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Evaluating the Risk–Return Efficiency of NPS Equity Funds vs Corporate Bond and Government Securities Funds

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Abstract

This paper analyzes the risk-return efficiency of the most popular three asset classes provided by the National Pension System involving Equity funds, Corporate Bond funds and Government Securities funds which are trading under the Tier I structure and are under the care of several pension funds managers registered under the NPS Trust. The analysis is based on the annualised returns as well as net asset values (high and low) of fifty two weeks data of every fund which allows constructing consistent indicators of short-term volatility and long-term performance. The research concentrates on the averages in order to arrive at the aggregate behaviour with dispersion in the outcomes in order to have the variation that the fund managers inject in each asset class. The comparison of the average returns indicates a very clear trend with equity funds performing very well on the multi-year returns and Corporate Bond and Government Securities funds performing more reliably with less volatility and this shows that the assets contribute differently to the total pension portfolio. The efficiency is evaluated by ratio of average returns to short term amplitude so as to focus the attention on the trade-off between growth potential and relative stability. This measure puts the fixed-income funds in the role of producing more consistent results even with lower long-run returns. The implications of the research findings to investors and policy makers explain the relation between risk and return in NPS. The study presents evidence that asset allocation should be selected considering the objective of growth and stability needs .so as to potentially support retirement planning that will hold up in dissimilar market conditions

Keywords: National Pension System, Pension Fund Performance, Risk–Return Efficiency, Equity Funds; Corporate Bond Funds, Government Securities Funds, Pension Fund Managers, Long-Term .Returns, Volatility Analysis and Retirement Investment

Introduction

Pension fund performance assessment is a significant field of study in India since the National Pension System (NPS) is steadily establishing itself as a major system of retirement planning amongst salaried and self-employed Indians seeking to be prepared in a structured and disciplined manner. The system introduces a multi-asset portfolio through which the contributors invest in Equity, Corporate Bond and Government Securities funds under the administration of multiple licensed pension fund managers and this structure introduces investment options that have significant impacts on the retirement success.

There are extensive variations in the behavioural patterns of these asset classes since each of them is subject to respond to the distinct sets of market forces and the contributors tend to struggle to comprehend the manifestation of risk and return trade-offs over the long horizons characteristic of retirement investments. The Equity category needs to make a change by playing in domestic capital markets whereby performance tends to vary significantly with the economic cycle, corporate profits and overall financial mood the result of which is that there are times on which investors make quick money and times when they suffer significant corrections. The Corporate Bond sector is conducted in a more controlled market which is reported by high quality corporate debt securities which provide a more stable rate with reflective interest rates, credit spreads and regulatory adjustments which regulate corporate borrowing and it suits like a glove to investors which is interested in moderated growth and comparatively stable prices. The level of safety provided by the Government Securities is the best among the three since they have the support of the sovereign guarantees and this aspect is appealing to those that focus more on having conservative exposure to securities characterized by maximising capital retention. The presence of these specific groups causes a pertinent question concerning the level of success of each asset category in transforming risk to return when gauged in uniform parameters and this question is significant in the field of retirement planning where stability, growth and predictability need .to co-exist on the span of a few decades of savings

The relevance in the study deals with efficiency of risk and returns is based on the idea involving absolute performance of each and every asset class. The performance is accompanied by a level of volatility and therefore the sustainability of retirement plans relies on the fact that there is volatility which the investor is able to endure without the need to interrupt contributions or make changes in the allocations at hand. When investors are faced with the issue of uncertainty about the extent of exposure they should provide to more risky investments with higher potential for better long performance and how much of their funds to allocate to non-risky securities to protect the portfolio in case of the sudden crash of the market. The analysis is based on the official performance sheets issued by NPS Trust since the sheets display audited returns, net asset values and price ranges of each pension fund manager, which makes the analysis consistent and reliable. The presence of several managers in each asset type enables the analysis to determine whether the variation in performance is by the nature of the asset category or the managers make choices that affect the way a portfolio is constructed, commonly the credit criteria, the equity allocation method and duration management. The isolating features of managers and categories give the clarity which can be of use to those contributors who rely on the information available in the public in order to make a well-informed decision regarding their long-term allocation .strategy

The analysis of the efficiency is made with the consideration that the process of retirement planning is associated with gradual accruement in long durations and participant contributors go through financial situations that change over time many times. The difficulty is to choose which allocations can be made in line with individual situations, risk-taking desire and future market behaviour expectations. These criteria need to be systematically compared such that they come out of generic assertion on growth potential and stability. The research will add significant value to the knowledge of how every category of asset performs when measured in terms of returns, volatility measures based on price ranges, cross-manager dispersion and this framework will give a harmonized picture that will enable a decision maker to make rational decisions. The study aims to have a better understanding of the working of each asset class to the NPS ecosystem, and such understanding would lead to enhanced retirement security which

.can be achieved through informed and realistic allocation decisions

Review of literature and Research gap

The assessment of pension fund performance has continued to grow marginally worldwide and in Indian financial literature as pension savings frameworks rely on the capacity of the long-term investments. These outlines are used to strike a balance between growth and stability within the settings that are subject to movement of the macroeconomic environment as well as the change in the regulatory frameworks. The research analyzing equity-based retirement instruments will often mention the higher potential of equity markets to form wealth over the long-term due to the compounding of wealth, cycles of corporate earnings and growth in economic activity which leads to greater cumulative investments against more conservative instruments. Those scholars who explore fixed-income retirement products emphasize the stabilising properties of corporate debt and government securities in which interest rate conditions, institutional credit policy and monetary policy conditions determine the direction of yields and capital markets value. The value of diversification is repeatedly high in international studies of multi-asset pension portfolios since the performance of asset classes to inflation, business cycles and market sentiment is different and thus a wide range of response to these shocks assists in cushioning retirement portfolios against systemic shocks. The articles on Indian studies about the NPS talk the big picture of scheme design and both provide returns comparison by managers and category but most of these comparisons is descriptive. These are not analytical in that they simply summarise returns in history not involving efficiency or across categories. Literature that discusses fund manager performance admits that because of managerial decisions, it affects the outcomes based on decisions concerning credit exposure, sector performance, equity allocation strategies and duration performance. These decisions are important as the pension contributor entrusts the fund manager to ensure discipline during changing circumstances. Investigations of the Indian debt market bring out the aspect of segmented behaviour towards both corporate bonds and government securities due to the behaviour typically exhibited by each segment since liquidity pattern, risk premium and policy signals. These have a different influence to each section and therefore the behaviour of NPS fixed-income categories should be interpreted .carefully rather than classified as low-risk options

The available academic literature offers valuable information pertinent to the workings of every asset category in the general market environment and demonstrates the general trends that characterize long-term wealth generation in the pension schemes but there are notable gaps that need to be filled. The three NPS asset classes have not been a comparison made in terms of risk-return efficiency using consistent measures in which returns are assessed against volatility measures which are based on price behaviour. It has not been sufficiently addressed by the researchers to determine whether higher returns can be obtained with proportional increases in the instability. The literature that addresses NPS performance is often based on aggregate data or brief commentaries published by regulatory authorities and such reports hardly ever reflect cross-manager dispersion per each of the asset classes despite the fact that this dispersion determines investor results in a multi-year time frame. The literature uses volatility based on a general market index rather than an individual fund level and thus it does not take into consideration how any specific NPS fund behaves within its own constraints. There is limited analysis in terms of comparative analysis of the Equity, Corporate Bond and Government Securities funds under a single analysis framework and the lack makes it impossible to view the performance sheets in a way that gives you the confidence to interpret the performance sheet. These gaps are addressed by the current research

through the structural assessment of returns, short-term volatility predictors and cross-manager differences using one similar dataset obtained through official NPS disclosures and this approach will .help comprehend the interaction between risk and returns within the Indian pension system better

Conceptual Development and Hypotheses

The theoretical basis of the research arises with the realization of the fact that the pension systems need to fulfill two independent goals of long-run growth and their predictable stability. The consistency should be the key to the contributors who rely on the amount of their corpus as means to remain financially secure after retirement. The NPS offers a multi-asset strategy that allocates the investment decisions into Equity funds, Corporate Bond funds, Government Securities funds and each type has unique behavioural property that are conditioned by the market forces that determines the returns and risk characteristic of the asset. The equity funds seek to achieve an upward trend by exposure to companies listed on the stock exchange and exposure brings greater variance. The equity markets are highly sensitive to economic cycles, investor morale and the performance and results of the companies. Corporate Bond funds are run under an organized debt security setting where high-quality credit instruments generate moderate and stable returns that reflect the trend in the interest rates. The sovereign-backed instruments that are found in the Government Securities funds represent the policy position of the central bank and fiscal environment of the government, and this category is the most predictable of the three. The policy underlying the analysis of the risk-return efficiency can be explained by the necessity to comprehend the transformational process of each asset class in terms of the exposure of the market into the results that lead to long-term retirement sufficiency, and the transformation can only be measured when the levels of returns are evaluated against a measure of volatility that indicates the strength of a price shift. A systematic comparison that can be structured relating theory to the achieved performance can be made possible by the availability of scheme-wise data that is released regularly by NPS Trust which reports annualised returns and fifty two week price ranges of each of the pension fund managers of all three asset classes. The efficiency construct indicates the principle that investment effectiveness concerns not just the yield of delivering greater returns but also the volatility of these returns which can be bearable throughout the long saving periods. The hypothetical framework then places the concept of the averages of returns, variation of cross managers and short-term amplitude as significant tools that will be able to distinguish asset classes in the distinctiveness of their overall .contribution to retirement planning

In accordance with this conceptual framework and the set of data that can be studied, the study indicates .the following hypotheses on the basis of which the empirical analysis will be conducted

H_1: Under the NPS Tier I structure, which is the equity category, the long-term average returns exceed .those in the equity funds compared to Corporate Bond funds or Government Securities funds

H_2: Corporate Bond funds and Government Securities funds have a lower short-term volatility than an .Equity fund as quantified by the ratio of fifty-two-week high and low as measured by the value

H_3: Fixed-income funds provide greater scores of risk-return efficiency when compared to Equity funds, .which define efficiency as the ratio of average multi-year returns to short-term volatility amplitude

H_4: Pension fund manager difference is stronger in the equities funds when compared to Corporate Bond and Government Securities fund because of the active management intensity in various asset sub-.categories

Data Description

The analysis depends upon a systematic collection of secondary data which has been compiled based on the official disclosures of the monthly scheme by NPS Trust and such disclosures give audited results regarding the performance of the Equity, Corporate Bond, and Government Securities funds under Tier I category. The study has used the October 2025 reporting cycle as it provides all the full and similar information referring to managers and asset classes and this integrity renders the assessment as being based on the actual fund behaviour without requiring adjustments and assumptions. Each of the schemes has a one-year, three-year and five-year horizon of annualised returns available, fifty-two-week highest and lowest values and this assists in a review of both long term performance and short term volatility. The Equity group is comprised of ten fully reported pension fund managers, one year and three-year returns to the extent historical data has been available and five year returns partially with more recent managers having limited historical data. The Corporate Bond category is equally analyzing ten managers who had full year and 3 year returns and semi year reporting of five year returns. The same pattern is followed in the Government Securities category where both the full and partial long-term return data is available, as well as the complete short- and medium-term and data over the various entry timelines of various fund managers. Having different managers in each asset type contributes to the utility of the dataset since it will be possible to see relationships in categories as well as whether the differences are the result of the asset type or the decision-making of individual managers. The fifty-two-week maximum and minimum values are of special practical forgiveness since they include a consistent measure of brief-time rate flow which is a measure applied to evaluate risk-efficiency and return. The data is sound since it is based on a consistent reporting structure that cuts across all the managers within the NPS Trust and they are consistent and thus can be compared across the categories in a transparent and consistent .manner

Methodology

The research is structured as the comparison of the performance rates and volatility rates of Equity, Corporate Bond and Government Securities funds within the Tier I segment of the National Pension System is conducted on the basis of the disclosures as per the October 2025 of NPS Trust. The dataset will cover annualised returns after one-year, three-year and five-year horizons comprising fifty-two sample week high and low values of each manager of the pension funds. These values are the foundation of analysis of long-term behaviour and short-term price movement. The analysis starts with calculations of cross-manager averages across all the return horizons since averages give a balanced picture of the performance of each asset class without allowing the performance of one manager to overshadow the analysis. The variation between cross managers is determined by the calculation of the standard deviation of returns in each category and calculation assists in determining either that there is a difference in performance due to characteristic of the category or there is a difference in performance due to managerial choice. The research employs the relationship of the ratio between fifty-two weeks high and low values in order to calculate short-term volatility, and the estimation is averaged on managers in order to reflect the volatility propensity in each asset group. The efficiency of the risk and reward of each type category is calculated by having the average three-year returns divided by the average value of the categories and ratio will inform one of the degree to which the volatility of the majority of its asset class is converted into the multi-year performance. The computation used reported values and all are arranged without alteration and projection and five-year data of newer managers were

missing and only the existing information is utilized. The comparisons will be clear and trusted and .based on real behaviour of NPS funds due to the use of a uniform set of procedures in all asset types

Summary of Analysis

It is observed that the Equity funds present the most impressive multi-year returns whereas Corporate Bond and Government Securities funds offer more reliable and predictable returns. The cross-manager difference depicts that the difference in Equity funds crosses between pension fund managers and that reflects more managerial power as compared to the fixed-income categories. The volatility returns indicate that Equity funds experience steeper short term price fluctuations as compared to the Corporate Bond and Government Securities funds whose volatility ranges are relatively low. This comparison of efficiency tests show the fixed-income varieties of investments transform volatility into returns more efficiently despite having worse performance in the long-term compared to Equity funds. The interaction of the patterns of returns, volatility and efficiency indicators indicate explicit behavioural differences .among the NPS asset classes as well as aid in the formulation of the four hypotheses

Table – 1 - Descriptive Statistics of Average Annualised Returns (Tier I, Oct 2025)

Asset Class	Average 1-Year (%) Return	Average 3-Year (%) Return	Average 5-Year (%) Return
Equity (E)	6.39	15.54	19.50
Corporate Bonds (C)	8.72	8.60	6.80
Government Securities (G)	5.12	8.32	5.98

(Source: NPS Data, 2025)

The table gives a simple descriptive statistic of returns expressed as annualised returns of the three largest asset categories within the Tier I of the National Pension System and this will help set out the overall performance picture of each year category before proceeding to the next step of hypothesis testing. The figures demonstrate that Equity funds give the highest multiyear performance which is apparent in the three year and five year average where the Equity returns increase tremendously to the fixed income categories. Corporate Bond funds deliver predictable results that lie at the middle ground since their yearly returns are the greatest among the three groups at the same time their long term returns stabilise at average levels. The least desired trend is seen in Government Securities funds in which returns are stable but under the other two categories which associate with the stability of sovereign-backed instruments. The three-year numbers show a distinct distinction between the Equity and the other of the categories and this distinction gives evidence to the concept of growth oriented investing making a significant contribution towards long-term accumulation. The values of the five years indicate the continuity of such a pattern which suggests the continued momentum in the Equity performance. It is also noticeable in the table that the categories of Corporate Bond and Government Securities are more predictable and it is the predictability that underlies comparisons with risk and volatility that are made later. The correlations provided by the descriptive statistics confirm that every asset class occupies a certain position in NPS and the classification assists in developing the hypothesis pertaining to .efficiency and stability

Hypothesis 1 (H1): Equity funds exhibit higher long-term average returns than Corporate Bond and .Government Securities funds

Table– 2 - Comparison of Average Multi-Year Returns

Asset Class	Average 3-Year Return (%)	(%) Average 5-Year Return
Equity (E)	15.54	19.50
Corporate Bonds (C)	8.60	6.80
Government Securities (G)	8.32	5.98

There is an evident indication that the Equity funds perform better than the other two asset categories over the multi-year horizon in the NPS Tier I structure and this tendency supports the stance expressed in Hypothesis 1. The three-year figures indicate that the Equity returns increased to nearly twice the returns of the Corporate Bond and Government Securities funds which demonstrate that the market-linked exposure brings better compounding effects when investing over a medium duration. The five year values reinforce the same trend since Equity funds also have a huge return premium that reflects extensive membership in the development of the market and corporate profitability growth. Corporate Bond funds provide moderate performance over the long term which stabilizes with time as interest cycles and credit spreads determine the direction taken by the bond valuations. The long-term performance of government Securities funds remains even though poor, and in this case, is in line with their conservative nature and low price increases typically offered by those investment instruments that are backed by sovereign. The distance between Equity and the fixed-income groupings is also comparable at both the long-term periods and this rationality is a solid indicator to the fact that increasing risk-assets will have a higher payoff in the long run. The trend is consistent with the financial theory on the risk premium investors get on taking equity exposure, and the figures are those that the .NPS design shows in actual performance results

Hypothesis 2 (H2): Corporate Bond funds and Government Securities funds demonstrate lower short-.term volatility compared with Equity funds when measured through fifty-two-week amplitude

Table– 3 - Comparison of Average 52-Week Amplitude (Volatility Indicator)

Asset Class	(%) Average 52-Week Amplitude
Equity (E)	19.47
Corporate Bonds (C)	8.72
Government Securities (G)	7.37

The amplitude test results depict that the patterns of short-term volatility across the three asset classes are significantly different and this difference is a good justification of Hypothesis 2. The highest amplitude figure is captured at the Equity category which reflects the more extreme swings in the prices that accompany the equity market behaviour that varies with the economic cycles, announcements made by companies and the change in the market sentiment. Corporate Bond funds show a much smaller amplitude which indicates a more stable price change and stable valuation that is based on the credit rating and interest rates. Government Securities funds also record the least amplitude of three categories and this trend is in line with the characteristics of sovereign backed instruments which have minimal changes with extraneous market pressures. The scale of the difference between Equity and the two fixed-

income classes attests to the fact that the risk exposure of Equity in the short term is significantly larger than that of Corporate Bond and Government Securities funds. The values of the amplitude also indicate that volatility on fixed-income funds is limited within narrow bands thus reinforcing their usefulness as .fixed-income funds as stable anchors on long-term pension relationships

Hypothesis 3 (H3): Fixed-income funds deliver higher risk–return efficiency scores than Equity funds .when efficiency is defined as the ratio of average multi-year returns to short-term volatility amplitude

Table–4 - Risk–Return Efficiency Ratio (3-Year Return / 52-Week Amplitude)

Asset Class	Efficiency Ratio
Equity (E)	0.80
Corporate Bonds (C)	0.99
Government Securities (G)	1.13

The efficiency value of the equity funds is the lowest though the average returns of equity funds are the highest and this reflects the effect of the high short-term volatility that comes along with exposure to equity. Corporate Bond funds exhibit greater efficiency ratio the fact that their moderate returns are accompanied with much lower amplitude values and this combination is much better performance per unit of volatility. Government Securities funds have the highest efficiency ratio indicating that this kind of relationship generates the most predictable relationship between returns and volatility when assessed in uniform measure. The difference between the Equity category and the fixed-income categories assumes a very important insight about the behaviour of NPS asset classes since it proves that high-return instruments do not necessarily imply high efficiency where the short-term instability can be of a .significant level

Hypothesis 4 (H4): Pension fund manager variation is more pronounced in Equity funds than in .Corporate Bond or Government Securities funds

Table – 5 - Cross-Manager Variation Based on Standard Deviation of 3-Year Returns

Asset Class	Standard Deviation of 3-Year Returns (pp)
Equity (E)	1.17
Corporate Bonds (C)	0.21
Government Securities (G)	0.28

The equity category displays the biggest dispersion that means the decisions made by managers regarding stock selection, portfolio allocation and market timing produce apparent differences in performance. Corporate Bond funds exhibit a full range of minimal variation since fixed-income portfolios are regulated and credit-quality constrained such that the range of aggressive deviation across managers is constrained. The variability of Government Securities funds is also very low and this is a characteristic of the narrow investment universe of the majority of the managers which are of the same type of securities as the sovereign securities and are dependent on the same trends of interest rates. The comparison between the fixed-income categories and the Equity category is a demonstration of the active management role within equity markets where strategies differ significantly across stocks, .industries and risk tastes

Table– 6 - Empirical Regression Results (OLS Model)

Model Fit				
$R^2 = 0.885$ Adj. $R^2 = 0.875$ F Statistic = 88.69 **p < 0.001				
Variable	**Coefficient**	**Std. Error**	**t-Value**	**p-Value**
Constant	16.3055	0.395	41.21	****0.001>**
Amplitude	14.7280–	2.956	4.98–	****0.001>**
C_dummy	7.0767–	0.456	15.51–	****0.001>**
G_dummy	7.1254–	0.446	15.96–	****0.001>**

The empirical evidence using regression outcomes supports the existence of the analysis correlations that exist between the general variables and confirms the high value of R2 that a substantial part of the variation in the three-year returns of the NPS funds is accounted for by the model. The negative weight of amplitude indicates this effect of the upward and downward current on the middle-term performance and the strength of this correlation demonstrates that larger instability undermines the degree of returns in a significant manner across the entire asset classes. The constant term is the average return that Equity funds would have in the absence of volatility and the number is not very different to those averages which are available over the multi-year horizon. The Corporate Bond and Government Securities dummy variables coefficients are large negative and this implies that both types of fixed-income securities produce significantly lower returns than Equity funds despite differences between them in volatility. The statistical significance of both variables which is majorly supported by the significance of all other variables confirms the strength of the said patterns since all coefficients have p-values that are less than 0.001 and this empirically justify the differences in behaviour recorded during the analysis. The extreme difference between proportions of the dummy and the constant term used here point out the structural distinction between the asset classes in the selection of the NPS system where Equity funds always outperform the funds dealing with fixed income. The effect of the amplitude is also significant since the negative value denotes that increasing volatility applies quantifiable strain on the performance of returns in all three types of funds. The model helps to substantiate the hypotheses which were formulated above and to give the empirical basis of the interpretation of the interaction of risk characteristics and return patterns in the Tier I structure. High statistical debt of the model also justifies that cross-sectional regression is to be used when analyzing the given data as well as increases the trust .in the inferences that may be made out of the results

Results

- It has been established that the Equity funds produce the best returns over the medium and long-term in the NPS structure and it is this strength that is evident in the three year and five year averages where the performance of Equity funds remains well above what was registered by the Corporate Bond and Government Securities funds which confirms that equity based investments are growth .oriented
- The findings show that Corporate Bond funds uphold a moderate performance trend that is consistent

in unfolding in diverse interest rate conditions and the trend is manifested by the impacts of credit quality as well as duration stability that promote the predictability of effects on those involved in .providing balance between risk and returns

- The results indicate that Government Securities funds offer the most conservative route in the performance and this is corroborated by the fact that the development of these securities streams on a solid underpinning of sovereignty as these securities continues to move in price directions managed .by a monetary policy
- The amplitude comparison of volatility demonstrates the fact that on the short term the volatility of Equity funds is the highest as it is sensitive to the economic cycle and the price fluctuation is caused by sentiment whereas the Corporate Bond and Government Securities funds occupy a narrower .volatility band which represents the smoother behaviour and less sudden price change
- The analysis of efficiency shows that Corporate Bond and Government Securities funds produce higher efficiency of risk to returns ratios than Equity funds while this tendency indicates that fixed-income groups manage to transfer volatility to returns more efficiently even in those cases when their .performance is lower relative to the Equity category
- The empirical regression validates the relevance of volatility and asset class attributes in determining the performance of three-year returns since the amplitude variable reflects significant negative correlation with the three year returns, and the asset class dummy variables display a significant .performance difference with both Equity and fixed-income groups
- The importance of all coefficients in the regression model demonstrates that the chosen variables create a meaningful framework to understand all the aspects of the return behaviour in the NPS system and it is possible to justify that the inclusion of volatility indicators and asset class .distinctions in the assessment of fund performance are significant

Recommendations

- The subsequent measurements need to include monthly / weekly NAV time-series data to enable researchers to use more sophisticated statistical methods, such as time-series regressions, volatility models and rolling-window performance comparisons that can give a deeper analysis of fund .behaviour in a variety of market conditions
- A formalized communication system in the NPS ecosystem in which the managers of the pension funds are more explicit about what is driving their performance could be beneficial to the investors, how this is achieved through an increased level of transparency since investors will have increased .confidence in the allocation results and also the allocation choices will be made better
- The NPS Trust might seek to release normalised risk measures such as Sharpe ratios, maximum drawdowns and rolling measures of volatility of each fund and thereby allow contributors to better compare performance and be able to evaluate a fund in terms of stability rather than just looking at .point in time performance
- The analysis is that Equity funds are highly diversified among pension fund managers and investors who contribute to this category can realize average results through monitoring of managers regularly in order to ensure that long-term results can be taken into account on the level of personal risk .tolerance and retirement goals
- The efficiency ratios of fixed-income categories are high and investors who are very conservative in risk taking can look to augment their exposure to Corporate Bond or Government Securities funds

.when the market environment rewards them with stability rather than risky growth

Conclusion

The outputs of this research present a clear picture of how the three broad asset portfolios under the NPS work when measured in a mix of returns volatility features, efficiency measures and regression analysed understandings and the entire findings offer valuable guidance to contributors as well as policy holders. It is revealed that over both medium- and long-term its analysis reveals that Equity funds are the best and performers in terms of yielding higher returns which is backed by the growth potential offered by the equity markets. The fixed-income portfolios which are depictions of Corporate Bond and Government Securities deliver results that are stable and moderately rising and these analyses are specifically important to investors who need to observe consistent behaviour and regulated price increase. The action of volatility that is witnessed in the comparison of the amplitude shows the abrupt change between equity and fixed-income and the short-term swings tendencies of Equity funds being much higher by definition justify why their efficiency scores are low despite the higher yield of these funds. The effectiveness findings affirm that fixed-income classes have smoother and more sustainable paths of returns over the same period of observation and this trait fortifies its application as stabilising factors when used as a part of a balanced retirement portfolio. The combination of these analytical factors demonstrates that the NPS construction offers the contributors a wide range of choices that serves various risk avoidance and money aims. The general finding of the study is that growth oriented and stability oriented assets have a moderate growth planning contribution and that the most benefit accumulation by the contributors. This occurs in instances when they are informed about the interaction effects of the combination of return potential, volatility behaviour and managerial influence with the category classification. The findings promote future disclosure of funds and point out the essence of .decision-making in the NPS system

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