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EFFECT OF NEW ENROLMENT AND ASSET SIZE ON FUND PERFORMANCE: EVIDENCE FROM INDIAN NPS EQUITY SCHEMES

Dr. K. Krishna Kumar[1], Mr. Vishweshwar Mensumane[2]

[1]Associate Dean, School of Management, Presidency University, Bangalore
krishnakumark@presidencyuniversity.in
[2]Research Scholar, Presidency University, Bangalore
mvishwesh@gmail.com

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ABSTRACT

Rapidly changing socio cultural behaviour and financial market scenarios are forcing Indians think about dedicated corpus for their pension requirements. Changing dynamics of Indian demographic, social lifestyles and employment structure influenced Indian Government to introduce some social security scheme for Indian citizens. NPS is one such initiative by Indian Government to bring systematic saving habit among Indians. Safe and steady returns are the primary priorities of Pension fund subscribers, Government will have to reassure the same to make these schemes popular and acceptable. Government issued some strict mandates to fund managers as to how they can invest in different asset classes keeping the fund contributors' interest in the mind. Strict investment guidelines and increased expectations from the investors put a lot of pressure on fund manager performance. NPS contribution will allow an additional deduction of INR 50,000 over and above the normal limit of INR 1, 50,000 towards eligible tax saving investments is attracting some additional investment towards NPS. Tax applicability on maturity is not very attractive at the moment in NPS schemes. Expense ratios compared to any other investment avenues available for investor is very attractive since government fixes the bare minimum charges. Since incentives are not attractive for POPs, NPS enrolments are not pushed hard. Trend shows, slowly NPS has started getting acceptance and fund sizes are increasing. With the limited scope, investment choices funds are performing well as of now. Large fund size may offer little additional scope for fund managers to play with. This study aims at establishing some empirical evidences on the effect of number of subscribers and fund size (AUM), on the fund performance.

Current study is focused on finding out the relationship between the number of subscriber and AUM on return from the NPS all citizen equity schemes. We have also included diversification effect and

year of experience of these schemes as independent variables. We observed in short term AUM and Number of Subscriber will influence fund performance but not in the long term. Whereas fund experience and portfolio holding are not significantly impacting fund return both in short and in long term.
JEL Classification: D14, E44, G11, G28, H55.

Introduction

Good return of a scheme in the past will not guarantee similar future performance. Pension fund investors want to protect their investment and at the same time looking for good return. Indian Government has taken many measures to safeguard the assets of NPS investors and at the same time given enough flexibility for fund manager to choose the right script to generate that additional alpha for the investors.

All major countries across the world are moving from defined benefit to defined contribution plans. National Pension System is one such defined contribution scheme initiative from government to create a dedicated corpus for its employees towards their retirement and pension requirements. Initially it was introduced only for government employees, after good initial responses it was extended to cover all citizens. In India we don’t have a good social security system and studies showed many Indians are not saving enough for their old age requirements. NPS all citizen schemes are open for all citizens to save towards their retirement and for pension corpus.

PFRDA guidelines are very clear and restrict AMC and NPS fund managers on maximum charges to its clients, minimum diversification criteria, and maximum allocation to a company and to a sector, minimum credit rating if it is debt instruments. Guidelines also give directions with respect to cash management, investing in other funds and in ETFs.

Both big fund and small funds have their own advantages and disadvantages. Big funds will be able to diversify their investment portfolio in terms of sector as well as companies in the sectors, whereas small funds may not be able to diversify. Many researchers carried out many empirical studies to find out the relationship between AUM and performance. We have mixed results from these studies and no single strategy work always. In general, expense ratio impact fund return. Large funds will be able to take advantage in terms of expense ratio. Expense ratios may correlates with fund return, but in case of NPS, government decides the expense ratio and allowed very minimum expenses hence it may not be a deciding factors in generating good return for investors. When funds are performing well inflow of money will also increase. With the good return, additional money generated by the fund and additional new inflow, now managers will have to find additional new investment ideas. If the fund manager sticking to old good investment ideas and he is pumping more and more money on the same script demand for that particular script may go up and he may have to pay additional prices to get that script, and this investment cycle may prove them costly.

Results of many empirical papers on mutual funds, hedge funds and on pension funds relating to these topics are mixed and not conclusive. We observed some papers argue fund size positively impact return and other showed there is no evidence. AUM size will offer advantages like diversification opportunities, economies of scale, lower per unit transaction cost, able to attract and retain good human resources etc. At times fund managers face problem in identifying additional good investment opportunities to deploy large inflow of money. Fund managers may also face liquidity problem in already identified companies and to deploy additional money they receive from fresh investment inflow, fund managers may have to choose sub quality stock; this may lead to performance deterioration.

Fund performance is depending on many parameters like Asset Under Management, number of subscribers, Diversification, expense ratio, experience of the fund manager. AUM will become large mainly by two ways, when fund generate good return it will grow in size and good return attract more and more subscriber and they will get additional inflow of fund. Now the dilemma is how the fund size and return generated are related.

NPS Equity scheme allows investors to take good exposure in equity but at the same time it restricts fund managers not to take too much risk by over exposure to equity market and safeguard investors. When we invest in NPS scheme we also get some additional tax advantages and this factor attracting some additional inflow to NPS schemes. NPS equity schemes currently generating very good returns compared to other mutual fund schemes. When more and more people realise these advantages and start subscribing and contributing, inflow will increase. Current study is focused on finding out the relationship between the number of subscriber and AUM on return from the NPS all citizen equity schemes. We have also included diversification effect and year of experience of these schemes as independent variable in the current study. Study outcomes will help us in understanding whether we need to consider fund size and subscriber base before choosing and subscribing NPS Equity scheme.

Theoretical back ground and Literature Review

Indians are realising the importance of having a dedicated corpus for retirement and for pension. Government is also encouraging all its citizens to save for their futures. This section of the study will focus on understanding some theoretical background and we will also review some papers to identify the variables which are impacting fund returns.

Modern Portfolio Theory

Harry Markowitz, a Nobel Laureate developed a widely used Modern Portfolio Theory (MPT). MPT theory helps investors to reduce market risk and at the same time they can achieve maximum return from their well-constructed and diversified portfolio. MPT theory promotes the idea of long term holding of a particular asset with very minimum portfolio rebalancing. Portfolio with less risk and reasonable return is always preferred choice of investors. Investors build a good portfolio in two stages, first one should observe available investment option closely, experience it and get convinced about good future performance. We than relate and compare our assumed return and we finally choose the portfolio.

Theory of Constraints

Eliyahu M. Goldratt developed the theory of constraints (TOC). Every system or process will have one or many constraints. We need to identify the constraints and will have to come up with solutions which will reduce the impact of that on the final result. When we identify these bottlenecks and the possible ways to overcome with the available resources we will be able to achieve a great success.

NPS equity schemes, like any other funds wants generate good return to its investors with very minimum risk. Well-constructed portfolio can generate good results, but fund managers have many constraints in the form strict guidelines from PFRDA. When fund managers identify good ways to overcome these constraints they can generate expected results consistently.

Regulatory policies for pension funds force fund managers to invest majority of their inflows in the domestic stock market hence they will become one of the major domestic institutional investors and create more liquidity in the market. (Lungu, 2011) Past performance of a fund is one of the major determinants of current large inflow into the fund; diseconomies of scale may cause future performance and can erode fund value. (Berk and Green, 2004) Positive relationship is observed between the diversification and fund performance, Fund managers will be interested in increasing the stake in the current holding companies rather than searching for new investment ideas. Fund managers want to keep their focus by investing in their favourite stock except if they are not finding liquid stocks. Liquidity constraint is one of the major challenges in scaling the investment of particular script. (Pollet & Wilson, 2017)

Optimal fund size is better for good return. Younger and smaller funds may offer maximum return where for capital preservation it is better to opt for larger and older funds. (Jones, 2007) AUM and fund inflow inversely related to return. (Ramesh & Dhume, 2014) In some cases quadratic and concave relationship was found between asset size and performance (Bodson, Cavenaile, & Sougné, 2011)

Older funds because of their experience in the market showed better performance. Managers who are aggressive risk taker generated more yields. (Elton, Gruber, & Blake, 2012) In some cases fund size and fund performance observed nonlinear Inverted U shape relationship. (Li & Liu, 2018)

Studies conducted to identify the factors which affect the fund return observed mixed results and not very conclusive. Some studies show positive relationship between fund size and fund performance where as some other studies proved negative relationship. NPS Equity schemes are very unique schemes in many ways hence we will not be able to apply general results of other studies to these schemes, hence we felt the need current study to understand the relationship between fund size and return.

Data and Methodology

Data on NPS subscriber and AUM was collected from NPS trust. NPS quarterly subscriber and AUM data from June 2008 till March 2021 was used for comparing and finding relevant relationship. Scheme wise return for various time periods are used for regression analysis. Descriptive, Correlation and Regression methods are used in analysing the data.

Results and Discussion

Old age financial security is the major motive behind introducing defined contribution pension plan for general public called National Pension System in

India. NPS schemes allow and encourage investing for retirement. NPS helps people to accumulate for retirement and they can create a pension corpus so that they can continue their retirement life without compromising their pride living standards. In 2004 government started NPS for its employees and in 2009 they opened it for all.

I. Number of NPS subscribers and AUM as on 31 May 2021

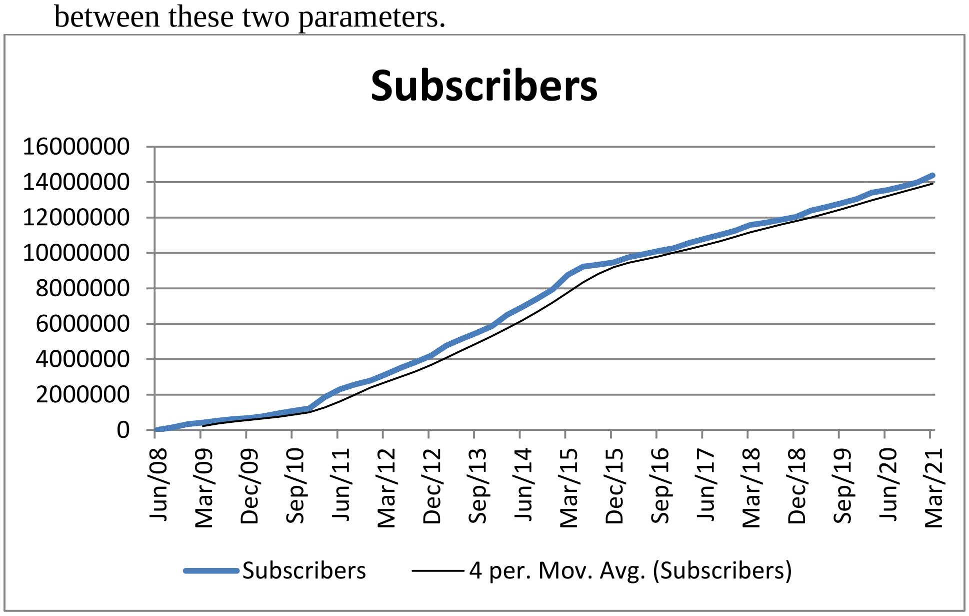
Sector	No. of Subscribers (in Number)	No. of Subscribers (in %)	AUM (Rs in Crs)	AUM (in %)
Central Government	21,82,374	14.98	1,89,699.15	32.11
State Government	52,36,989	35.94	3,05,997.67	51.80
Corporate Sector	11,58,027	7.95	66,583.17	11.27
All Citizen	16,96,458	11.64	23,989.92	4.06
NPS Swavalamban	42,99,161	29.50	4,458.87	0.75
Total	**1,45,73,009**	**100.00**	**5,90,728.78**	**100.00**

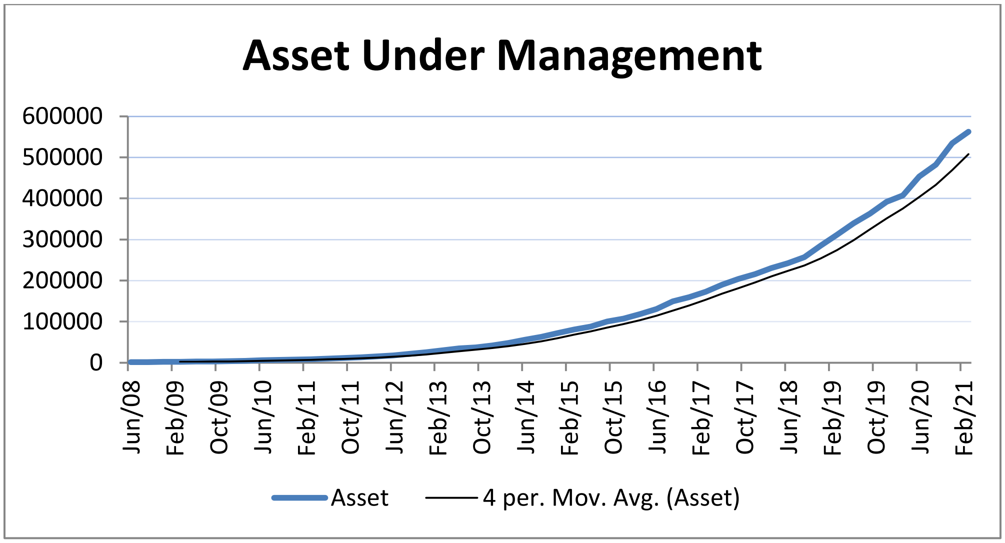
Source: NPS Trust

All citizen modes in term of total subscriber is 11.64% but when it comes to their portion in total AUM it is just 4.06% it clearly shows, as of now it is not a very popular option of investment avenue among the general public. All central government employees and majority of state government employees are using NPS as mandatory retirement pension saving mode. Many corporates also adopted this over popular EPF schemes. After initial success of NPS government mode it was introduced to general public. We don't have any widely covered and established private pension plans in India. But data shows as of now very few individuals voluntarily started contributing towards their NPS scheme.

2. Number of Subscriber vs AUM

NPS trust quarterly data on number of subscriber and Asset under Management from June 2008 till March 2021 was used to identify the trend and relationship between these two parameters.





Source: NPS Trust

Above graph shows a study increase in the subscriber base and in AUM over the period.

Descriptive Statistics

	Qtly % Change in Asset	*Qtly % Change in Subscriber*
Mean	12.65	10.55
Standard Deviation	5.58	17.98
Sample Variance	31.11	323.25
Kurtosis	0.80	25.09
Skewness	0.75	4.60
Range	26.75	115.10
Minimum	3.98	1.05
Maximum	30.74	116.14

Percentage change in asset is more consistent compared to percentage change in subscriber base. This could be because Asset includes contribution by old subscriber and return generated by these assets.

3. NPE Scheme E

Year	**No. of Subscribers**	**AUM (Rs in Crs)**	**Percentage Increase of Subscriber**	**Percentage Increase of AUM**
2013-14	78774.00	365.28		
2014-15	86774.00	593.99	10.16	62.61
2015-16	215372.00	1272.88	148.20	114.29
2016-17	437076.00	3123.13	102.94	145.36
2017-18	691570.00	5743.64	58.23	83.91

2018-19	929931.00	9568.50	34.47	66.59
2019-20	1251574.00	12924.30	34.59	35.07
2020-21	1646773.00	22205.50	31.58	71.81

Source: NPS Trust

Correlation between number of subscriber and AUM is 0.9811 and correlation between percentage increase in subscriber and percentage increase in AUM is 0.78955. Increase in subscriber base is positively correlated with AUM. Regression value is also significant at 10% confidence level with P value of 0.064

Percentage increase in AUM is not consistent with percentage increase in subscriber base. This shows new subscribers are not contributing on par with old subscribers, it may be because of new subscriber just open NPS account but not contributing actively.

4. Experience of Fund houses

Sl No	Pension Fund	Inception Date
1	Kotak Mahindra Pension Fund Ltd.	15-May-09
2	SBI Pension Funds Pvt. Ltd	15-May-09
3	ICICI Pru. Pension Fund Mgmt Co. Ltd.	18-May-09
4	UTI Retirement Solutions Ltd.	21-May-09
5	LIC Pension Fund Ltd.	23-Jul-13
6	HDFC Pension Management Co. Ltd.	01-Aug-13
7	Aditya Birla Sun Life Pension Management Ltd.	09-May-17

Source : NPS Trust

We can observe only 4 funds are operating from the beginning of launch of NPS Equity Scheme and have built the customer base over last 12 years. Two AMC's joined them in 2013 and Aditya Birla is the latest addition and has just 4 years of experience. Governments fixed very low permissible expense ratio and other charges, these norms are not very attractive for new entrants to this space.

5. Weightage of top 5 holdings in percentage by different pension fund AMC

NPS Equity Schemes- AMC	Weightages of top 5 Holdings %
HDFC	32.94
ICICI Prudential	33.14
UTI	33.55
LIC	34.91
SBI	35.67
Aditya Birla Sun Life	36.03
Kotak Mahindra	39.85

Source: NPS Trust

Almost all AMC's are maintaining similar portfolios and holding structure. Kotak Pension funds weightages of top 5 holdings percentage is higher compared to others, whereas HDFC is last in the list. PFRDA guidelines on maximum holding in a single security and maximum cap in a particular industry may influence this similar structure of holdings from all the AMC.

Regression Model

Current study used four independent variables to find their influence on fund returns. We used regression analysis to analyse how these independent variables will impact fund return.

Fund Performance (Return) = α +β1 (AUM) +β2 (Number of Subscriber) +β3 (Experience) +β4 (Portfolio Diversification) + Error

		3 Years Return	7 Years Return
	R2	0.925203582	0.874139959
	Significance F	0.143998333	0.50982585
Coefficients	Number of Years	0.000638453	0.001492084
Coefficients	AUM (Rs Crs)	1.08038E-05	8.43321E-06
Coefficients	Subscribers	-8.90784E-08	-6.79263E-08
Coefficients	Weightage of top 5 Holdings %	0.000631555	-9.97104E-05
P-value	Number of Years	0.263222332	0.372143057
P-value	AUM (Rs Crs)	0.043502856	0.258079788
P-value	Subscribers	0.049316198	0.27451444
P-value	Weightage of top 5 Holdings %	0.421526236	0.932024859

Our regression results shows in short term AUM and Number of Subscriber will influence performance of a fund and we don't find influence of this in long term. Whereas fund experience and portfolio holding are not significantly impacting fund return both in short and in long term.

Summary and Conclusion

This article focused on NPS All citizen Equity Schemes performance, we analysed impact of AUM and number of subscriber on scheme returns. It shows in short term both AUM and subscriber base will have impact but not in long term. These results are in line with many studies conducted earlier by various researchers using different mutual funds and hedge funds. Since results are mixed and have many limitations like limited data points, only few parameters are compared and limited robustness of the study hence results are not very conclusive in nature. NPS investment is of long term in nature, investor are not really need to bother much about this short term impact of fund size on return and in long term it is not going to affect their investment in any way.

In future, detail studies can be carried out by taking scheme specific size and return analysis to understand scheme specific impacts.

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