The curious case of
Nigerian asset allocations

A proverb on propriety

Etí mẹ́ta ò yẹ orí;
èèyàn mẹ́ta ò lè dúró ní méjì-méjì.

Three ears do not suit the head;
three people can not stand in pairs

Introduction

Forecasting financial outcomes is a challenging task because economic and financial variables tend to change without notice to market participants. Empirical evidence, sensible judgement and a bit of luck therefore tend to guide the allocation of capital to asset classes. Dictating or providing guidelines to fund managers may lead to severe and damaging consequences for lifetime wealth levels. In the absence of superior empirical evidence, the Nigerian Pension Commission ("PENCOM") guidelines are an anathema. In Nigeria, mutual fund managers have their investment guidelines and pension fund administrators ("PFAs") have guidelines stipulated by PENCOM in the quest for meaningful return and asset allocation.

In this paper, I review results of different asset allocation schemes in Nigeria over the last 35 years. Nigerian equities have generated an average annual real return of 3.52% over the last 35 years without the inclusion of dividends. The Nigerian economy witnessed periods of high inflation in the review period, as such bills and bond returns were unable to keep up. Bills generated a negative real return, and so have bonds. It is expected that with good inflation management policies, the long run rate of inflation for Nigeria will trend downwards from its 35-year average of 18.20%. Reviewing asset return averages by themselves do "tell lies" sometimes, this paper shows that despite the higher rate of return to equities, the significant equity drawdown in the last decade and a half has led to a diminution in terminal portfolio levels for equity skewed portfolios.

With negative real returns over the last 35 years to both bills and bonds, it may be time for portfolio managers to adjust their asset allocations appropriately. A simple payoff strategy with a principal protected note ('PPN"), where a simple bond and a call option on equities delivers a simple and cost-effective solution to managing portfolio assets in Nigeria. It outperforms a static 10% equity and 90% bond allocation with additional portfolio investments. Based on this outcome, is there any need for "large" pension fund managers? Is there a need for a regulator to manage portfolio outcomes? The results from 35 years gives an indication of what has worked and what hasn't. It suggests there is no need.

Private assets managed by publicly sanctioned agents are currently not subject to adequate peer review in Nigeria. Who determines why an asset should be held? A body of qualified finance professionals or a body of non-finance professionals? Who are the PFA's beholden to? How does the regulator demonstrate or prove that they are acting in the best interest of unit holders? Are they acting in the best interest of unitholders? Who determines this? The government or an independent body? Is there a performance shortfall fund, funded annually by governmental agencies for their own failings? The current investment guidelines issued by the PENCOM were released in April 2017. What happens when unitholders seek legal redress for poor returns due to these guidelines?

The current framework needs to change. A peer review framework should supersede the current regulatory framework. Finance professionals should determine what is correct, acceptable and is in the public interest. Allocations in Nigeria are currently subject to Industry concentration and oligopolistic tendencies layered on sub-optimal asset allocations; these may create long term systemic risks to asset owners like breaches of fiduciary duty. Capping the size of assets managed by government sanctioned fund managers may prevent poor performance, poor asset allocations and the development of systemic industry risk. I suggest a cap of industry assets held by each manager to prevent the degradation of standards, fiduciary duty and returns.

What do we know about historic world and Nigerian asset returns?

In 2019, a group of researchers published, "a rate of return on everything", the results found that within 16 advanced economies since 1950, equities have delivered the highest rate of return followed by housing with government bills returning the lowest rate of return. Equities returned in real terms 9.45% per annum. The work of the researchers covered a period of 1870 to 2015. The returns are reported in dollar terms. Exhibit 1 shows a summary of their results where government bills delivered the lowest real rate of return at 2.13%.

Exhibit 1: Rates of return (real and nominal) to World assets (1950 – 2015)

Real rates of return	*Bills*	*Bonds*	*Equity*	*Housing*
Annual rate of return	2.13%	3.99%	9.45%	8.91%
Standard deviation	10.59%	13.78%	26.15%	14.92%
Nominal rates of return	*Bills*	*Bonds*	*Equity*	*Housing*
Annual rate of return	5.74%	7.61%	13.20%	12.75%
Standard deviation	10.97%	13.90%	26.67%	15.36%

Source: Taylor et al. (2019)

For the "World returns", pre 1950, housing delivered the highest rate of return to investors or asset holders. If the history of the last 145 years were to repeat itself, then the presented rates of return should reoccur with slight variation. Exhibit 1, shows the real and nominal rates of return recorded by the four asset classes reviewed.

In Nigeria, the recorded history of financial instruments is much shorter. The Lagos stock exchange was incorporated in September 1960, with trading commencing in June in 1961 with 6 government bonds, 1 industrial stock and 3 equities. The Lagos stock exchange price index was only computed starting in 1984.

From 1985 to 2020, equities returned 3.52% in real terms annually versus bonds returning negative 2.51% in real terms and bills performing much worse with negative 4.37% in real terms, annually. The equity return was derived from the Nigerian all share index, published by the Nigerian Stock Exchange, bills are from average historic treasury bill rates and bonds returns are a blend of several federal government instruments and the S&P/FMDQ Nigeria sovereign bond index over the review period.

Exhibit 2 presents an overview of the real and nominal returns for each asset class. Housing is omitted for this analysis.

Exhibit 2: Rates of return (real and nominal) to Nigerian assets (1985 – 2020)

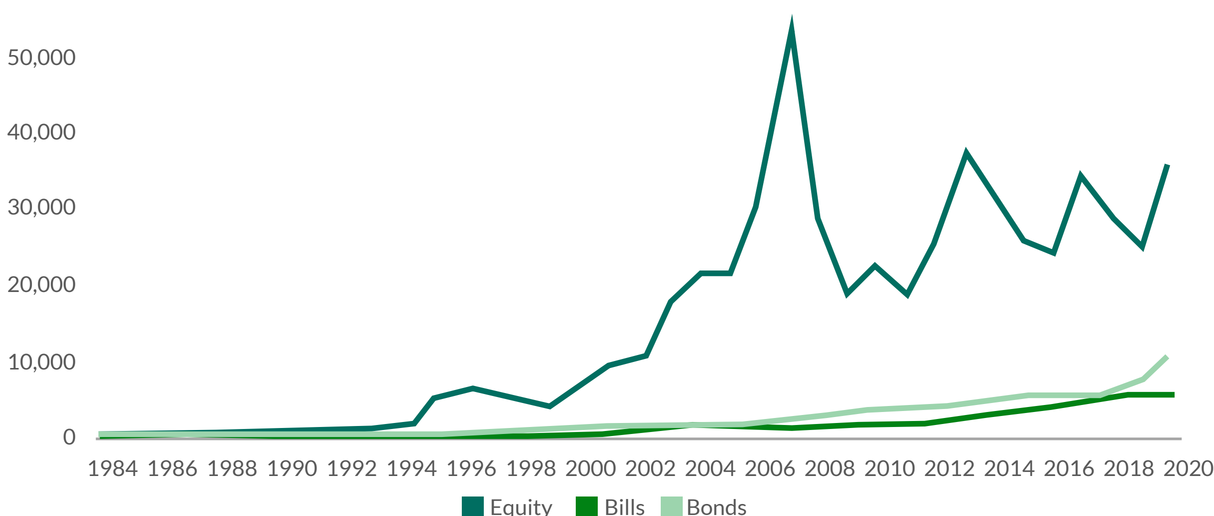
Real rates of return	*Bills*	*Bonds*	*Equity*
Annual rate of return	-4.37%	-2.51%	3.52%
Standard deviation	11.02%	18.11%	27.47%
Nominal rates of return	*Bills*	*Bonds*	*Equity*
Annual rate of return	12.15%	14.25%	22.78%
Standard deviation	4.58%	10.45%	34.71%

Source: Central Bank, Nigerian Stock Exchange, Securities and Exchange Commission

The problem with averages and where the myopia lies (1985 – 2007, the ascent of equity returns)

In a scenario where a portfolio is formed in 1984 with no further cash additions to it, Exhibit 3, shows us a graph of what the returns to each asset class looks like and it neatly replicates the results in Exhibit 2.

Exhibit 3: Bonds, bills and equities, a hundred Naira invested in 1985



In nominal terms, a hundred naira invested in the three asset classes are worth NGN36, 182 for equity, NGN 6,032 in bills and NGN 11,010 in bonds. So, we observe a 362 times initial investment multiple for equity at the end of the investment period, however this was once worth 520 times in 2007 at the height of the equity market rally.

The descent of equity returns (2008 - 2020)

The story is different with constant cash or growing additions to the portfolio over the 35-year period. The power of compounding and the negative impact of the equity drawdowns manifests itself in the final portfolio returns. Exhibit 4 shows what happens to each asset class.

Equities have underperformed bond investments since 2008. The lackluster performance of equity instruments in Nigeria since 2008 where the average performance was 7.2% per annum versus an average of 12.5% for bond and bond like instruments has affected portfolio performance of allocations skewed towards equities. If you allocate an increasing portion of cash to one asset that vastly outstrips the other by 6%, then you get the type of underperformance shown in Exhibit 4 with a growing annual cash additions scheme. Exhibit 5 shows performance over the last 13 years in Nigeria. As a result in a situation of increasing annual asset allocations since 1985, a fixed income heavy portfolio has outperformed an equity heavy portfolio due to the poor performance of the equity asset class since year end 2007. Exhibit 5, summarises returns to various asset classes from year end 2007 to year ended 2020.

Exhibit 4: Cash multiple return for various portfolio funding types (1985 – 2020)

Funding Type	*Equity*	*Bills*	*Bonds*
One off	361.8x	60.3x	110.1x
Fixed annual	46.3x	13.9x	24.0x
Growing annual	2.8x	2.8x	4.1x

Exhibit 5: Real and nominal returns to asset classes (2007– 2020)

Real rates of return	*Bills*	*Bonds*	*Equity*
Annual rate of return	-2.04%	0.76%	-3.74%
Standard deviation	3.79%	11.33%	32.87%
Nominal rates of return	*Bills*	*Bonds*	*Equity*
Annual rate of return	9.36%	12.47%	7.19%
Standard deviation	3.12%	12.40%	35.48%

What are Nigerians currently holding?

Financial assets in Nigeria held by mutual fund managers and PFA's are currently lopsided with a skew towards bonds and bond like instruments. This type of pronounced allocation is problematic because it is at odds with long term empirical asset returns and may lead to reduced terminal wealth levels for retirees if the equity asset class performs better over the next two decades.

Is there a correct portfolio allocation?

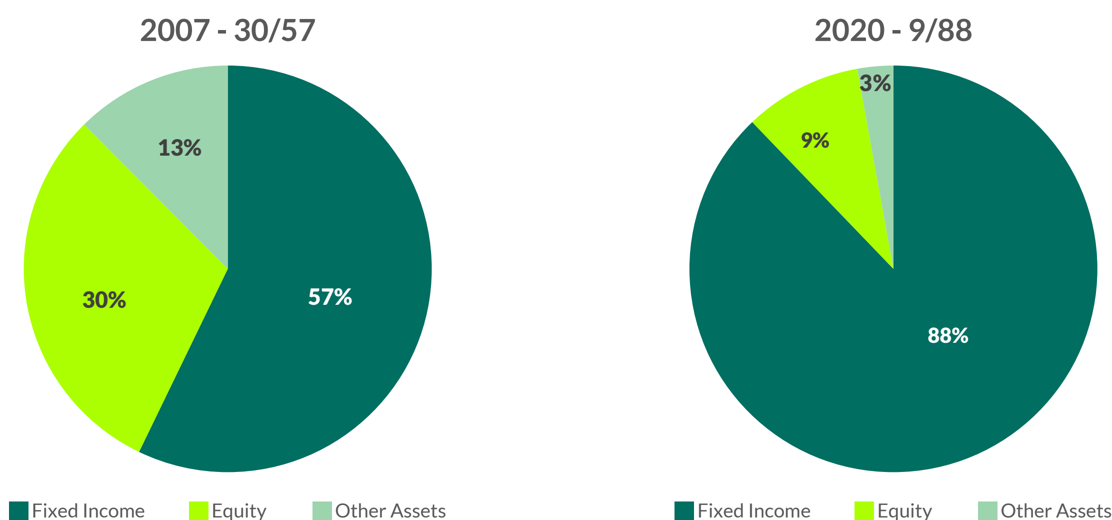
It is difficult to say that a right or wrong allocation of assets for a portfolio exists. Allocations are subject to various factors; however, one can suggest the types of allocation that may generate the highest risk adjusted return.

Finance literature suggests various allocations; Thaler and Williamson (1994) suggest a 100% equity allocation in a portfolio to generate the highest risk adjusted return regardless of the evident drawdowns. Asness (1996) suggests a levered 60 / 40 scheme, where 60% is invested in equities and 40% in bonds but with the portfolio levered.

Traditionally, investors have been enjoined to hold a 60/40 allocation and other variants in the management of their portfolios.

Asset allocations today – Nigerian style

Exhibit 6: Pension fund asset allocations in Nigeria (2007 – 2020)



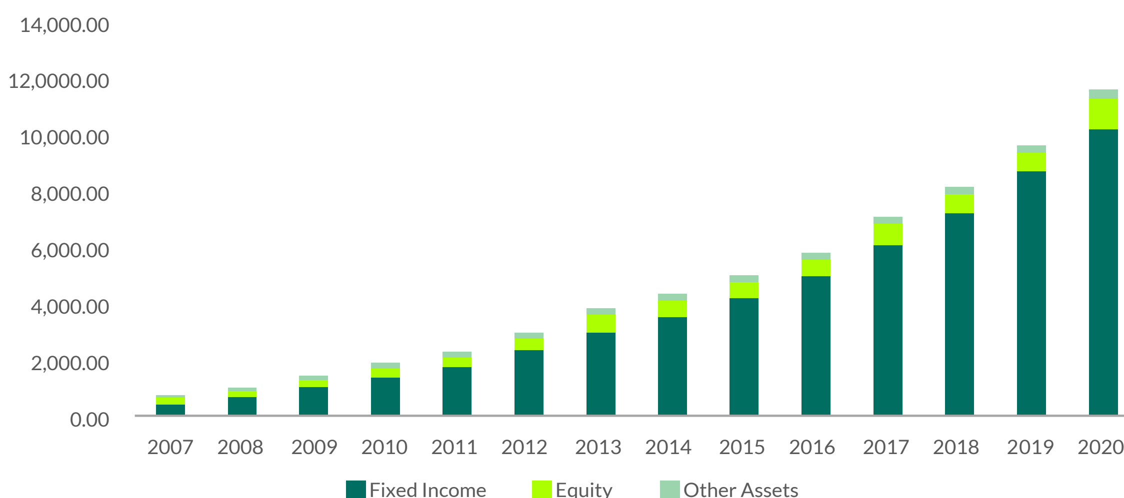
Source: The Pension Commission of Nigeria, Annual Reports

Equity contributions to pension assets have declined from 30% to 9% over the last 13 years in Nigeria as shown in Exhibit 6.

A preference currently exists for government securities in the current guidelines issued to fund administrators by PENCOM. Should a government regulator show a bias towards government securities even though historical real returns to the asset class are negative? The current PENCOM investment guidelines place a global limit of 70% for fund II assets in Government securities. According to Itodo (2014), the global limit pre 2010 for retirement savings account investments was 100%.

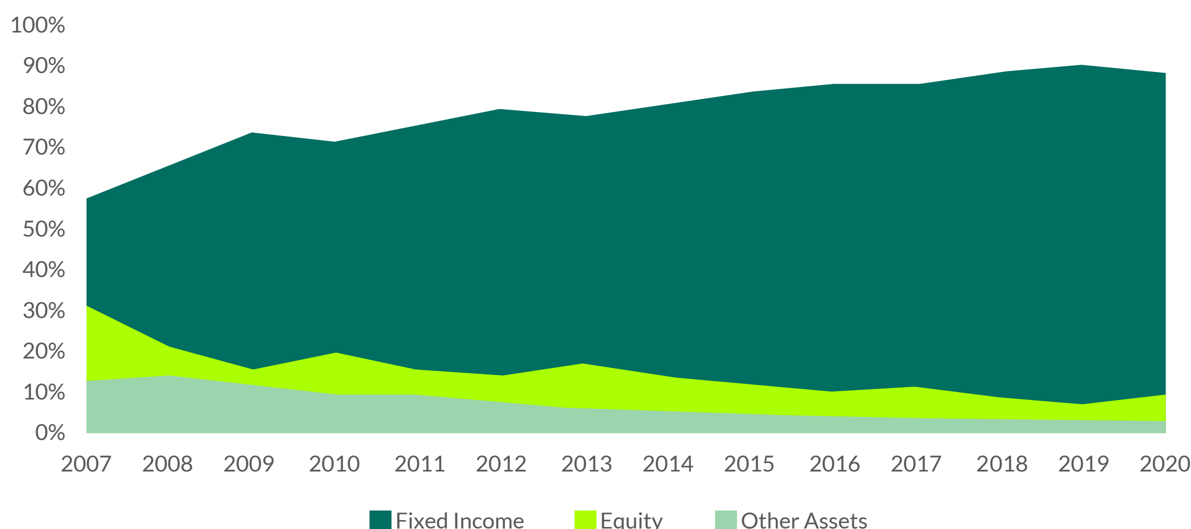
According to several accounts on the Nigerian capital markets, the Nigerian securities regulator, the S.E.C was once a determinant of prices in Nigeria. This practice has now stopped with finance professionals determining prices and rates.

Exhibit 7: Evolution of pension fund assets Nigeria, 2007 – 2020 (NGN'BN AUM)



Source: The Pension Commission of Nigeria, Annual Reports

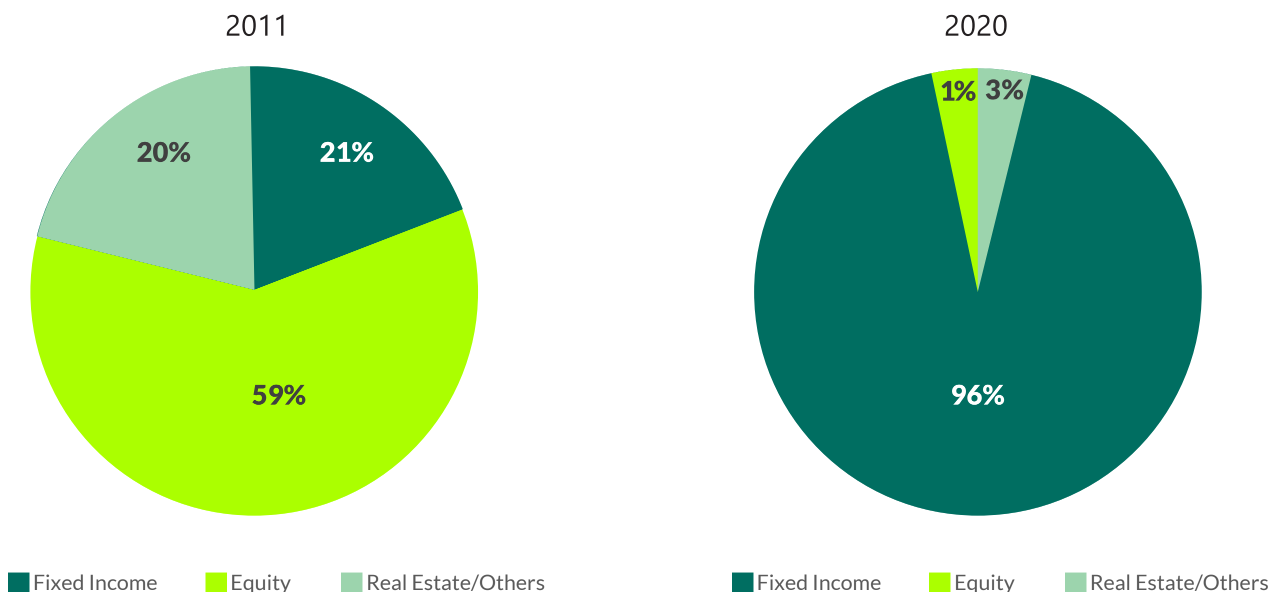
Exhibit 8: Evolution of pension fund assets Nigeria (allocations) - 30 / 57 to 9 / 88



Source: The Pension Commission of Nigeria, Annual Reports

Exhibit 7 shows that in the Nigerian pension industry, asset allocations have moved close to a 10/90 mix from a 40 / 60 type of allocation since 2007. Equity allocations as a proportion of total portfolio allocation has dropped from 30% to 9% over a 13-year period. This scheme of adjusting allocations from 30% to 9% is what I classify as the "PFA allocation strategy". This PFA allocation or change in allocation is not isolated in the pension fund industry as the other mutual fund managers have also exhibited a similar adjustment. Mutual fund managers have seen their equity contribution to total portfolio shrink in size from 60% to 1% over the same 13-year period. This marked decline is shown in Exhibit 9. Exhibit 8 shows further the evolution of the changes in percentages for the asset classes as reported by the SEC. The adjustment could be classified as a grave reaction to short term limited returns from the equity asset class.

Exhibit 9: Evolution of mutual fund assets Nigeria (allocations)



Source: *The Nigerian Securities and Exchange Commission*

What do the returns for the allocation look like?

Exhibit 10: Pension fund (Active RSA) nominal returns (2007 – 2019)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
CPI	5%	12%	13%	14%	11%	12%	8%	8%	9%	16%	17%	12%	11%
Returns %	19%	0%	11%	12%	4%	14%	15%	6%	9%	12%	16%	13%	11%

Source: *Pencom*

The active retirement savings accounts funds over the last 13 years have generated an average return of 10.39% and marginally underperformed inflation at 11.3%. The last 13 years of primarily debt allocations have been beneficial for pension fund accounts.

Yebo! Things look different down south

The South African pensions industry is much larger than that in Nigeria. It is ten times larger. Total assets under management as at December 2018 was 4.5 trillion ZAR about USD 320 billion versus Nigeria's USD 30 billion.

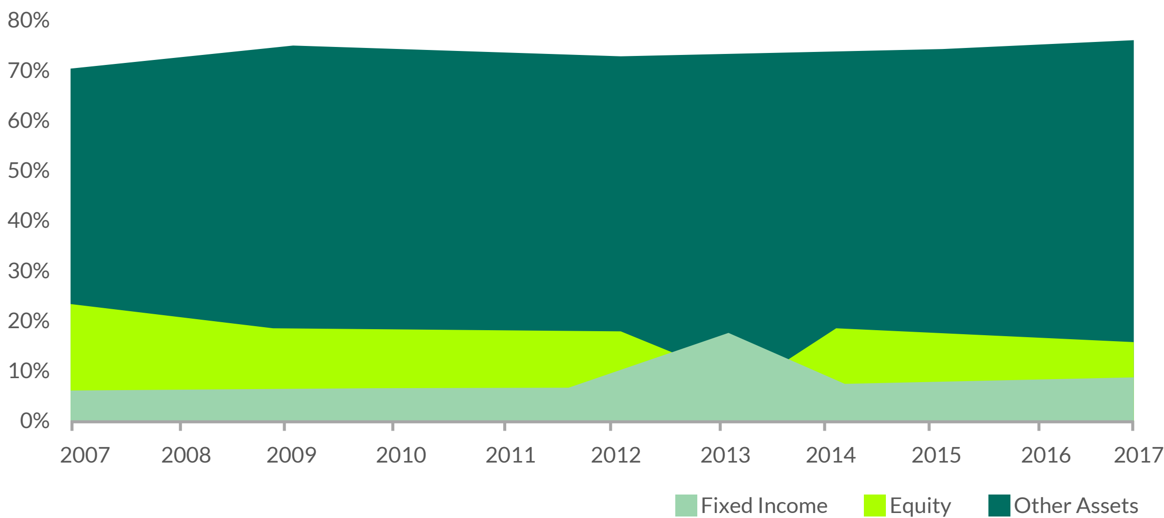
Few facts (2018)

What remains impressive is the number of funds and the disparity of programmes available. Managing retirement money requires disparate ideas to prevent concentration and systemic risk.

Exhibit 11, shows that since 2007, equities have contributed on average 17% to the asset portfolio versus 9% from fixed income securities. In local currency terms, performance however hasn't been significantly different from Nigeria in local currency terms.

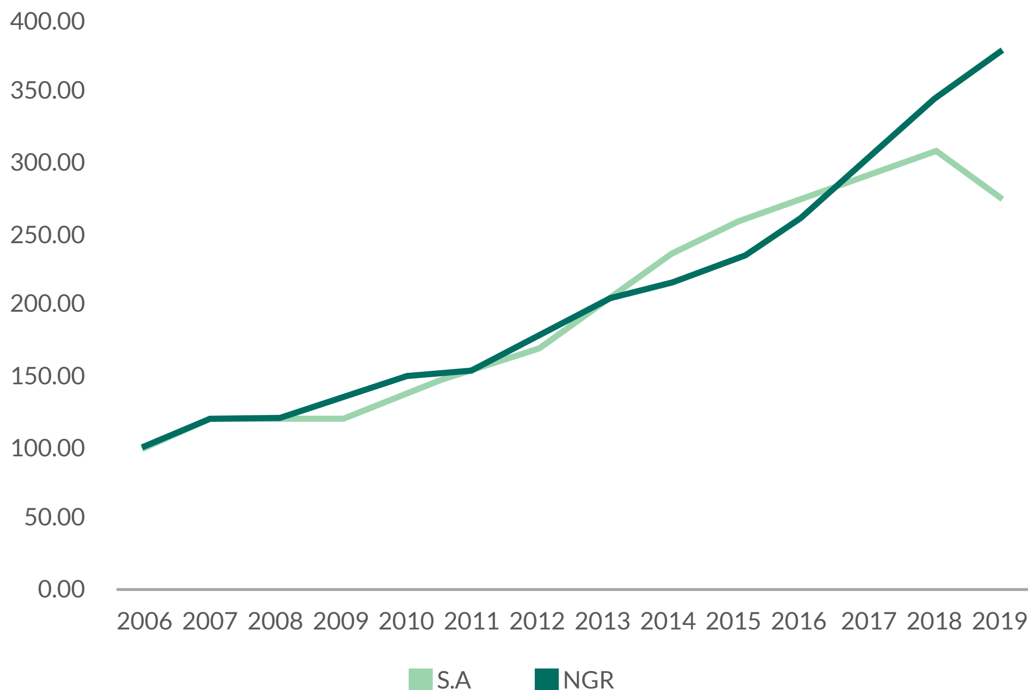
Exhibit 12 shows this.

Exhibit 11: Evolution of pension fund assets in South Africa



Source: *FSCA*

Exhibit 12: Returns to pension fund investment in South Africa vs Nigeria (LCY)



Source: *FSCA** 2018 and 2019 are the results from the largest pension fund manager in south Africa as a proxy, PENCOM*

Both sets of pension vehicle providers have generated an average about 10% over the review period.

Why did Nigerians cutback on equity investments?

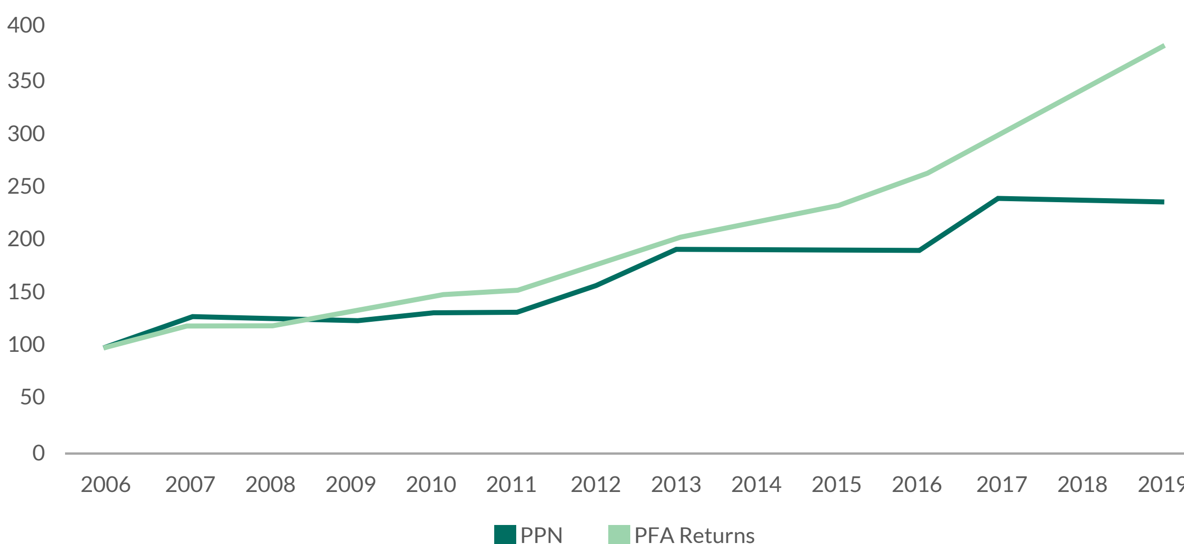
Nigerian listed equities suffered a significant 46% decline in the year 2008 followed by a 34% decline in 2009 alongside all major foreign markets. In the previous year, 2007, the listed equity instruments gained a staggering 75%. The 46% drawdown remains the largest drawdown suffered by the equity asset class in the last 35 years in Nigeria. Since this major drawdown, equity portfolio allocations have changed and declined over the succeeding years.

What sort of portfolio returns do the bills and bond heavy allocations deliver?

In the last 12 years the PFA allocation scheme has performed in line with inflation reforms.

The performance over the 12-year review period shows that there was no better asset allocation mix without going through a data mining exercise. This performance and skew are fair because the fixed income asset class has outperformed the underperforming equities asset class. Comparing the PFA returns to a simple PPN created shows that it also outperforms this by an average 4% per annum. The PPN returned on average 7.26% per annum versus PFA returns of 10.39% per annum.

Exhibit 13: PFA returns vs. PPN returns (2007 – 2019)



Allocations in the longer term

The current allocations, whilst having generated the highest returns over the last 12 years may fail to deliver meaningful returns over the next 30 or 35 years. Nigeria's equity allocations are one of the lowest in the World, ranking in the bottom 10 countries in the latest OECD review of 84 countries in 2019.

I reviewed various allocations for Nigeria over the last 35 years. The allocation generating the highest return is the 90 / 10 allocation considering a 100% allocation to one asset may be perceived as too risky due to the attendant drawdowns faced in a static allocation scenario. When additional funding is included in the portfolio, the allocation flips to 10 / 90 or almost 100% for debt like instruments.

Thaler and Williamson (1994) also find that a 100% allocation to equity over a long-time frame is a meaningful but difficult allocation strategy. A levered position may adjust the portfolio returns profile in a risk parity allocation strategy but since leverage is costly in Nigeria, we ignore such thoughts for now.

It is unclear whether the pension regulator or the Nigerian SEC will let borrowings formulate a part of the strategy for managing pension assets or in mutual funds. We should also note that there are no withdrawals considered for these portfolios. For individuals, a slight adjustment to the allocations and waterfall of drawdowns generates a slightly better outcome.

Exhibit 14: Nominal returns to various asset allocation strategies in Nigeria over 35 years (1985 – 2020)

Allocation	*Adjusted Return*	*Annual Return*	*Multiple of Cash*	*Standard Deviation*
PPN	13.91%	15.58%	4.87x	13.49%
100% debt	10.99%	10.56%	3.85x	6.44%
10/90 allocation	10.60%	11.10%	3.71x	7.91%
40/60 allocation	9.44%	11.22%	3.30x	15.70%
60/40 allocation	8.66%	10.83%	3.03x	20.03%
90/10 allocation	7.49%	9.91%	2.62x	25.61%
100% stocks	7.10%	9.53%	2.49x	27.35%

Investing primarily in debt instruments in Nigeria in a scenario of growing contributions to one's portfolio was the simplest strategy for Nigerians over the last 35 years. A more complicated strategy involving a bond and option in the form of a PPN (Principal Protected Notes) outperforms the debt only strategy as it takes the best of the equity returns and avoids the painful drawdowns faced in 2008 and subsequently. The PPN strategy also delivers the highest multiple of cash return of all the equity and debt allocation schemes.

Please note that these are naira denominated returns. Dollar returns for Nigeria look different due to a series of currency devaluation events since 1985. Exhibit 15 highlights how poor the performance of the various asset allocation schemes are.

Exhibit 15: Dollar returns to various asset allocation strategies in Nigeria over 35 years (1985 – 2020)

Allocation	*Annual Return*
PPN	0.63%
100% debt	-3.45%
10/90 allocation	-2.94%
40/60 allocation	-2.84%
60/40 allocation	-3.21%
90/10 allocation	-4.08%
100% stocks	-4.43%

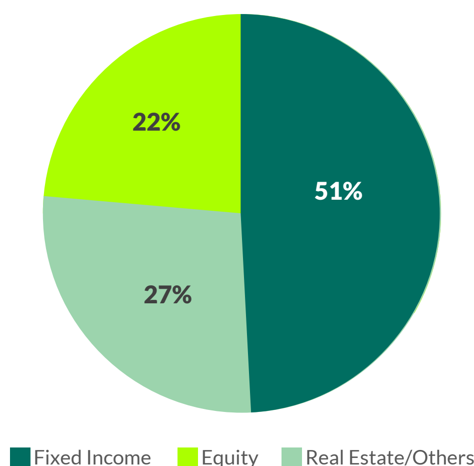
How odd are Nigerian allocations relative to the rest of the world?

As at 2019, for 37 developed countries, the average equity allocation was 27% whilst debt instruments accounted for 51% of portfolios. However, since these countries have older populations nearer to retirement ages, it is understood that portfolios could be skewed towards bond investments.

As at 2016, 50% of contributors to the Nigerian scheme were under 39-years-old.

In the UK, pension fund equity allocations were above 50% from 1965 to 2008 when the global financial crisis hit and has stayed below 50% ever since. The weighted average of real returns in the OECD countries was 9.7% in 2019 for retirement funds.

Exhibit 16: OECD Pension assets allocation (2019)



Source: *The Organisation for Economic Co-operation and Development ("OECD")*

Fixed asset allocations – Improving performance going forward

For institutions, performance is improved by a good diversification strategy. This may involve incorporating a different asset class – commodities or incorporating a different geography in equity investments. Both asset classes have outperformed Nigerian equities in the last 13 years. Fitting dynamic allocations in hindsight could be perceived as a data mining exercise, hence the decision not to present the results of such adjustments. Data remains limited on performance of real estate assets in Nigeria. A robust and reliable house price index needs to be created.

The agency problem

Since Oduwole (2015) on Nigerian RSA returns, the quality of reporting by the PENCOM has improved, timeliness of report publication and amount of data points provided for review have improved significantly. PFAs still need to improve on the quality of reports posted.

The current asset allocation set out by the PENCOM stipulates a maximum investment threshold of up to 70% of AUM in bond and bond like instruments for PFA funds and instruments. The main issuer and beneficiary of bond and bills in Nigeria is the Federal government of Nigeria. Should a governmental agency direct 70% of pension assets towards the government? The threshold was once a 100%.

Does this type of allocation serve the best interest of the pension account holders or that of the government and its funding needs? As at 2019, the bond and bond like instruments have outperformed the equity asset class. This was not always the case and may not remain so for the foreseeable future. What happens when other asset classes emerge and outperform? Should fund administrators be bound by this threshold? This is the first agency problem.

A simple solution to this is a complete removal of the guidelines as there is a case for a conflict of interest between the interest of pension fund owners and the governmental interests. PENCOM's function could be reduced to a strict administrative and ombudsman role to prevent failure of fiduciary duty alongside the Nigerian Securities and Exchange Commission.

Nine PFA's account for 85% of the industry assets under management. Franzoni (2019) discusses concentration in the US asset management industry and concludes that increased concentration in asset management has led to more volatile prices. He also proceeded to suggest that increased volatility poses challenges for regulators trying to weigh price efficiency and economies of scale. Other academics have argued that the very large institutions should be broken up or have their assets under management capped.

Intuitive thinking may suggest that having a few asset managers managing most assets is beneficial from an economies of scale perspective, but when compared to the potential disruption to asset prices demonstrated by Franzoni and limited fund management options available to investors, it is difficult to reconcile why one asset manager should be allowed to hold roughly 40% of pension industry assets in Nigeria. Exhibit 18 shows that the smaller PFA's over the 13-year period have clustered higher returns than their larger competitors in the market. There is however no clear evidence that smaller asset managers outperform the larger asset managers when the data was reviewed.

Regulatory concerns

Historically, the Nigerian Securities and Exchange Commission was charged with determining the appropriate price for listed companies. This practice no longer holds as the market is fully deregulated. More importantly, the debt market in Nigeria was also highly regulated with interest rate controls in place until the structural adjustment programme of 1986. Determination of prices and rates with well-functioning markets are left primarily in the hands of market participants. it is expected that in the very near term, the investment guidelines from the PENCOM must fall away. An allocation of private investible assets into primarily public investment vehicles by a public institution without evidence of superior performance of the asset class is not in the best interest of the asset holders. The fund managers and fund management community are best placed to make this determination not a regulatory body.

Who needs a regulator when you have statistics and knowledgeable peers?

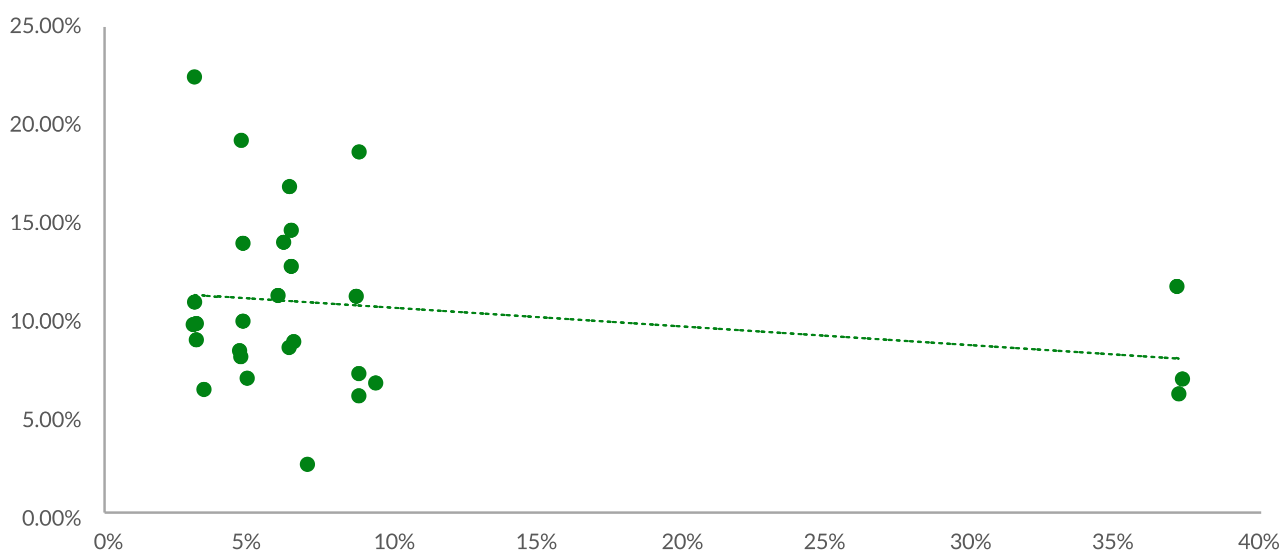
In the developmental phase of the new pension industry in Nigeria, the role of a regulator was important in the asset allocation exercise. With arguable conflicts of interest, the asset allocation exercise is best left with the fund managers with a non-governmental body of finance professionals reviewing actions and performance of their peers. Today, the Nigerian SEC no longer fixes prices of issuances, market participants do so based on their knowledge and experience.

Exhibit 17: Market share of industry fund managers (2014 – 2019)

	PFA	2014	2015	2016	2017	2018	2019
1	Crusader Sterling	3.49%	3.22%	3.11%	3.16%	3.23%	3.16%
2	LeadWay Pensure	5.19%	4.72%	4.76%	4.83%	4.71%	4.88%
3	Pensions Alliance	4.99%	4.74%	4.71%	4.78%	4.79%	4.83%
4	Sigma Pension	7.20%	5.93%	5.61%	5.45%	5.17%	5.00%
5	Trustfund Pensions	7.07%	6.58%	6.49%	6.43%	6.31%	6.22%
6	NPF Pensions	N/A	5.44%	6.04%	6.24%	6.44%	6.53%
7	Premium Pension	9.66%	8.58%	8.17%	7.89%	7.87%	7.99%
8	ARM	9.41%	8.86%	8.82%	8.84%	8.84%	8.75%
9	Stanbic IBTC Pension	37.23%	36.88%	37.21%	37.23%	37.36%	37.14%
	Total	84.24%	84.95%	84.92%	84.85%	84.72%	84.50%

Source: The Pension Commission of Nigeria, Annual Reports

Exhibit 18: PFA returns vs market share of AUM (2007 – 2019)



Source: The PFA Reports

Final word

The near 100% allocation of capital to fixed income securities in Nigeria has been beneficial in the last 13 years (2007 – 2020). A review over a 35-year period suggests that a more sophisticated asset allocation scheme may be a more sustainable approach for allocating capital. Considering other markets with longer histories, the primarily debt allocation scheme maybe problematic in the mid-term. It is expected that a dynamic reallocation favourable to equity and equity like opportunities will be pursued going forward. Questions need to be asked about the formulation of the PENCOM guidelines as they do not conform with empirical evidence on real returns and allocations towards assets with the highest real returns.

The last 35 years in Nigeria has shown that investors' portfolios should be skewed in favour of equity investments with emphasis on managing the potential drawdowns that drag down investor returns. A very simple hedging scheme should be introduced into the pension investible asset mix. The current allocation could lead to terminal wealth levels 10% to 20% lower than they need to be. For those looking to improve performance, a well-balanced portfolio of foreign equities and some commodity contracts for the de-carbonized economy could improve performance in the long run. An insistence by the regulator on its guidelines may require a catchup fund should it be proven two decades into the future that the specified allocations were problematic and flawed.

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