's targeted rate. A major shortcoming of this study, however, is the emphasis on the performance of management as opposed to the performance of the investment itself. Bello (2003) bridged the gap by examining the relative performance of residential property investment and investment in securities.

The study found that property under-performed ordinary shares in terms of internal rate of return and risk adjusted measures. This contradicts the position of similar studies conducted in other part of the world; although valid only in the context of direct real

estate investment. The recent study of Amidu and Aluko (2006) examined the investment performance of listed property and construction companies relative to stock on the Nigerian stock market. The findings revealed that both property and construction companies stocks under-performed stock on a risk-adjusted basis. On the other hand, listed property and construction vehicles were found to offer portfolio diversification when included in an equity investment portfolio due to their low correlation with the stock market. Emele and Umeh (2013), further advances that the result of mean-variance analysis shows that private real estate offers diversification benefits in a mixed-asset portfolio.

However, the study by John, (2016). did examined the benefits of real estate securities in the mixed-asset portfolio, argued that adding real estate increases the portfolio return, and in some cases, this increase in return is coupled with a decrease in variance. In situations where variance is not decreasing, return per unit of risk is increasing as real estate is added to each portfolio. The argument here is that returns due to real estate diversification are positive in both cases. Hence, the study concluded that investors receive diversification benefits from the inclusion of real estate in their mixed-asset portfolio.

2.9 Diversification Benefits of Real Estate Investment Trusts (REITs)

Global financial crisis in 2007-2008 that has noted a historic turmoil in financial markets around the world especially with the bubble burst in the housing sector makes us curious if the potential of the mortgage and real estate related assets' role in portfolio risk reduction is still in place. Many studies have investigated with recent data whether the diversification benefit in reducing risks exists in portfolio formation with stocks and real estate investment trusts (REITs).

Schmidt (2004) investigates risk return characteristics and diversification benefits when private equity is used as a portfolio component. Schmidt finds that private equity outperforms stock investment. He observes that high average portfolio returns are generated solely by the ability to select a few extremely well performing companies. He observes that there is a high marginal diversifiable risk reduction of about 80% when the portfolio size is increased to include 15 investments. He also observes that an actual average portfolio size between 20 and 28 investments seems to be well balance selection for the purpose of investment.

Chen *et al.*, (2005) investigate whether investors can improve their investment opportunity sets by adding a REIT portfolio to benchmark portfolios. They find that EREITs appear to be non-redundant financial assets, which helps to enhance the completeness/competence of the financial market. MREITs provide no diversification benefits in the sample period. Fisher and Goetzman (2005) examine actual cash flows from commercial properties over 1977-2004 and provide insight into the benefits of diversification by property sector versus location.

Horrigan *et al.*, (2009) using REIT return data, bond data, and property holding data, construct property market segment-specific indices of asset returns. They show that pure-play indices can be employed to make pure, targeted investments in the commercial real estate market while retaining the liquidity, transparency, and pricing efficiency benefits of the well-developed public market in REITs. Annual returns of US real estate over the 31-year period starting in 1978. They find that EREITs substantially outperform physical real estate over the sample period, and MREITs and hybrid REITs suffered badly from the subprime mortgage crisis.

Lee and Kien (2009) studies on the Malaysian securitized real estate market and find that property shares offer little diversification benefits or portfolio return enhancement, whereas the equally weighted REITs portfolio does provide some diversification benefits and return enhancements under the mean-variance and downside risk frameworks. The results also reveal that the equally and value-weighted REIT portfolios do behave differently.

Fei *et al*., (2010) examine the dynamics of the correlation and volatility of REITs, stocks, and direct real estate returns. They find a strong relationship between correlations and REIT returns and that the patterns are distinguishable for different types of REITs. Interestingly, when the correlation between REITs and the Standard and Poor's 500 (S and P 500) is at its loWest, the future performance of REITs is at its highest.

Chen *et al.,* (2011) find that EREITs return are sensitive to changes in monetary policy across/with different EREITs return. During bull markets, changes in monetary policy have a significant negative impact on EREITs when investors have lower expectations of real estate price increases, but are not effective when investors have higher expectations of real estate price increases. To the contrary, during volatile and bear markets, EREITs return are not sensitive to changes in monetary policy stance. Results also show that EREITs return respond positively to stock returns in various states and conditions.

Garcia-Feijoo *et al*., (2012) evaluate the effectiveness of several asset classes in the hedging of portfolio risk over the 1970-2010 period. Of the alternative assets examined, commodities offer the greatest diversification potential due to their very low correlation with stock and bond returns. Furthermore, while the diversification benefits of many

asset classes diminish during periods of extreme market movements, the benefits of commodities remain strong. Overall, they find robust support for the hedging potential of commodities.

Alcock *et al*., (2013) investigate whether REIT managers actively manipulate performance measures in spite of the strict regulation under a REIT regime. Their findings suggest that the existing REIT regulation may fail to mitigate a substantial agency conflict and investors benefit from evaluating return information carefully in order to avoid potentially manipulative funds.

Lee (2014) demonstrates his analysis of the volatility spillovers and asymmetry between REITs and stock prices for nine countries (Australia, Belgium, Germany, Italy, Japan, The Netherlands, Singapore, the United Kingdom, and the United States) using eight different multivariate generalized autoregressive conditional heteroskedasticity models utilizing the optimal weights, hedging effectiveness, and hedge ratios for REIT-stock portfolio holdings.

2.10 Real estate development.

By definition, development is the carrying out of any building operations in, on, over or under land or the making of any material change on the use of land. For example, Nigeria Planning Law, NSUDB edit of Niger State and many other development control laws in Nigeria agrees with it. Pension funds and many other organizations interested in real estate development have options such as residential, commercial and recreational among others. Specifically, no evidence to suggest that real estate is a priority to Pension funds in Nigeria. This is a gross omission in their revenue or income generation opportunities. Real estate development is an important component of real estate investment which PenCom has ignored hitherto.

2.11 Pension industry

In the year 2017, the microeconomic environment witnessed a slow, but steady growth. This is evident as the real Gross Domestic Product (GDP) grew by 0.88 percent maintaining positive growth since it emerged from economic recession in the second quarter of the 2017. The growth rate was higher, by 2.42 percent, than the -1.58 percent recorded in the previous year. In addition, the aggregate nominal GDP grew by 12.02 percent to stand at N114.91 trillion compared to N102.57 trillion in 2016. The oil sector grew by 4.79 percent, in contrast to -14.45 percent growth recorded in the foregoing year. The sector contribution to the GDP increased by 0.33 percentage points from 8.35 percent recorded in 2016 to stand at 8.68 percent in the 2017. The non-oil sector recorded 0.47 percent growth, representing 0.69 percentage points more than -0.22 percent of 2016. The non-oil sector contributed 91.32 percent to the country's GDP.

The consumer price index eased during the year with inflation rate closing at 15.37 percent as at 31 December, 2017 compared to 18.55 percent recorded in December, 2016. This represented a 17.14 percent decline in the inflation rate in 2017. The average inflation rate during the year was 16.50%. The drop in the inflation rate could be explained by the stability in the foreign exchange market, increased agricultural output among other economic recovery indicators. This development is positive for the retirees since it would lead to an increase in their purchasing power. It would also result in achieving real returns on pension fund investments.

2.11.1 Pension fund

Pension funds are large chunk of funds which lie idle, such funds are challenged towards various investment assets so that they can generate returns and match growth. PenCom is the regulatory body for all pension concerns in Nigeria. They provide

guidelines and oversight functions to the various Pension Fund Administrators (PFAs), Pension Fund Custodians (PFCs), Closed Pension Funds Administrators (CPFAs) and Authorised Existing Schemes (AESs). Pension fund assets or investment portfolio in Nigeria as at 31st December, 2017 is N7.615 trillion.

2.11.2 Pension fund portfolio as a mixed-asset portfolio

Pension fund portfolio is known as pension fund assets mean pension assets under management and custody with licensed pension operators. The total value of pension fund assets based on unaudited valuation reports stood at N7.61 trillion as at 31 December, 2017. This represented a net growth of N1.35 trillion (22 percent), when compared with the value of N6.16 trillion as at 31December, 2016. The growth resulted primarily from monthly inflows of pension contributions into the RSA Funds, which averaged N52 billion per month; funds injected by scheme sponsors of DB-based CPFA and AES Funds; and investment incomes.

2.11.3 General principles guiding investment of pension fund

Outlined below are the general principles guiding investment of pension fund by PFAs, these principles are enumerated in the regulation guideline issued on 12th December, 2012 by PenCom.

i. PFAs shall invest pension fund assets with the objectives of ensuring safety and maintenance of fair returns.
ii. PFAs shall recruit and retain highly skilled personnel in their investment departments.
iii. PFAs shall not invest Pension Fund Assets in instruments that are subject to any type of prohibitions or limitations on the sale or purchase of such instrument, except

for open/close-end/hybrid funds and specialist investment funds allowed by this Regulation.

iv. PFAs shall not trade on margin accounts with pension fund assets.

v. A PFA shall not engage in borrowing or lending of pension fund assets.

vi. PFAs shall not trade in financial instruments with pension fund assets at prices that are prejudicial to the pension fund assets.

vii. When investing in eligible bonds/debt instruments issued by State/Local Governments and Corporate Entities, pension fund assets shall be invested only in eligible bonds/debt instruments issued by State/Local Governments and Corporate Entities that have fully implemented the Contributory Pension Scheme. The Commission shall provide periodic lists of compliant State/Local Governments and Corporate Entities.

viii. PFAs are to ensure that appropriate legal and financial due diligence are undertaken on all Prospectus/Offer Documents of eligible bonds/debt securities and other allowable instruments prior to investment.

ix. The Commission attaches great importance to sound corporate governance practices in corporate entities or specialist investment funds seeking pension fund investments. Accordingly, PFAs must take into consideration the following issues, amongst others, in corporate entities or specialist investment funds in which pension fund assets are to be invested:

i. Rules governing the Board of the corporate entity or Fund.

ii. Ongoing disclosure rules of material events in the corporate entity or Fund.

iii. Adequate disclosures of the financial condition of the corporate entity or Fund, as stated in the annual financial statements, which must be audited by a reputable firm of chartered accountants.

2.11.4 Sources of pension asset growth and diminution

The pension fund portfolio growth on a yearly basis. Evident from the annual reports hosted on the website of PenCom, the under listed accounts for yearly increase or decrease in the portfolio under the management of the four schemes.

(i) Transfer from RSA 'Active' Balances and Accrued Rights

This is an internal movement of funds between two RSA schemes. The transfers from the RSA 'Active' fund and accrued rights to the RSA 'Retiree' fund is on a regular basis, this is because contributors who retire from active employment have their contributions moved to the relevant fund. This transfer depletes the RSA 'Active fund but increases the RSA 'Retiree' fund

(ii) Contributions Received/Funds Injected by Sponsors

This is new funds injected into the fund by Scheme Sponsors and new contributions made by members in Defined Contribution (DC) Schemes. It is restricted to CPFA and AES schemes. It is an addition to the pension fund.

(iii) Investment Incomes (Interests/Coupons)

These results primarily from the increase in the absolute values of fixed income investments, impressive deposit rates on money market investments as well as increased yields on FGN Securities. It adds to the bottom-line of the fund.

(iv) Rental Income

Rental income on real estate properties is return generated from real estate properties under management. Revaluation surplus or deficit are also experienced on real estate properties. Rental income is a source of growth to the fund. Rental income is traceable to only the CPFA and AES schemes.

(v) Net Unrealized Gains/ (Losses) on Equities/Equity Funds & Bonds

Net unrealized gains/losses on investments in bonds and equity/equity funds. Investments in FGN Bonds also records unrealized gains following a drop in yields. Unrealized gains on equities and equity funds are also common sources of diminution to the fund.

(vi) Net Realized Gains/(Losses)

The net realized gains comprises gains on disposal of FGN Bonds and Open/Close-end Funds as well as realized losses on disposal of equities and corporate bonds. They increase the volume of the fund.

(vii) Exceptional Income – Foreign Exchange Gains

Currency exchange gains are sometimes recorded on dollar denominated investments and rental incomes. The bulk of the currency exchange gains are recorded by CPFA and AES schemes, as a result of their substantial dollar denominated investments.

(viii) Asset Based Fees

Asset based fees are paid by the various schemes for services received in like with the management of portfolio of assets. This fee cannot exceed the maximum allowable rate of 1.55 percent of NAV.

(ix) Transfers to RSA Retiree Fund / Benefits Payments

Total transfers to RSA Retiree Funds and benefits payment due to temporary employment (payment of 25 percent of RSA balance)

(x) Other Charges and Expenses (Including Real Estate Revaluation Deficit)

Other charges and expenses relates to provisions for audit expenses and taxes (VAT & Withholding Taxes).

2.12 Real estate in pension fund asset

Newell et al. (2002) argued that real estate is an important asset class for pension funds, with attractive investment characteristics that match the long-term liabilities of pension funds. These characteristics include: a high-yield asset class, secured income (or less volatility than the stock market), attractive risk- return profile, portfolio diversification benefits and inflation-hedging abilities. Globally, these features have resulted in real estate being included as a key asset class in pension fund portfolios in many countries over the years.

Andonov, *et al.,* (2012) maintained that real estate is the most important alternative asset class for pension funds and represents, on the average, more than 5 percent of their total holdings. In their study, they employed a previously unexplored international database to examine the investments of 880 pension funds in direct real estate and REITs over a period of 19 years. It was documented that larger funds are more likely to invest in real estate internally, have lower costs and higher returns while smaller funds are more likely to invest in direct real estate through external managers and fund-of-funds, but largely ignore REITs. This significantly will increase their costs and will reduce their returns. Moreover, the US pension funds' investment costs are twice as high as those of their foreign peers while their gross and net performances are low. The underperformance of US pension funds in real estate investments is most striking in the last two years of the sample period, and this may be due to opportunistic investment behavior pre-crisis.

2.13 Selection of optimal portfolio

With a limited number of investment options, an investor can create a very large number of portfolios by combining them in different proportions. These constitute the

feasible set of portfolios in which an investor possibly invests. This can also be referred to portfolio opportunity set. Each portfolio in the opportunity set is characterized by an expected return and a measure of risk by the instrumentation of variance or standard deviation of returns. A portfolio will dominate another if it has either a lower standard deviation and the same expected return as the other or a higher expected return and the same standard deviation as the other. The portfolio selection is really the process of delineating the efficient portfolios and then selecting the best assets. Rational investors will obviously prefer to invest in the efficient sets only.

John (2014) opines that the particular portfolio that an individual investor will select from the efficient frontier will depend on that investor's degree of aversion to risk. The selection of the optimal portfolio depends on the investor's risk aversion or conversely on his risk tolerance. John (2014) buttressed his agreement by stating that a highly risk adverse investor will hold a portfolio on the lower left hand segment of the efficient frontier while an investor who is not too risk adverse will hold one on the upper portion of the efficient frontier since the efficient frontier is a concave curve in the risk-return space that extends from the minimum variance portfolio to the maximum return portfolio.

2.14 Risk elements in real estate investment

Greer and Kolbe (2003) classified risk elements in real estate investment into three (3) according to their origins namely: (a) financial risks, (b) insurable risks and (c) business risks. They explained that the risk inherent in the use of borrowed funds and thus determined by choice of financial arrangements is called financial risk.

Risk of loss from natural hazards such as fire, flood, storm etc can be transferred to insurance companies and so is characterized as insurable risk. While risk stemming

from the possibility of making inappropriate business decisions or of misjudging the economic consequences of one's actions is labeled business risk.

Wall, (2014). collaborates other opinions that different investment options e.g. government securities, property, fixed deposit etc exhibit different risk-return characteristics. Investments that have high liquidity shares would exhibit a high-risk-high return profile. On the other hand, safe investments e.g. cash and fixed deposits would have a low risk low return diagram and would be the ideal investment choice while the least desirable is the "high return/low risk quadrant.

2.14.1 Sources of property risk

The sources of property risk are manifold, and many are unique to this investment form. Lee (2008) have identified a number of possible risks, which could affect property investment:

i. Tenant risk: it is the chance that the tenant will affect returns by his actions. The most serious concern of the investor will be chance of voids, that is, the possibility of the tenant vacating premises and paying no rent. Even where tenants sign long leases, the possibility of bankruptcy must be considered. Legal actions are expensive and ponderous where actions to recover rent are undertaken.

ii. Sector risk: it is the chance that the sectoral price movements affect the subject investment. Given the "lumpiness" of property investment, property is particularly prone to sector or regional risk. Performance different occur between sectors and regions caused by changes in the rent and capitalization rates.

iii. Structural risk: it is the chance of high repair cost, high maintenance costs or refurbishment becoming necessary and eventually rebuilding becoming necessary, either through structural failure or economic or functional obsolescence.

iv. Legislature risk: it is the chance of changes in law and status, which directly affect investment returns. Certain property investors have suffered in this respect in past decades by the introduction and extension of the rent act, that the leasehold reform act, VAT, the town and country planning Act etc.

v. Taxation risk: it is related to the above category and describes the chance of imposition of new taxes upon the investment type of alterations in current taxes. Property can be uniquely prone to taxation risk. Property is easily identified as a taxation target and is not electorally disastrous as long as home ownership is avoided.

vi. Planning risk: it is the risk that central or local government planning policies (in the broadest sense, including transport policy and so on), impinge negatively or positively upon property investment values.

vii. Legal risk: it is the chance that the title to an investment is unsatisfactory or that it is discovered that a right exists over the subject land, which affects its value. It is the risk that rent are not reviewed or notice not given or conversely that a request for an excessive rent is not challenged in time by a tenant. These possibilities are generally unique to property.

viii. Comparative risk: in addition to the concern that an investor may have about the actual performance of his investment against his target, he will also be aware of his opportunities cost risk. By undertaking an investment, he has (presumably) turned down other opportunities and he will be consciously of the returns he could have obtained elsewhere.

ix. Timing risk: it is critical for an investor to time the purchase or sale of an investment correctly to obtain the optimum return. The element of risk is crucial in

refurbishment and redeployment situations. Another aspect of timing risk is the length of time that may be involved in selling the property.

x. Holding period risk: this is related to timing risk; the longer the project life of an investment, in general, the greater the uncertainly attached to the likely income flows. For example, if an income is to be held for only twelve months, the prediction regarding income and value is more likely to be accurate than if the holding period is longer. Hence, the variance in actual return from expected is likely to increase commensurately with the holding period.

All these types of risk should concern the investor. The more he is able to qualify their levels, the more rational his investment choice decisions would be.

2.15 Pension funds operators

2.15.1 Membership of pension schemes

Memberships of the Pension Schemes are RSA (RSA Active and RSA Retiree), AES and CPFA Schemes. All the assets of the fund are managed by these schemes and are labeled Fund I, II, III IV, V and VI. CPFA and AES are the only schemes with investments in real estate properties. The total membership of pension schemes as at December 2017 was 7,888,559. Membership of the RSA scheme dominated total pension scheme memberships at 7,823,911 representing a proportional contribution of 99.18 percent. The AES and the CPFA however accounted for the balance of 0.82 percent.

2.15.2 Memberships of CPFA and AES

The total membership of CPFAs and AES were 23,983 and 40,642 respectively, as at 31 December, 2017. There has been no remarkable change in the memberships of both CPFAs and AESs in 207 because they are occupational pension schemes restricted to

staff of the sponsoring organizations. Furthermore, the PRA 2014 had foreclosed the entrance of new employees into the schemes. Since July, 2014, all new employees of the sponsor companies are required to join the CPS and open Retirement Savings Accounts (RSAs) with a PFA of their choice.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research Design

This chapter maps out the plan and strategy for an appraisal of the performance of real estate in pension fund assets in Nigeria. The research adopedt a mixed methodology that is both quantitative and qualitative approaches were used. Quantitatively, emphasis was basically on the statistical analysis of data collected from annual and quarterly

reports of the National Pension Commission. Qualitative data were also gathered from various guidelines, investment regulations and frameworks issued by the National Pension Commission throughout the review period.

3.2 Sources of Data

Data Collected	Secondary Sources of Data
Real Estate(RE)	PenCom Annual reports (2007-2017)
Local ordinary shares(LOS)	PenCom Annual reports (2007-2017)
State government security(SGs)	PenCom Annual reports (2007-2017)
Federal government security(FG	PenCom Annual reports (2007-2017)
Local money market security(LMMS)	PenCom Annual reports (2007-2017)
Cooperate debt security (CDS)	PenCom Annual reports (2007-2017)
Open and close-end fund (OCEF)	PenCom Annual reports (2007-2017)
Private equity(PEQ)	PenCom Annual reports (2007-2017)
Cash and other assets (COA)	PenCom Annual reports (2007-2017)
Foreign investments (FINV)	PenCom Annual reports (2007-2017)

Table 3.1 Sources and Types of Data Collected

This study employed the use of secondary data. Table 3.1 above show principally secondary that data were obtained from the various annual reports/bulletin of PenCom between 2007-2017. The data includes those of local ordinary shares (LOS), federal government security FGs), state government security (SGs), local money market security (LLMS), cooperate debt security (CDS), open and close-end fund (OCEF), real estate (RE), private equity (PEQ), cash and other assets (COA) and foreign investments (FINV).

3.3 Methods of Data Collection

Secondary data were harvested by means of in-depth review of annual reports, bulletins, guidelines and frameworks of PenCom between 2007- hoisted on their website.

3.4 Method of Data Analysis

This study is a quantitative study which relied on data collected from annual reports of PenCom. The data collected for the study includes data on capital values for various asset classes. The study is one that covers PenCom investments between 2007 and 2017. The data collected were analyzed using descriptive and inferential statistics while the performance on investment was evaluated using Markowitz's performance measures. Performance measures used Means and standard deviations (SD) are calculated to provide a relative comparison of the different asset classes on both a risk and return basis. Correlation coefficients were then calculated to describe the co-movement between each asset class. The asset with the lowest correlation would usually be a good asset for risk reduction in a portfolio through increased diversification. The performance measurement tools used in this study are:

3.4.1 Descriptive method of analysis

a) Capital return: capital return adopted was derived from the capital values of assets in the PenCom annual reports. That is increase in capital (or capital appreciation) on a year on year basis was divided by capital value of the intial year of the preceding year. This is used to estimate the rate of return on the individual asset class as given below:

$$CRt_{=}\frac{CV_1 - CV_{t-1}}{CV_{t-1}} \quad \text{..... equation (1)}$$

$\boldsymbol{CR_t}$ represents average capital return for period $\boldsymbol{t}$, $\boldsymbol{CV_t}$ represents capital value at the start of measurement period and $\boldsymbol{CV_{t-1}}$ represents capital value at the end of period $\boldsymbol{t-1}$.

b) Asset return: asset return from each asset class was calculated using their arithmetic mean. This is represented below:

$$CRt = \frac{\sum_{i=0}^{n} CRt}{n} \quad \text{..... equation (2)}$$

where CR_t represents the mean capital return of each asset for the year in review, $\sum_{i=0}^{n} CRt$ represents the summation of all capital return an asset at various periods under review and n represents the number of observation.

c) Asset risk: asset risk was measured using standard deviation. This is seen as the appropriate tool based on Levisauskait's (2000) view. The formula is:

$$\partial = \sqrt{\sum(\frac{(CRt - CRt)^2}{n})} \quad \text{..... equation (3)}$$

where CR represents the capital return of an asset class for a period, CR_t represents the mean return of an asset, n represents the number of observation and ∂ represents the standard deviation of the an asset class.

d) Risk-return profile: risk-adjusted rate of return of each of the assets was obtained by doing a mean-variance analysis using the following formula:

$$R = \frac{CRt}{\partial} \quad \text{..... equation (4)}$$

where R represents the risk-adjusted rate of return, CR_t represents the asset mean annual capital return and ∂ represents the standard deviation (risk) of an asset class.

3.4.2 Inferential method

Correlation: Pearson product moment correlation was adopted to observe whether there is any similarity or dissimilarity in the behavior of various pairs of assets.

Where Xi represents the annual capital return of investment X, Yi represents the annual capital return of investment Y, Y represents the mean capital return of investment Y for period n and X represents the mean capital return of investment X for period n.

Table 3.2 below is a representation of the methods and techniques employed in respective of the objectives pursued for the research.

Table 3.2 Methods and Analytical Technique for the Objectives of the Study

s/n	Objectives of the study	Method	Techniques
1	To examine the trend in capital returns of various assets in the pension fund portfolio (2007-2017)	Descriptive	Capital returns model
2	To ascertain the performance of real estate asset relation to other assets in the pension fund portfolio	Descriptive	Asset mean, Asset risk(standard deviation) and Risk-adjusted
3	To establish the relationship between real estate assets and other assets in	Inferential	Pearson's Moment Correlation

the pension fund portfolio.

3.5 Justification for the Techniques

1. **Capital return Model**: It is based on the construct that the return on shares (dividends plus capital gains) are generally higher but subject to more variation that return achieved on government securities such as treasury bills. The minimum return that investors expect on a currency such as the US dollar is based on the yield on government securities.
2. **Asset Mean**: it is average performance of each asset in pension fund portfolio. It measure average between loWest and highest capital return.
3. **Asset Risk** (standard deviation): The standard deviation provides a statistical summary of the dispersion of the assets return. To provide a meaningful assessment of the performances of the various investment options
4. **Risk-adjusted** (Coefficient of Variation). It is mean variance technique. It provides relative unit of performance of asset in relative to other assets.
5. **Analysis of Variance**: this technique was adopted to provide significant variation in asset means across the pension fund portifolio.
6. **Pearson's Moment Correlation**: Pearson product moment correlation was adopted to observe whether there is any similarity or dissimilarity in the behavior of various pairs of assets, in other word, it provides the degree of relationship or strength of relationship.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Annual Trends in Growth of Capital Return of Various Assets in the Pension Fund Portfolio

Table 4.1 Annual Trends in Growth of Capital Return of Assets

Year	FGs	RE	OCEF	LMMS	COA	PEQ	FINV	LOS	CDS	SGs
2007	0	0	0	0	0	0	0	0	0	0
2008	25.38	58.7	102.47	0	0	0	0	0	0	0
2009	42.2648	13.912	−36.4300	107.88	7.93	54.85	−33.8830	−7.3490	6,200.00	220
2010	66.21	19.278	50	63.103	43.39	−9.9130	2.7246	0.3322	106.217	20,968.75
2011	64.1715	11.254	0	−9.7700	−48.4600	32.36	36.0045	60.185	62.7004	106.4669
2012	30.14	−0.3740	87.8	−34.7100	127	0	0	1.3937	47.6247	57.773
2013	34.5819	2.3439	29.499	52.54	10.68	388.51	87.3029	0.2865	−5.8352	52.181
2014	21.39	10.247	0.4298	−2.4400	7.125	−78.0300	1,916.77	62.484	14.7901	25.7794
2015	21.4506	8.0141	−1.4740	13.883	56.11	26.42	−96.1330	−8.114	47.5479	−17.9790
2016	4.82	−7.8490	7.1429	3.64	−39.6000	121.2	164.29	−4.743	53.2234	−11.5777
2017	70.43	0.17	0.16	9.07	0.47	0.34	0.47	8.94	3.57	2.03

Source: PenCom (2017)

Table 4.1 was generated from data presented as appendix 1. The annual trend in capital returns on all asset of pension fund portfolio (2007-2017) is presented in Table 4.1. The result of the trend revealed that FGs (federal government security) is positively trend

on double digit returns over the period indicating a better performance. RE real estate showed a negative performance in 2012 and 2016 indicating that real estate was under performed. OCEF showed a negative performance between 2009 and 2015 which indicate negative performance with zero performance in 2011. LMMS also revealed that negative performance in 2011, 2012 and 2014 with zero performance in 2008, indicating a least performance in the among other asset in term annual capital return b having more annual period of negative performance. COA (cash and other asset) performed negatively in 2011 and 2016 periods. PEQ (private equity) also showed a negative performance in 2010 and 2014. FINV (foreign investment) showed a negative performance 2009 and 2015. LOS also revealed a negative performance in 2009, 2015 and 2016 just like that of LMMS. CDS is better after FGs to have only negative performance in 2013 only, and finally SG had negative performance in two consecutive periods (2015 and 2016).

Table 4.2 Performance Analysis of Real Estate and Other Assets In Pension Fund Portfolio

Assets	N	Asset returns	Asset risk	Risk-return	Ranking
FGs	11	34.62	23.98	1.44	8
RE	11	10.51	17.76	0.59	6
OCEF	11	21.78	42.12	0.52	5
LMMS	11	18.47	40.27	0.45	4
COA	11	14.96	47.79	0.31	1
PEQ	11	48.70	122.66	0.40	3
FINV	11	188.86	576.88	0.32	2
LOS	11	10.31	25.65	0.40	3
CDS	11	593.62	1859.74	0.32	2
SGs	11	58.67	85.71	0.68	7
Valid N (listwise)	11				

Source: computed from Table 4.1

The result of performance of the pension fund portfolio is among different asset is presented in Table 4.2. the table showed the asset return, asset risk and risk-return on various types of investment assets in pension fund portfolio. The result showed that the Cash and other assets (COA) is most performed investment asset in pension fund portfolio because it has least risk per unit of investment at 31% (0.31) and as a result it is ranked first.COA investment is growing at average of 14.96% at 47.79% deviation. foreign investment (FINV) is ranked second the most performed investment asset in pension fund portfolio, at average increase in return that is 88.86% more than original capital invested (188.86%) at high investment volatility at 576.88% but having a least risk per unit of investment at 32% is therefore ranked third, followed by LOS (local ordinary shares) at the same risk per unit of investment. LMMS (local money markets) and OCE (security open and close-end fund) were ranked forth and fifth respectively. Real estate (RE) is found sixth the most performing asset of pension fund

portfolio and it was ranked sixth and it has a degree of variation of about 17.76% at an average return of 10.51% that is considered very low as compared to other. This suggests that RE is not among the first five the most performed investment option in pension fund portfolio, in other word, RE is performing low as compared with the first five investment options in pension fund assets. SGs and FGs were found 7th and 8th least the most important asset.

Table 4.3 Significance of Variance between RE and Other Investment Assets of Pension Fund Assets

(I) factor	(J) factor	Mean (I-J)	Variance Std. Error	.	95% Confidence Interval	
					Lower Bound	Upper Bound
RE	FG	-24.10389	263.57941	.927	-547.0379	498.8302
	OCEF	-11.26379	263.57941	.966	-534.1978	511.6703
	LMMS	-7.95455	263.57941	.976	-530.8886	514.9795
	COA	-4.44991	263.57941	.987	-527.3840	518.4841
	PEQ	-38.18555	263.57941	.885	-561.1196	484.7485
	FINV	-178.35000	263.57941	.500	-701.2840	344.5840
	LOS	.20733	263.57941	.999	-522.7267	523.1414
	CDS	-583.10385*	263.57941	.029	-1106.0379	-60.1698
	SGS	-48.15705	263.57941	.855	-571.0911	474.7770

*. The mean difference is significant at the 0.05 level.

Table 4.3 showed the significance of variance between RE performance and performance of other investment assets. The study showed that RE maintained no significance difference with other asset except CDS (cooperate debt security). RE maintained positive significant difference with CDS indicating that the difference between the performance of the two asset is wider than any investment asset. Both RE and CDS are incomparable assets because there was large significant variance. In other word one is more extraordinary performing more other. Unlike other asset where the variance is significant. in other word, RE is significantly performed over and above CDS.

Table 4.5 Pearson's Moment Correlation between RE and Other Investment Asset

Variables		REP	FGS	OCEF	LMMS	COA	PEQ	FINV	LOS	CDS	SGs
	Pearson Correlation	1									
RE	Sig. (2-tailed)										
	N	11									
	Pearson Correlation	.119	1								
FGS	Sig. (2-tailed)	.728									
	N	11	11								
	Pearson Correlation	.524	-.023	1							
OCEF	Sig. (2-tailed)	.098	.946								
	N	11	11	11							
	Pearson Correlation	.093	.285	-.395	1						
LMMS	Sig. (2-tailed)	.786	.396	.230							
	N	11	11	11	11						
	Pearson Correlation	-.061	-.018	.467	-.114	1					
COA	Sig. (2-tailed)	.858	.958	.148	.738						
	N	11	11	11	11	11					
	Pearson Correlation	-.244	-.064	-.037	.334	-.159	1				
PEQ	Sig. (2-tailed)	.469	.853	.914	.316	.641					
	N	11	11	11	11	11	11				
	Pearson Correlation	-.040	-.203	-.161	-.185	-.110	-.283	1			
FINV	Sig. (2-tailed)	.908	.549	.636	.586	.748	.399				
	N	11	11	11	11	11	11	11			
	Pearson Correlation	.201	.239	-.190	-.357	-.350	-.303	.681*	1		
LOS	Sig. (2-tailed)	.099	.480	.577	.281	.291	.365	.021			
	N	11	11	11	11	11	11	11	11		
	Pearson Correlation	.062	.112	-.458	.739**	-.045	.012	-.131	-.228	1	
CDS	Sig. (2-tailed)	.857	.742	.157	.009	.895	.972	.700	.500		
	N	11	11	11	11	11	11	11	11	11	
	Pearson Correlation	.121	.561	-.138	.709*	.088	-.015	-.144	.006	.634*	1
SGs	Sig. (2-tailed)	.723	.072	.687	.015	.797	.964	.673	.986	.036	
	N	11	11	11	11	11	11	11	11	11	11

Source: computed from table 4.1

The result of Pearson's moment correlation presented in table 4.5 revealed that real estate and properties (REP) maintained both positive and negative relationship with other investment assets. REP maintained a weak positive relationship with FGs (federal government security), OCEF (open and close-end fund), LMMM (local money market security) , LOS (local ordinary shares) CDS (cooperate debt security) and SGs at .119, 0.524, 0.93 0.2010.062,and 0.121respectively. Also REP maintained weak negative relationship with COA (cash and other asset), PEQ (private equity) and FINV (foreign investment) -0.61, -0.244 and -0.040 respectively. this indicates while RES maintained positive strength in determining the changes in other investment assets, it also maintained negative relationship in determining the change in other investment. The lower correlations imply which there is need for diversification strategy as best option.

Summary of Findings

Having analyzed and discussed the result of findings are presented as follows:

1. The study found that the trend revealed that FGs (Federal Government Security) is positively trended on double digit returns over the period indicating a better performance over and above other investment assets. RE real estate showed a negative performance in 2012 and 2016 indicating that real estate was under performed in the period of drought in the market. The RE is found to have exhibited both double digit trend period of five years and operated on single digit in another period of five years.
2. The finding of the study revealed that out of ten different type of asset, RE is the sixth the most performed asset of pension fund. This further showed that RE is integral part of pension fund portfolio and it is an indispensable asset of pension

fund portfolio because it was found to be the least asset risk within pension fund portfolio and also has a comparable asset returns.

3. The finding also revealed that RE maintained no significance difference with other asset except CDS (cooperate debt security). RE maintained positive significant difference with CDS indicating that the large variance in the performance of the two asset than any other investment asset. Both RE and other investment asset have comparable returns because of insignificant variance between the mean.
4. The study found that real estate (RE) maintained a weak positive relationship with six assets. These include FGs (Federal Government Security), OCEF (open and close-end fund), LMMS (local money market security), LOS (local ordinary shares) CDS (cooperate debt security) and SGs. this indicates a positive movement between REP and aforementioned six investment assets.
5. The study also discovered that REP maintained negative relationship with other three investment options in pension fund portfolio. These include COA (cash and other asset), PEQ (private equity) and FINV (foreign investment) which indicate that there were negative movement between RE and three aforementioned investment asset.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study has unraveled the performance of real estate properties in pension fund assets. The understood that real estate RE trended on more on single digit than double digit, which implies that irregular performance and negative period of returns also implied a drought in the property share market. The study also understood that poor performance of RE in relation to other asset is associated with fact that other investment asset were more developed than RE because most real estate transaction were quoted as security, in other word, still operating at local market (direct property investment). variance in performance between REP and other investment assets except CDS (cooperate debt security) had little or no difference indicating that they all have comparable return unlike CDS (cooperate debt security). The study further understood that positive correlation between RE and FGs (federal government security), OCEF (open and close-end fund), LMMS (local money market security) , LOS (local ordinary shares) CDS (cooperate debt security) and SGs (state government security).

The implication is that any positive change in RE will cause positive change in identified investment assets. Furthermore any negative change in REP will also cause negative change in three investment assets such as FGs (federal government security), OCEF (open and close-end fund), LMMM (local money market security) , LOS (local ordinary shares) CDS (cooperate debt security) and SGs. The study concludes that This study concludes that real estate is better off when been held in a mixed-asset portfolio as the correlation revealed a negative association with other investment

asset. For the real estate strategic performance in PFP outlined in the finding to add value to PFP performance, RE decision making must be linked to the strategic decision making level of the pension fund organisation

5.2 Recommendations

1. The study discovered that diversification benefit associated with the inclusion of real estate as an integrated-asset portfolio of Nigeria Pension Fund required a better performance to improved pension fund base. Hence, real estate inclusion in an institutional portfolio should be encouraged provided the economic condition in the country remains unchanged.
2. There need to encourage investment in indirect property market rather than direct market among real estate investors. This can be achieved by making share price attractive to investor at higher dividend.
3. Real estate investment asset is back-bone of every other asset therefore there is need to focus resources and develop policy framework for improvement in RE investment asset in order to sustained any other investment.
4. Apart from the fact that real estate is special diversified portfolio, it is good hedge against inflation and it is capable of generating return that is unaffected by general change in price level, therefore it is recommended that pension stakeholder should take advantage of these qualities by encouraging the investors to invest more in property shares.

5.3 Area for Further Research

This study can be extended to several areas of challenges of investment assets. Developing policy framework for better operation of real estate asset is an important research area that can be further focused on by incoming research in the field of real

estate research. It can also be extended by studying prospect of real estate diversification functions.

Framework for Improving the Role Real Estate (RE) In Pension Fund Portfolio (PFP)

Based on previous research and the observation from checklist of some corporate real estate site, the framework model shown in Figure 4.1 can be produced and presented in a flow chart. It illustrates chronological approaches to improve the role of real estate in the performance of pension fund portfolio asset. The framework reflects seven strategic approaches to the performance of RE role in PFP as described as follows:

Increasing the Value of Assets

The first strategy, increasing the value of assets through managing the real estate portfolio, views real property as a capital asset that can be managed to optimize financial contribution to the firm. Objectives may be to maximize the value of the property portfolio or ensure that the lowest cost alternative is chosen considering all short- and long-term costs of owning versus renting. However, properly managing the company's portfolio must start with an inventory and valuation of current facilities, then management via a property information system.

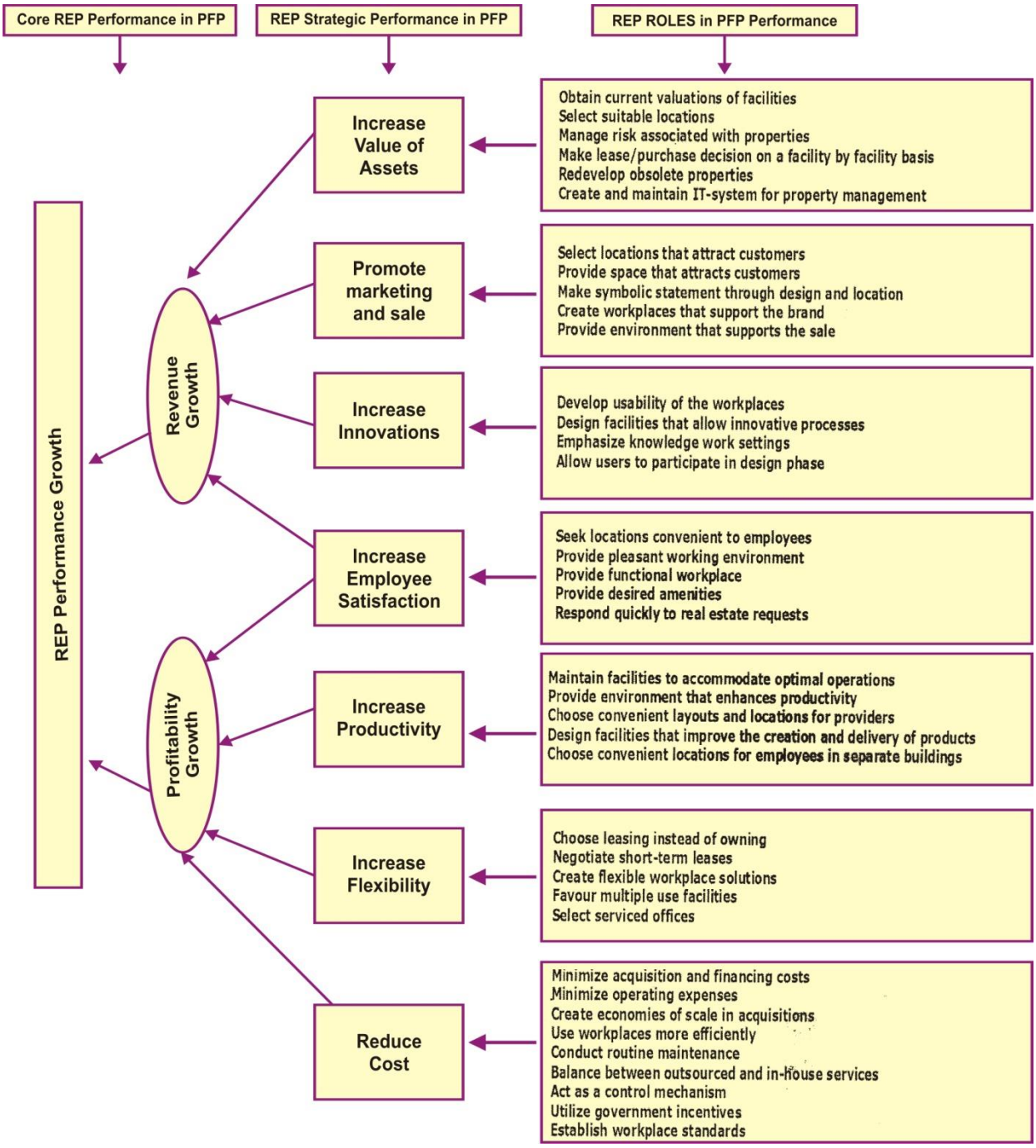

Figure 5.1: Framework for Improving the Role Real Estate (RE) In Pension Fund Portfolio (PFP)

Promoting Marketing and Sale

Real estate can contribute to the marketing and sales strategies through site selection and physical design. Accessibility and visibility are keys to attracting customers and increasing revenues. Physical design can be used to create an image for the company among its suppliers, employees, customers, and investors, an indirect way of adding value to the firm.

Increasing Innovations

Increasing innovations is a less familiar real estate strategy. Many firms are in knowledge businesses operating in very competitive environments. To survive and grow they need to innovate. These firms need to provide workspaces that encourage and support innovative thinking and working. This requires the participation of the space users in planning spaces and providing the type, size, and design of workspace that creates an inspiring working atmosphere. This, in turn, will lead the firms to the increased revenues that manufacturers achieve through innovation.

Increasing Employee Satisfaction

Increasing employee satisfaction with their working environments depends on real estate and facilities management decisions concerning site selection, workplace design and amenities, and environmental quality. Firms making workplace decisions to improve employee satisfaction can expect to achieve the increased financial returns experienced by other firms in a range of industries who have recognized this indirect path to profits.

Increasing productivity

Increasing productivity will also lead to increased profitability. Real estate decisions about site selection, infrastructure and interior design directly impact the functionality of the space, allowing employees to work more efficiently and effectively. Real estate and facilities decisions influence a number of personnel and system factors, which influence the level of productivity of the individual and, subsequently, the level of productivity of teams and profitability of an organisation.

Increasing flexibility

A strategy of increasing flexibility may include both physical workspace and financial terms. Many firms form and reform work teams within their offices on a regular basis. They are experimenting with flex time and shared jobs that allow workers to share space. Others want be ready to move into and exit markets quickly as conditions change. In contrast, most space agreements are long-term and workspaces relatively fixed, obligating the firm to pay for space that is not optimal for its operations. If one of the key drivers of flexibility for the firm is its workspace, then a real estate strategy that focuses on providing flexible space that can match the duration of business needs will support the firm's core strategy and add value to the firm. Some operating decisions that would follow from a flexible real estate strategy include choosing spaces that can be adapted to multiple uses and workers, creating flexible workspaces within the structures, negotiating short-term leases that include options for expansion and contraction, and leasing rather than purchasing properties that are not essential to the core business.

Reducing Costs

The most familiar of the strategies to increase profitability is reducing costs. Reducing cost in any area has a direct and immediate impact on the financial performance of the firm. The most often mentioned real estate operating decisions to achieve cost reduction objectives include outsourcing some real estate services and using corporate real estate staff to oversee operating units' real estate transactions. Other actions firms may consider in pursuit of this strategy include co-locating business units, occupying green buildings and choosing locations based on governmental incentives. They may reduce expenses by negotiating lower rates for real estate related services and utilities, and increasing quality and timing of facilities maintenance to avoid costly repairs and capital expenditures.

REFERENCES

Akkaya, G. C., Nilgun, K., & Mine, T. (2005). Real Estate Investment Trusts and Fundamentals of Real Estate Investments: A Case of Turkey. Yonetim Ve Ekonomi. 2 (1), 40-46.

Alcock, J., Glascock, J., & Steiner, E. (2013). Manipulation in U.S. REIT investment performance evaluation: Empirical evidence. *Journal of Portfolio Management*, 47, 434 465.

Amidu, A. & Aluko, B. T. (2006). Performance analysis of listed construction and real estate companies in Nigeria, *Journal of Real Estate Portfolio Management*, 12(2), 177-85.

Amidu, A., Aluko, B. T., Nuhu, M. B. & Saibu, M. O. (2008). Real Estate Security and other Investment Assets: A comparison of investment characteristics in Nigerian stock Markets.

Andonov, A., Kok, N. & Eichholtz, P. (2013). A Global Perspective on Pension Fund Investments in Real Estate, *Journal of Portfolio Management Special Real Estate,* 39(5), 32-42.

Andonov, A., Kok, N. & Eichholtz, P. (2012). Value added from Money Managers in Private Markets? An Examination of Pension Fund Investments in Real Estate. Working Papers, Maastricht University, Maastricht.

Anohu-Amazu, C. (2016). Pension fund as a Catalyst for Economic Development. *17th Annual Lecture of the Catholic Brothers United (CBU), Lagos*. Available at: http:// thenationonlineng.net/n3tr-pension-fund-untapped-says-PenCom/. October 16.

Araloyin, F. M., & Ojo, O. (2011). Factors Influencing the Selection of Real Estate Agent in Nigeria. *British Journal of Management and Finance*. 1 (1) 31 – 41.

Balogun, A. (2006). Understanding the New PRA 2004. *CBN Bullion, 3*(2).

Barrow, G. (2008). *Pension Fund Administration in Nigeria*. Abuja, Nigeria: Pen and Pages Ltd.

Bassey, N. E., Etim, O. U., & Asinya, F. A. (2010). An Overview of the Nigerian Pension Scheme from 1951- 2004. *Global Journal of Humanities, 7*(1&2), 61-70.

Bello, O. M. (2003). Comparative Analysis of the Performance of Residential Property Investment and Investment in Securities in Lagos, Nigeria. The Estate Surveyor and Valuer, 26(1), 7-14.

Ben-Shahar, D. (2001). *A Performance Comparison between Dwellings and Financial Assets In Isreal*, working paper, The Arison School of Business, The Interdisciplinary Center, Herzliya.

Brounen, D. & Eichholtz, P. (2003). Property, Common Stock and Property Shares: Increased Potential for Diversification. *Journal of Portfolio Management*. 29(5), 129 – 137.

Chen, H.C., Ho, K. Y., Lu, C. & Wu, C. H. (2005). Real Estate Investment Trusts. *Journal of Portfolio Management*. 3(31), 46-54.

Chen, M.C., Pengy, S., Sheu M., & Zeng, J. (2011). Market states and the Effect on Equity REIT returns due to Changes in Monetary Policy stance. *Journal of Real Estate Finance and Economics, 14, 23-45.*

Corgel, J. B. & Gay, G. D. (2000). Local Economic base, Geographic Diversification and Risk Management of Mortgage Portfolios. *AREUEA Journal*, 15(3), 256-67.

Emele, C. R. & Umeh, O. L. (2013). A Fresh look at the Performance and Diversification benefits of Real Estate Equities in Nigeria: Case study of Real Estate Equity and some selected common Stocks. *International Journal of Development and Sustainability,* 2(2), 1300-1311.

Fei, P., Ding, L., & Deng, Y. (2010). Correlation and Volatility Dynamics in REIT Return: Performance and Portfolio Considerations. *Journal of Portfolio Management,* 36, 113-125.

Fisher, J. & Goetzmann, W. (2005). Performance of Real Estate Portfolios. *Journal of Portfolio Management*, 35, 32-45.

Garcia-Feijoo, L., Jensen, G. R. & Johnson, R. R. (2012). The Effectiveness of Asset Classes in Hedging Risk. *Journal of Portfolio Management, 38(3), 40-55.*

Greer, G. E. & Kolbe, P. T. (2003). Investment Analysis for Real Estate Decisions.

Grissom, T. V., Hartzell, D. J. & Liu, C. H., (2001). An Approach to Industrial Real Estate Market Segmentation and Valuation using the Arbitrage Pricing Paradigm, *AREUEA Journal*, 15(3), 199-219.

Hartzell, D. J., Shulman, D. G. & Wurtzebach, C. H., (2002). Refining the Analysis of Regional Diversification for Income-producing Real Estate, *Journal of Real Estate Research*, 2(2), 85-95.

Hoesli, M. and Lizier, C. (2007). *Real Estate in the Investment Portfolio.* A Report Prepared for the Investment Strategy Council of the Royal Ministry of Finance.

Horrigan, H., Case, B., Geltner, D., & Pollakowski, H. (2009). REIT-based Property Return Indices: A New Way To Track And Trade Commercial Real Estate. *Journal of Portfolio Management, 35, 80-91.*

John, M. B. (2016). Investing in Real Estate. Oaktree. *Jouurnal of Capital Management*.

Kabir, B. & Bustani, S. A. (2011). A Review of Housing Delivery Efforts in Nigeria, *International review of social sciences and Humanities*, 2(1), 176-186.

Lee, C. L. (2008). Housing in Australia as a Portfolio Investment, *International Journal of Housing Markets and Analysis*, 1(4), 352-360.

Lee, C. L., & Kien, H. T. (2009). The Role of Malaysian Securitized Real Estate in a Mixed-Asset Portfolio. *Journal of Financial Management of Property and Construction, 14(3), 208-230.*

Levišauskait, K. (2010). Investment Analysis and Portfolio Management, Vytautas Magnus University Kaunas, Lithuania.

Malizia, E. E. & Simons, R. A. (2004). Comparing regional classifications for Real Estate Portfolio Diversification, *Journal of Real Estate Research*, 6(1), 53-77.

Miles, M. & McCue, T., (2005). Commercial Real Estate Returns, *AREUEA Journal*, 12(3), 355-77.

Marin, G. (2007). The Modern Portfolio Theory has an Investment Decision Tool: Retrieved 14 April, 2018: http:// www.morning star.co.uk/uk/news/124032

National Bureau of Statistics. (2017). Retirement Savings Account (RSA) Membership Distribution (Q22017): National Bureau of Statistics, Abuja.

National Pension Commission. (2016). First Quarter 2016 Report, National Pension Commission, Abuja, available at: www.PenCom.gov.ng/category/publications/quarterly-reports/

Newell, G. (2010). The Significance of Real Estate in Asian Pension Funds, *APREA*, Singapore.

Newell, G. & Acheampong, P. (2002). The Dynamics of the Australian Property Trust Market Risk and Correlation Profile, *Pacific Rim Property Research Journal*, 17(4), 259 – 270.

Newell, G., Ting, K. H., & Acheampong, P. (2002). Listed Property Trusts in Malaysia, *Journal of Real Estate Literature,* 10(1), 109-118.

Njuguna, A. G. (2010). *Strategies to Improve Pension Fund Efficiency in Kenya*. An Unpublished Ph.D Thesis of Nelson Mandela Metropolitan University, Port Elizabeth.

Nnanta, N. E., Okoh, C. I., & Ugwu, C. S. (2011). Implications of the new Pension Reform for Social Security Planning in the Local Government. *Arabian Journal of Business and Management Review, 1*(4), 19-27.

Nubi, T. O. (2002). Flying with One Wing: Dilemma of Mortgage Banking in Nigeria without a Secondary Market. *The Quantity Surveyor*, 38(1), 22-37.

Odia, J. O. & Okoye, A. E. (2012). Pensions Reform in Nigeria: a Comparison between the Old and New Scheme, *Afro Asian Journal of Social Sciences,* 3(3.1), 1-17.

Ogu, V. I. (2001). Enabling Strategy and Sustainable Urban Housing in Nigeria: Focus on Benin.

Olaleye, A. (2000). *A study of Property Portfolio Management Practice and the Performance of Property Portfolio in Lagos*, an unpublished M.Sc. Thesis of the Department of Estate Management, Obafemi Awolowo University, Ile-Ife.

Olaleye, A. (2008). Property Market Nature and the Choice of Property Portfolio Diversification Strategies: the Nigeria Experience, *International Journal of Strategic Property Management,* 12(1), 35-51.

Olaleye, A., Adegoke, O. J. & Oyewole, M. O. (2010). A Comparative Analysis of the Investment Features of Real Estate and Stocks in Nigeria, *Real Estate and Development Economics Research Journal*, 2(1), 49 – 69.

Olayiwola, L. M., Adeleye, O. & Ogunsakin, L. (2005). Public Housing Delivery in Nigeria, *World Congress on Housing*: *Transforming Housing Environment through Design,* Pretoria, South Africa, September, 27-30.

Ooi, T. L. J. & Liow, K. H. (2004). Risk-adjusted performance of Real Estate Stocks: Evidence from Developing Markets, *Journal of Real Estate Research,* 26(4), 371-95.

Oyewole, M. O. (2006). *A Comparative Study of the Performance of Direct and Indirect Property Investment in Lagos*, Unpublished M.Sc. Thesis of the Department of Estate Management, Obafemi Awolowo University, Ile-Ife.

Oyewole, M. O. (2013). A Comparative Analysis of Residential and Retail Commercial Property Investments in Ilorin, Nigeria, *Journal of Sustainable Development,* International Institute for Science, Technology and Education, USA, 4(3), 93-102

Shulman, D. & Hopkins, R. E. (2008). Economic Diversification in Real Estate Portfolios", *Bond Market Research: Real Estate*, Salomon Brothers Inc., November 2008.

Stevenson, S. (2000). International Real Estate Diversification: Empirical Tests using Hedged Indices, *Journal of Real Estate Research,* 19(1), 105-132.

Sule, K. O., Umogbai, M. E., & Emerole, G. A. (2011). The Impact of Asset Size Profitability on Funded Status of Employee benefits by Quoted Firms in Nigeria. *Information, Management and Business Review, 2*(33), 125-132.

Ting, K. H. (2002). Listed Property Companies in Malaysia: A Comparative Performance Analysis, *The 7th Pacific Rim Real Estate Society Conference.* Christchurch, New Zealand.

Wall, E. (2014). What is a Pension Fund? Retrieved 14, June, 2015, from http:// www. Morning star.co.uk/uk/news/124032/what-is-a-pension-fund.aspx.