NATIONAL PENSION SCHEME [NPS]: IS IT THE OLD WINE IN THE NEW BOTTLE OF SIP MUTUAL FUND [MF] SCHEME

Dr. Samir Ghosh[*]
CMA. Bikash Saha[**]

ABSTRACT

In India, the benefit of the National Pension System (NPS) was extended to cover all the citizens (w-e-f-2009) to create an opportunity for the aging population to enjoy pensions in their old age. Like NPS, MF schemes are also available to achieve the desired retirement plans. Investment in various schemes is susceptible to risk among other factors, hence investors must hedge risk properly at the time of quantifying the returns. It is interesting to note that the basic features of both the NPS and MF as investment avenues are more or less the same and that creates apprehension whether the performance of the two investment avenues in terms of return is indifferent or not for the choice of a better investment option as a part of retirement plan. In the present study, an attempt has been made to provide a comparative performance analysis of NPS and MF schemes based on risk-adjusted trailing return i.e. Sharpe's index. The analysis will facilitate the choice of a better investment instrument as a part of a retirement plan.

_____

Keywords: *Retirement, Pension, National Pension Scheme (NPS), Mutual Fund (MF).*

_____

Introduction

As per the 'Census-2011', there were nearly 104 million elderly persons in India aged above 60 years. Moreover, the number of elderly persons in India was expected to grow to 173 million by 2026 and with a growth rate of around 3 % annually, the number will rise to 319 million in 2050(Elderly in India - 2016). Therefore, an adequate corpus is required at the time of retirement to meet the increasing cost of living, healthcare costs, and other contingencies during post-retirement. A pension plan is an annuity plan to enjoy regular income post-retirement. As per the recommendations and suggestions of the OASIS, IRDA, and Bhattacharya Committee report, the **National Pension Scheme (NPS)** was launched by the government of India through PFRDA (Pension Fund Regulatory and Development Authority) in the year 2004 for government employees and thereafter opens for all the citizens of India by the end of 2009. It is an annuity plan to build a large fund or corpus at the end of the working life to provide regular income post-retirement. To invest in NPS, an investor has to open a Tier-I account which is mandatory, and may open a Tier-II account which is optional. Similarly, mutual funds offer different schemes in which investors invest throughout their working life to build a large corpus post-retirement. After retirement, an investor is free to withdraw the whole of the fund or a part thereof with an option to avail of the benefit of SWP (systematic withdrawal plan) to enjoy regular income post-retirement.

It has been observed that the basic features of both the NPS and MFs seem to be identical. Both are,

- Investment avenues to build a large corpus in the long run (retirement solution)
- Systematic investment plans (SIP)
- Market-linked investment products
- Transacted at Net Asset Value (NAV)
- Managed by AMC
- Open to all the citizens of India

---

[*]   Professor, Department of Commerce. Vidyasagar University, Midnapore, WB, India.
[**]   Research Scholar, Assistant Professor, Department of Commerce & Financial Studies, AKS University, Satna, M.P., India (Corresponding Author).

The identical features create confusion especially among retail investors whether the performance in terms of return of the two investment avenues is indifferent or not for the choice of a better investment option as a part of a retirement plan.

Literature Review

Dave (2006) in his article tried to explicate the pension reform in India and its impact on the ageing population with special reference to social and economic concerns for pension. Kalarwala. Pawan Kumar, (2011), in his article, attempted to evaluate the minimum return guarantee to the subscribers of the new pension system. The author concluded that with the introduction of the new pension system, the additional burden of public expenditure of the government might reduce. Sonkusare and Rajesh (2019) tried to examine the problems and challenges faced by the government in implementing the NPS. They concluded that to build a large corpus at the time of retirement, other investment options may be considered such as MF. Markandan. Nandita, (2016), in her executive summary, tried to explore the functioning of NOAPS (National Old Age Pension Scheme) and the background of the OASIS project. The summary highlighted the basis of pension reforms in India and the road ahead. Anantha and Balanga (2016) in their research work tried to highlight the performance of different NPS funds based on return and concluded that the performance of the funds was symmetrical. The research article by Kamath and Rupali (2017) examined the cost and benefit of NPS funds with other retirement schemes and found that the processing fees were the key differentiating factor. Kali. Sukhen., (2017), in his article, tried to magnify the contribution of NPS towards old age income security in India. He concluded that the new pension scheme is better than the old DB pension system. The author further stated that the new pension scheme will foster the overall development of the capital market. Jain and Sharma (2018) in their study compared NPS with other retirement pension plans and studied the behavior of the NPS subscribers. They concluded that NPS has gained rapid popularity. The study of Krishna (2020) speaks about the performance of different funds under NPS based on portfolio performance indices and found mixed results based on Sharpe's, Treynor's, and Jensen's ratios.

Need & Objective of the Study

The identical features create apprehensions among retail investors regarding the choice of a better investment option as a part of a retirement plan. Hence, at this juncture, it is better to examine whether the NPS is to be treated as the old wine of SIP-based MF in the new bottle. From the review of the literature, it has been observed that hardly any attempt was made to compare NPS and MF as a part of a retirement plan concerning portfolio performance index i.e. Sharpe's ratio. Accordingly, an attempt has been made to compare the investment avenues based on the risk-adjusted return to identify the best retirement investment plan. The objective of the study is to evaluate the performance of the different schemes under the NPS and MF based on risk-adjusted returns to facilitate the right choice of pension/retirement benefit investment schemes.

Formulation of Hypothesis

H_1:   There is no statistically significant difference in the mean risk-adjusted returns of different funds under NPS and MF as per Sharpe's index.

Research Methodology & Data

The nature of the study is analytical. The study tried to highlight the performance of different funds under NPS and MF concerning risk-adjusted returns. For the study, secondary data is collected from the websites of the National Pension Trust, AMFI, RBI, and different journals, books, and newspapers. The Net Asset Values (NAV) of the funds under NPS and MF were collected at close on the last date of every month for nine (9) years i.e. from. 2014 to 2022. The said period of study has been considered because NAV data of some of the funds under NPS was readily available from the year 2014.

For analysis, all the six funds under Tier-I of NPS as approved by PFRDA (Pension Fund Regulatory and Development Authority) have been considered except for the Aditya Birla Sun Life Pension Management Ltd. (insufficient data). To maintain parity and to provide a better comparative result, mutual fund schemes from the same fund houses as under NPS were considered except L&T Triple Ace corporate fund, Franklin India corporate debt fund, and Nippon India corporate debt fund.

For data analysis, statistical tools such as mean, standard deviation, independent t-test, Levene's test, and, Sharpe's ratio, have been used with the help of SPSS and Excel Spread Sheet (MS office).

Data Analysis & Discussion

Statement of Sharpe's Index [NPS]
Table 1

Pension Fund	NPS Scheme (Tier-1) -- Equity Fund					
	Kotak Mahindra Pension Fund Ltd	SBI Pension Fund Ltd	HDFC Pension Management Co. Ltd	UTI Retirement Solution Ltd.	ICICI Pru. Pension Fund Ltd.	LIC Pension Fund Ltd.
Mean Return (2014-2022) **(Rp)**	15.59	14.8	15.78	15.41	15.35	13.87
SD **(Ꮾ)**	11.14	15	15.42	15.67	16.38	16.28
Risk-Free Return **(Rf)**	7.26	7.26	7.26	7.26	7.26	7.26
Sharpe's Index	0.75	0.5	0.55	0.52	0.49	0.41

[Prepared by authors]
[source - www.npstrust.org.com]

In the present study, the **10-year Government Securities rate** was considered the **Risk-free rate (Rf).**

Sharpe's Index/ratio measures the risk-adjusted return i.e. return per unit of total risk (SD) of a fund. It is used to measure historical performance. A fund with a higher ratio is considered superior relative to its benchmark return. Precisely, Sharpe's ratio is calculated to measure the performance of a fund.

Sharpe's Index/ratio = [(Rp – Rf) ÷ (Ꮾ)]

The Sharpe's ratios of corporate debt and government debt funds under NPS were calculated following the same technique as in Table -1 and the results were shown in table – 3.

Statement of Sharpe's Index [MF]
Table 2

Equity Hybrid Mutual Fund	MF Scheme -- Equity Fund					
	KOTAK	SBI	HDFC	UTI	ICICI	LIC
Mean Return (2014-2022) **(Rp)**	11.66	16.89	17.62	14.22	18.28	10.48
SD **(Ꮾ)**	15.03	13.87	17.63	16.28	18.97	10.48
Risk-Free Return **(Rf)**	7.26	7.26	7.26	7.26	7.26	7.26
Sharpe's Index	0.29	0.69	0.59	0.43	0.21	0.31

[Prepared by authors]
[source - www.moneycontrol.com]

Sharpe's ratios of corporate debt and government debt funds under mutual funds were calculated following the same technique as in Table -2 and the results were shown in table-3.

Table 3

Consolidated Statement of Sharpe's Index			
Equity Scheme			
Funds	NPS	Funds	Mutual Fund
	Sharpe's Index		Sharpe's Index
Kotak Mahindra	0.75	Kotak Mahindra	0.29
SBI	0.50	SBI	0.69
HDFC	0.55	HDFC	0.59
UTI	0.52	UTI	0.43
ICICI	0.49	ICICI	0.21
LIC	0.41	LIC	0.31
Average	**0.54**	**Average**	**0.42**
Corporate Bond Scheme			
Funds	NPS	Funds	Mutual Fund
	Sharpe's Index		Sharpe's Index
Kotak Mahindra	0.73	Kotak Mahindra	0.10
SBI	0.88	L&T	0.20
HDFC	0.94	HDFC	0.70
UTI	0.75	Franklin India	0.70
ICICI	0.94	ICICI	0.58
LIC	0.80	Nippon India	0.60
Average	**0.84**	**Average**	**0.48**

Govt. Bond Scheme			
Funds	**NPS** **Sharpe's Index**	**Funds**	**Mutual Fund** **Sharpe's Index**
Kotak Mahindra	0.56	Kotak Mahindra	0.32
SBI	0.60	SBI	0.59
HDFC	0.62	HDFC	0.27
UTI	0.50	UTI	0.51
ICICI	0.25	ICICI	0.53
LIC	0.83	LIC	0.22
Average	**0.56**	**Average**	**0.41**

[Prepared by authors]

Inter Fund Analysis

H₁: There is no statistically significant difference in the mean risk-adjusted returns of different funds under NPS and MF as per Sharpe's index.

Table 4

Group Statistics					
Sharpe's Index	**Name of Funds**	**N**	**Mean**	**Standard Deviation**	**Standard Error Means**
Equity Scheme	NPS	6	17.8083	1.09511	.44708
	MF	6	22.5667	3.81806	1.55671
Corporate Bond Scheme	NPS	6	6.5417	13.41845	5.47806
	MF	6	43200	7.74572	3.16218
Government Bond Scheme	NPS	6	5.1983	2.51580	1.02707
	MF	6	1.2867	6.43900	2.62871

Table 5

Independent 't' Test				
Sharpe's Index	**Test**	**Sig.**	**Equal Variance Assumed**	**Equal Variance not Assumed**
Equity Scheme	Levene's Test of Equality of Variances	Sig.	.053	-
	t-test for equality of Means	(2 tailed)	.015	.027
Corporate Bond Scheme	Levene's Test of Equality of Variances	Sig.	.448	-
	t-test for equality of Means	(2 tailed)	.733	.734
Government Bond Scheme	Levene's Test of Equality of Variances	Sig.	.093	-
	t-test for equality of Means	(2 tailed)	.196	.211

[Prepared by authors]
[SPSS output summary]

Levene's Test (Equality of Variances)

Levene's test (Levene1960) is the test of homogeneity of variances. Statistical tests such as t-test, ANOVA, etc. assume that variances are equal across samples. From Table -5, it has been observed that the p-values of all the schemes are more than 0.05 which signifies that the samples of all the schemes met the homogeneity assumption of the variances i.e. equality of variances.

Independent t-test (Equality of Means**)**

In table-5, the p-values of t-test given by significance (2-tailed) of the equity scheme (0.015, 0.027) in both cases are less than the level of significance i.e. 0.05. Therefore, the null hypothesis is rejected and concluded that there is a statistically significant difference in the mean risk-adjusted return of the different funds under NPS and MF equity schemes.

Again, table-5 shows that the p-values of t-test given by significance (2-tailed) of corporate (0.733, 0.734) and government (0.196, 0.211) bond schemes are greater than the level of significance, which is 0.050.

Hence, the null hypothesis cannot be rejected, and can be concluded that there is no statistically significant difference in the mean risk-adjusted return of the different funds under NPS and MF of corporate and government bond schemes.

Conclusions/Findings

- **Equity Fund**

As per Sharpe's ratio, the average risk-adjusted return of equity funds (0.54) under NPS was more than the equity funds (0.42) under mutual funds.

The results as per Sharpe ratio indicated that Kotak Mahindra Pension Fund (.75) outperformed all the funds under MF and NPS categories followed by SBI Equity Hybrid Fund (.69), HDFC Equity Hybrid Fund (.59), HDFC Pension Management Fund (.55), UTI Equity Hybrid Fund (.52) and others.

- **Corporate Bond Fund**

As per Sharpe's ratio, the average risk-adjusted return of corporate bond funds (0.84) under NPS was more than the corporate bond funds (0.48) under mutual funds.

In the corporate debt fund section, the result of Sharpe's ratio indicated that HDFC Pension Fund (.94) and ICICI Pension Fund (.94) were the best performers among all the funds considered under the NPS and MF categories followed by SBI Pension Fund (.88), LIC Pension Fund (.80), UTI Pension Fund (.80), UTI Retirement Solution Fund (.75) and others.

- **Government Bond/Gilt Fund**

As per Sharpe's ratio, the average risk-adjusted return of government bond funds (0.56) under NPS was more than the government bond funds (0.41) under mutual funds.

As per Sharpe's risk-adjusted returns, the LIC Retirement plan (.83) provided the highest return followed by HDFC Pension Plan (.62), the SBI Pension plan (.60), SBI Hybrid mutual fund (.59), and others.

Further, the corporate debt funds of NPS outperformed all the funds under study. The HDFC Pension plan (.94) and ICICI Prudential Pension plan (.94) under the corporate debt category generated the highest overall risk-adjusted returns.

Limitations of the Study

- For the present study, only the Tier-I account of NPS has been considered.

- Only six mutual fund schemes are considered for the study.

- Trailing returns of 9 years have been considered due to the non-availability of NAV information of certain funds under study.

- Apart from risk and return, the other parameters of comparison such as tax benefit, management fees, flexibility, and liquidity have not been considered in this study.

Suggestions / Recommendations

In light of the above discussion and analysis, the NPS seems to be the prudent choice as a retirement benefit investment compared to mutual funds. But certain features of the NPS may hinder the true spirit of a good investment product, such as, at maturity, a minimum of 40% of the NPS corpus must be utilized for purchasing an annuity plan from government-specified insurance companies whereas a SWP (systematic withdrawal plan) of mutual funds may provide better market-linked returns post-retirement. Moreover, risk-taker investors by nature invest more in equity over debt but under the NPS the proportion of equity investment gradually reduces as an investor gets older which compromises the opportunity of generating high returns. Further, the choice of funds (only seven) under the NPS is limited compared to mutual funds. It is worth mentioning that the NPS is the best tax-saving investment scheme providing a total deduction of Rs.200000 (additional Rs.50000) under section 80C, 80CCD 1(B) and qualifies for Exempt-Exempt-Exempt (EEE) tax benefit of the IT Act 1961. In addition, the management fees charged by NPS are lower than mutual funds. Hence, an investor should dig down into the factors discussed above (apart from risk and return) before selecting the best retirement solution investment plan.

References

1. Gupta. Ramesh, (2002), "Pension Reforms in India: Myth, reality and Policy Choice", IIMA Working paper-WP2002-09-03

2. Anantha. S. and Balanaga Gurunathan. K., (2016) "Performance of National Pension Scheme in India", International Journal of Research in Commerce, IT & Management, Vol-6, Issue-7, July, ISSN-2231-5756.

3.   Dave. Sunrendra, (2006), "India's Pension Reform: A case study in complex institutional change".

4.   Jain. Ankur and Sharma. Kapil Dev, (2018) "A study on comparison of National Pension Scheme 2004 with other Retirement Pension Plans and subscribers view about NPS in some selected enterprises with special reference to Kota district", National Journal of Research and Innovative Practice (NJRIP) Vol-1, Issue-1, ISSN-2456-1355

5.   Kalarwala. Pawan Kumar, (2011) "Risk-Based Supervision and interest rate Guarantee for New Pension Scheme", IIMB working paper

6.   Kamath.Vani and Patil.Rupali., (2017) "Cost-Benefit Analysis of NPS Schemes", International Journal of Management (IJM), Vol-8, Issue-3, May-June, ISSN-0976-6502, ISSN Online-0976-6510

7.   Kali. Sukhen., (2017), "New Pension System: A new concept of old age income security in India", The BESC Journal of Commerce & Management, Vol-3, July, ISSN-2395-4639

8.   Murari. Krishna, (2020) "Risk-adjusted Performance evaluation of Pension fund managers under social security schemes (National Pension System) in India", Journal of Sustainable Finance & Investment

9.   Sonkusare. Rajesh N, (2019), "New Pension System: Problems and challenges", UPA National Peer Reviewed e-Journal, Vol-9, ISSN-2455-4375

10.   Kali. Sukhen., (2017), "New Pension System: A new concept of old age income security in India", The BESC Journal of Commerce & Management, Vol-3, July, ISSN-2395-4639

11.   Kalarwala. Pawan Kumar, (2011) "Risk-Based Supervision and interest rate Guarantee for New Pension Scheme", IIMB working paper.

12.   www.npstrust.org.in (November, 2022)

13.   www.amfiindia.com (November, 2022)

14.   rbi.org.in (November, 2022)

15.   www.moneycontrol.com (November, 2022)

16.   Newspapers - The Times of India, The Telegraph, Hindustan Times, The Economic Times, Business Standard, etc.

17.   A consolidated Model of Pension for India"- Nandita Markandan, Centre for Civil Society, Public Policy, New Delhi

18.   Elderly in India (2016), Govt. of India, Ministry of Statistics and Programme Implementation

19.   UN's Population Division Report (2016).

◉○◉