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Performance Analysis of Reits and Invits in India: A Comparative Study with the Nifty 50

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ABSTRACT

This paper investigates the performance of Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InVITs) in India compared to the Nifty 50 index, using a series of financial models including the Sharpe Ratio, Mann-Whitney U test, Chi-square proportion test and Pearson's Correlation. The study focuses on whether REITs and InVITs consistently outperform traditional investments like the Nifty 50 in terms of returns and risk-adjusted returns. Despite the significant capital inflow and growing interest in alternative investments, there is limited research focused on the Indian market, where macroeconomic conditions, regulatory changes, and investor sentiment play a crucial role. This paper fills that gap by exploring the risk-

return profiles, performance during periods of market volatility, and potential for portfolio diversification provided by these instruments.
Keywords: Alternative Investments, Real Estate Investment Trusts (REITs), Infrastructure Investment Trusts (InVITs), Capital Asset Pricing Model (CAPM), Sharpe Ratio, Mann-Whitney U test, Pearson's Correlation.

1. INTRODUCTION

Real Estate Investment Trusts (REITs) and **Infrastructure Investment Trusts (InVITs)** were introduced in India by **SEBI** in **2014** as a means to meet the funding needs of the country's rapidly growing real estate and infrastructure sectors. These trusts were designed to allow investors to pool their capital to invest in **income-generating assets** such as commercial real estate and infrastructure projects like highways and power grids.

The launch of REITs and InVITs was initially slow, with limited investor participation. However, India's first **InVIT** listing in **2017**, followed by the first **REIT** listing in **2019**, marked a turning point for these instruments. SEBI's regulatory framework, including the reduction of minimum subscription requirements and permission to leverage through debt instruments like **Masala Bonds**, helped encourage greater participation from **retail** and **institutional investors**.

REITs and InVITs offer investors the opportunity to diversify into large-scale, asset-backed projects while providing a steady income stream through dividends. This has made them attractive options for **pension funds**, **insurance companies**, and **foreign portfolio investors (FPIs)** seeking stable returns. While REITs and InVITs have shown promise in delivering returns through rental income and capital appreciation, their ability to outperform traditional investments like equities remains to be fully tested, particularly during periods of economic uncertainty.

As infrastructure projects and commercial real estate continue to expand, REITs and InVITs are expected to play an increasingly important role in the financing of these sectors. Nonetheless, whether they can consistently outperform traditional asset classes will depend on market conditions, regulatory stability, and investor demand. The future of these instruments looks promising, but like other alternative investments, they may not always deliver superior returns compared to traditional assets.

Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InVITs) in India have been positioned as alternative investment vehicles that help bridge the funding gap in the real estate and infrastructure sectors. Their introduction was timely, considering India's growing need for infrastructure development and commercial real estate expansion to accommodate rapid urbanisation and economic growth. The ability to attract both domestic and international investors has been central to their appeal.

Growth and Evolution

The growth trajectory of Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InVITs) in India has seen significant milestones since their cautious introduction. The landmark moment for REITs came in 2019 with the launch of the Embassy Office Parks REIT, the country's first publicly listed REIT. This listing was pivotal as it opened doors for a broader range of investors—both retail and institutional—to gain exposure to high-grade commercial real estate assets, particularly office spaces, which had previously been accessible mainly to large institutional investors or developers. Embassy REIT's success demonstrated the viability of REITs in India, signalling the beginning of a more inclusive and transparent real estate investment market.

Similarly, the growth of InVITs began with the listing of the IRB Infrastructure Trust—the first public InVIT—which focused on toll road projects. This listing was significant as it underscored the diverse range of infrastructure assets that could be monetized and financed through InVITs. The IRB Infrastructure Trust attracted considerable attention from investors, providing a mechanism for the monetization of revenue-generating infrastructure assets, thereby encouraging further investments in India's critical infrastructure sector.

Recognizing the potential of these instruments, the Securities and Exchange Board of India (SEBI) has implemented a series of regulatory reforms aimed at enhancing the appeal and accessibility of REITs and InVITs. Key measures included lowering the minimum application size and reducing lot sizes for retail investors, which made these instruments more accessible to smaller investors, thereby improving liquidity. Additionally, SEBI allowed REITs and InVITs to raise capital through debt instruments, including Masala Bonds—a significant development that expanded the funding options available to these trusts and increased their attractiveness to global investors.

Further regulatory improvements included the liberalisation of leverage limits and the introduction of tax incentives, making REITs and InVITs more competitive and enabling them to take advantage of larger-scale projects. As a result, these instruments have become a vital component in the funding of India's growing commercial real estate and infrastructure sectors, with strong investor interest driving continued growth.

In conclusion, the evolution of REITs and InVITs in India has been marked by a steady expansion of regulatory support, increased market participation, and growing recognition of these instruments as valuable vehicles for both diversification and stable income generation. With favourable government initiatives and a growing investor base, REITs and InVITs are set to play an increasingly important role in India’s financial markets.

2. LITERATURE REVIEW

REITs and InVITs in India: Regulatory Evolution

Real Estate Investment Trusts (REITs) and **Infrastructure Investment Trusts (InVITs)** have been instrumental in financing large-scale commercial real estate and infrastructure projects in developed economies like the United States and the United Kingdom (**Rubens et al., 1989**). In India, although still in their early stages, these investment vehicles are gaining traction due to recent regulatory reforms aimed at facilitating their growth. REITs and InVITs were formally introduced in India in **2014** by the **Securities and Exchange Board of India (SEBI)**, but it took several years for these instruments to gain widespread acceptance.

According to **JLL's Global Real Estate Transparency Index**, India's ranking significantly improved between **2014 and 2020**. This improvement was driven by **legal reforms**, better **market data**, and an increased focus on **green initiatives**. These factors have contributed to making REITs and InVITs more attractive to investors by improving transparency and reducing barriers to entry.

REITs and InVITs are particularly appealing due to their ability to provide a **combination of regular income** and **capital appreciation**, making them effective **hedges against inflation**. **Yatin Shah (2020)** emphasized that the ability to renegotiate contracts during inflationary periods further enhances their value as stable, income-generating assets. **Pratik Agarwal (2017)** also pointed out that while REITs and InVITs, such as **IndiGrid** (India's first InVIT), may take time for investors to fully understand, they are expected to become central to **India’s infrastructure financing efforts**.

Growth Potential and Investor Demand

The growth trajectory of REITs and InVITs is closely tied to **India's infrastructure demands** and the country's increasing investment needs. **Harsh Shah (2017)** highlighted that as India's infrastructure development accelerates, the asset base of InVITs is likely to grow, further supported by **evolving regulations**. The Indian government’s focus on large-scale infrastructure projects, including highways, power grids, and telecom towers, is expected to create significant investment opportunities for both REITs and InVITs.

The **regulatory environment** surrounding these investment vehicles plays a crucial role in shaping their future growth. Recent changes aimed at improving **accessibility for retail investors**, simplifying tax structures, and **allowing leverage** through debt securities have created a more favourable landscape for the expansion of REITs and InVITs. These reforms are expected to drive **greater investor participation**, both from

institutional and retail segments, further supporting the development of India's infrastructure and real estate sectors.

Given the ongoing trends of **urbanization** and **commercial real estate development**, REITs and InVITs are poised for substantial growth over the next decade. They offer investors an **alternative** to traditional real estate investments by providing **liquidity**, **transparency**, and **stable income streams** through regular dividends. Additionally, these investment vehicles allow for **diversification**, which is particularly appealing to institutional investors like **pension funds**, **insurance companies**, and **foreign portfolio investors (FPIs)**. The increased demand for REITs and InVITs reflects their growing importance as **income-generating assets**, especially in a market environment where traditional real estate investments may offer lower returns or require more hands-on management.

Despite the potential of REITs and InVITs, their ability to **outperform traditional investments** remains uncertain. While they offer clear advantages in terms of **stability** and **income generation**, their growth is dependent on **market conditions**, **regulatory stability**, and continued **investor education**. As a relatively new asset class in India, there is limited long-term performance data available, making it difficult to conclusively determine whether REITs and InVITs have consistently outperformed traditional investments like equities or bonds over the past decade.

Real Estate Investment Trusts (REITs) in India reflects a burgeoning interest in this investment vehicle, particularly after its formal introduction by SEBI in 2014. REITs are seen as a promising tool for diversifying portfolios and offering steady returns, especially for retail investors. However, challenges such as regulatory hurdles, limited quality assets, and transparency issues persist. Despite these obstacles, government initiatives like ‘Smart Cities and Housing for All’ are expected to boost the sector. Studies emphasize the need for investor education and market awareness to fully capitalize on REITs' potential. (Gupta and Kumar, 2024). J. Padhy, et. al. (2024) examines Real Estate Investment Trusts (REITs) and explores methods for their valuation.

Research Gap

The existing literature highlights the **growth potential** of REITs and InVITs, supported by favourable regulations and increasing investor demand. However, the **long-term performance** of these investment vehicles in India remains underexplored. While early studies suggest that REITs and InVITs offer advantages in terms of liquidity and income stability, there is a need for further research to assess their performance relative to traditional investments. The extent to which REITs and InVITs have **outpaced traditional investments** in terms of returns remains unclear, creating a significant **research gap**. Further empirical studies are required to evaluate their effectiveness as alternative investment vehicles in the Indian financial landscape, particularly with respect to the hypothesis that **alternative investments in India have outperformed traditional investments** over the past decade.

3. RESEARCH OBJECTIVES

a. Examine the frequency or proportion of time periods (e.g., weekly, monthly, quarterly, or annually) where REITs and InVITs outperform or underperform the Nifty 50 in terms of returns. Utilize statistical tests (e.g., chi-square test for proportions) to determine if there is a significant difference between the "Yes" (higher returns) and "No" (lower returns) proportions across different time frames.

b. Track the mean returns, volatility, and performance consistency of the Nifty 50 with REITs and InVITs during the same time frame to establish a comparable dataset. Use statistical tools to compare the mean returns of REITs and InVITs against the Nifty 50. Determine if there is a statistically significant difference between them.

c. To examine the correlation between the returns of the Nifty 50 index and the returns of REITs/InVITs in order to assess the extent of linear association between these asset classes for portfolio diversification purposes.
d. To analyse the risk-adjusted performance of REITs and InVITs in India over the past decade by calculating their Sharpe ratios and comparing them with traditional investment avenues

4. HYPOTHESIS

"The performance and risk-adjusted returns of Alternative Investment Funds (AIFs) - REITs & InVITs - in India have outpaced traditional investments over the past decade due to favourable regulatory reforms, evolving investor preferences, and India's rapid economic expansion."

4.1. Sub-Hypothesis

H0a: There is no significant difference in the proportion of time periods where REITs and InVITs outperform the Nifty 50.

H0b: The mean returns of Nifty 50 are significantly higher than those of the REITs and InVITs.

Alternatively,

Since the data is not normal we change the sub-hypothesis to the weekly median returns.

H0c: There is a statistically significant correlation between the returns of the Nifty 50 and REITs and InVITs.

H0d: The risk-adjusted returns of Nifty is higher than REITs and InVITs.

5. METHODOLOGY

This study employs a combination of proportion tests, non-parametric comparisons, correlation analysis and Sharpe ratio to assess the performance and relationships between different investment vehicles, such as REITs, InVITs and Nifty 50 index. The approach includes:

1. **Proportion Test: (Pearson, 1956)**
   - A Chi-square test for proportions is used to compare the outperformance of REITs and InVITs against the Nifty 50, examining the significance of "Yes" (outperformance) and "No" (underperformance) outcomes.
2. **Mann-Whitney U Test: (Mann and Whitney, 1947)**
   - A non-parametric Mann-Whitney U test is applied to compare the returns of REITs, InVITs, and the Nifty 50. This test is suitable due to the non-normal distribution of the data, confirmed by Shapiro-Wilk and Levene's tests.
3. **Pearson's Correlation Analysis: (Pearson, 1909)**
   - Pearson's correlation coefficient is used to measure the relationship between the returns of the Nifty 50 and REITs/InVITs, quantifying the degree to which their returns move together.
4. **Sharpe ratio: (Sharpe, 1966)**
   - The Sharpe ratio will be applied to assess the risk-adjusted performance of REITs and InVITs in comparison to traditional investments, particularly the Nifty 50 Index, which represents broader equity market performance in India.
6. This methodology ensures a comprehensive statistical comparison, examining both absolute performance and risk-adjusted metrics across asset classes. The data for Nifty and REITs and InVITs is collected from the NSE website from 2019-2024.

6. DATA ANALYSIS

ReITs & InVITs

Case 1: Check whether there is no significant difference in the proportion of time periods where REITs and InVITs outperform the Nifty 50.

Meaning

A proportion test, like the Chi-square test for proportions, is particularly useful when we want to test whether the proportion of success (in this case, outperformance) is significantly different between two or more groups. For example, when comparing the frequency of outperformance of REITs and InVITs against the Nifty 50, we analyse how often these alternative investments perform better than the benchmark.

The proportion test allows us to determine if there is a significant difference in the proportions of periods where REITs and InVITs returns outperform the Nifty 50 ("Yes") vs periods where they underperform ("No"). This test is appropriate here because we are working with categorical data (outperformance: "Yes" or "No") and we need to analyse if the proportions are statistically different across different time periods.

Step 1: Understanding the hypothesis

Null Hypothesis (H_0): The proportion of "yes" is equal to or less than 0.5.
Alternative Hypothesis (H_a): The proportion of "yes" is greater than 0.5.

The test is used to evaluate whether the observed proportion of successes (Yes) is significantly greater than 50%.

Figure 1: Results of Proportion Test testing that REITs & InVITs outperform Nifty more than 50% of the time

Proportion Test (2 Outcomes)

Binomial Test

	Level	Count	Total	Proportion	p
C	Yes	108	248	0.436	0.982
	No	140	248	0.565	0.024

Note. H_a is proportion > 0.5

Step 2: Interpreting the Binomial Test Results

For the "Yes" category, the proportion is 0.436 (43.6%), and the p-value is 0.982. Since this p-value is much greater than 0.05, we do not reject the null hypothesis for this outcome. This suggests that the proportion of "Yes" is not significantly greater than 0.5.

Step 3: Conclusion

There is no significant evidence to suggest that the proportion of "Yes" responses is greater than 0.5 (50%). The observed proportion of 43.6% is not statistically significant, as indicated by the p-value of 0.982. On the other hand, there is significant evidence that the proportion of "No" responses is greater than 0.5 (50%). The observed proportion of 56.5% is statistically significant, as indicated by the p-value of 0.024.

Final Interpretation

This binomial test suggests that the proportion of "No" outcomes (56.5%) is significantly higher than 50%, while the proportion of "Yes" outcomes (43.6%) is not significantly higher than 50%. Therefore, the analysis

indicates a preference for the "No" outcome in this sample stating returns of REITs and InVITs are not higher than Nifty 50. Thus this **does not support** the hypothesis that AIFs have outperformed traditional investments in terms of returns.

Case 2: Comparison of Median returns of Nifty and ReITs and InVITs.

Step 1: Formulating the hypothesis

Null Hypothesis (H_0): The median returns of Nifty are more than or equal to the median returns of REITs and InVITs.

Alternative Hypothesis (H_a): The median returns of Nifty are less than the median returns of REITs and InVITs.

We are testing whether Nifty provides better returns than REITs and InVITs. The null hypothesis assumes Nifty outperforms these other investments, while the alternative hypothesis assumes Nifty's returns are inferior.

Step 2: Selection of Test

The Mann-Whitney U test is a **non-parametric** test used to compare differences between two independent groups when the assumption of normality is violated. In other words, it does not require the data to follow a normal distribution, unlike parametric tests such as the **t-test**. If your data does not meet the assumption of normality, using a t-test could lead to incorrect conclusions because it assumes that the data comes from normally distributed populations.

Step 3: Selecting the Test – Mann Whitney U Test

By choosing a non-parametric test, the results are interpreted in terms of **ranked differences** rather than the mean differences between groups. This means the test evaluates whether one group tends to have higher values than the other, but it does not provide insight into the magnitude of those differences, which is typically offered by parametric tests like the t-test.

Figure 2: Results for Mann-Whitney U Test

Independent Samples T-Test

		Statistic	p
Returns	Mann-Whitney U	27469	0.98

Note. $H_a\ \mu_{Nifty} < \mu_{Reits\ and\ Invits}$

Interpretation

The Mann Whitney U test produces a p-value of 0.98. Since this is more than the significance level of 0.05, we accept the null hypothesis. This indicates that the median returns of Nifty are significantly higher than the median returns of REITs and InVITs.

Step 4: Assumption Testing

Before conducting any statistical test, it is essential to verify two fundamental assumptions that underpin the validity and reliability of the results. These assumptions ensure that the test is appropriately applied and that the inferences drawn from the data are sound, minimising the risk of errors or biases in the analysis.

A. Normality Testing

Meaning

Normality testing is conducted to determine if a dataset follows a normal distribution, a critical assumption for many parametric statistical tests. The Shapiro-Wilk Test is one method used to evaluate this assumption.

Figure 3: Results for Test of Normality of data

Tests of Normality

		statistic	p
Returns	Shapiro-Wilk	0.9037	3.75E-17
	Kolmogorov-Smirnov	0.0932	3.65E-04
	Anderson-Darling	8.9259	1.10E-21

Note. Additional results provided by *moretests*

Interpretation

Given that the p-value is significantly below 0.05, the test rejects the null hypothesis of normality, indicating that the data does not follow a normal distribution. Since parametric tests, like the t-test, require normally distributed data, this violation of the normality assumption supports the decision to use a non-normality test, such as the Welch's test, which is not dependent on normality.

B. Homogeneity of Variances

Meaning

Homogeneity of variances refers to the assumption that different groups being compared have the same variance. The Levene's Test is used to evaluate this assumption.

Figure 4: Results for Test of Homogeneity of Variances between the returns of REITs and InVITs.

Homogeneity of Variances Tests

		F	df	df2	p
Returns	Levene's	15.6851	1	494	8.58E-05
	Variance ratio	1.9439	247	247	2.32E-07

Note. Additional results provided by *moretests*

Interpretation:

Levene's test shows p-value less than 0.05, meaning that the variances between the two groups (Nifty vs. REITs/InVITs) are not equal. However, this indicates a violation of the assumption of homogeneity of variances, which is crucial for standard parametric tests, like the t-test, so this further justifies using the Mann Whitney U test.

Step 5: Descriptive Statistics

To understand the central tendencies and spreads of the returns in both groups (Nifty and REITs/InVITs), we look at their descriptive statistics.

Figure 5: Results for Descriptive Statistics for Returns of Nifty and REITs and InVITs

Group Descriptives

	Group	N	Mean	Median	SD	SE
Returns	Nifty	248	0.3279	0.5373	2.6096	0.1657
	Reits and Invits	248	0.0448	0.1364	1.8717	0.1189

Interpretation

- Nifty's median return (53.73%) is much higher than that of REITs and InVITs (13.64%). This provides evidence in favour of the null hypothesis.
- Nifty also shows higher variability (as indicated by a higher standard deviation of 2.6096) compared to REITs and InVITs (1.8717). This suggests that while Nifty offers higher potential returns, it also carries more risk.

Step 6: Conclusion

Hypothesis Test Result

We accept the null hypothesis because the Mann Whitney U test yields a significant p-value (0.98). This indicates that Nifty's median returns are significantly higher than those of REITs and InVITs.

Final Interpretation

The analysis indicates that Nifty is a better performing investment compared to REITs and InVITs in terms of returns. However, this performance comes with greater risk due to the higher variability in returns. This insight can help investors assess the risk reward trade-off when choosing between these investment vehicles. Therefore again not supporting the hypothesis that AIFs have outperformed traditional investments in terms of managing risk and providing higher returns for the level of risk taken.

Case 3: Evaluating the correlation of returns of REITs/InVITs

Step 1: Formulating the hypothesis

Null Hypothesis (H_0): Nifty 50 and REITs/InVITs returns are not correlated.

Alternative Hypothesis (H_a): Nifty 50 and REITs/InVITs returns are correlated.

We want to determine if there is any linear relationship between the returns of Nifty 50 and REITs/InVITs. The null hypothesis assumes that no correlation exists, while the alternative hypothesis assumes that a correlation exists.

Step 2: Choosing the Test – Pearson's Correlation

Pearson's correlation coefficient (r) measures the linear relationship between two continuous variables. It assumes that the relationship is linear and quantifies the strength and direction of the relationship.

Figure 6: Results for Correlation between Returns of Nifty and REITs and InVITs

Correlation Matrix

		Nifty 50	Reits and Invits
Nifty 50	Pearson's r	—	
	df	—	
	p-value	—	
Reits and Invits	Pearson's r	0.4574	—
	df	246	—
	p-value	3.19E-14	—

Step 3: Interpretation of the Pearson's Correlation Results

The Pearson's correlation coefficient (r = 0.4574) suggests a moderate positive correlation between the returns of Nifty 50 and REITs/InVITs. This indicates that as the returns of Nifty 50 increase, the returns of REITs/InVITs generally tend to rise as well. The extremely small p-value (3.19E-14) is far below the conventional threshold of 0.05, confirming that this correlation is statistically significant. Therefore, the probability that this observed correlation occurred by chance is very low.

Step 4: Conclusion

Hypothesis Test Result

Since the p-value is less than 0.05, we reject the null hypothesis and accept the alternative hypothesis. This leads to the conclusion that the returns of Nifty 50 and REITs/InVITs are significantly correlated.

Final Interpretation

There is a statistically significant, moderate positive correlation between the returns of Nifty 50 and REITs/InVITs. This suggests that these two asset classes move together to some extent. However, the correlation of 0.4574 is not close to 1, so while there is some degree of relationship, they are not perfectly aligned.

This information could be useful for portfolio diversification considerations, implying that while these assets are somewhat related, they are not completely dependent on each other. This indicates that it can't be said significantly that REITs/InVITs will outperform nifty since both move hand in hand hence not supporting our hypothesis.

Case 4: Analysing whether the risk-adjusted returns of Nifty are higher than that of REITs and InVITs.

Step 1: Formulating the hypothesis

Null Hypothesis (H_0): The risk-adjusted returns of Nifty is higher than REITs and InVITs.

Alternative Hypothesis (H_a): The risk-adjusted returns of Nifty is not higher than REITs and InVITs.

The null hypothesis assumes that the risk-adjusted returns of Nifty is higher than REITs and InVITs, while the alternative hypothesis assumes that they are not.

The provided dataset, for the analysis, includes information on the performance of REITs & InVITs compared to Nifty return from 2019 to 2023. In this section, we will explain and interpret the key statistical measures used in the analysis, including expected return, standard deviation, excess return, Sharpe ratio and correlation. Each measure plays an important role in evaluating the risk and return profile of the investments.

Step 2: Expected Returns and Standard Deviations

Figure 14: Risk-Return and Correlation Results between REITs & InVITs Returns and Nifty Returns

	Reit & InvIT Returns in %	Nifty Returns in %
expected return	4.48%	32.79%
standard deviation	187.17%	260.96%
risk free rate	0.14%	
excess returns	4.33%	32.65%
Sharpe Ratio	0.023	0.125
correlation	0.46	

Expected Returns

Definition

The expected return is the weighted average of the possible returns, weighted by their probabilities. In this analysis, it represents the anticipated average return for both REITs and InVITs and Nifty over the specified period.

Interpretation

The expected return for REITs & InVITs was 4.48%, while the Nifty's was higher at 32.79%, indicating that, on average, the Nifty delivered better returns over the years compared to REITs and InVITs.

Standard Deviation (Volatility)

Definition

Standard deviation measures the amount of variation or dispersion of a set of values from their mean. In finance, it is commonly used to measure the risk or volatility of returns. A higher standard deviation indicates greater risk.

Interpretation

REITs & InVITs had a significantly lower volatility, with a standard deviation of 187.17%, compared to Nifty who exhibited a much higher volatility at 260.96%. This suggests that while the Nifty offered higher returns, it also carried greater risk.

Step 3: Excess Returns and Sharpe Ratios

Excess Returns

Definition

Excess return is the return of an asset over and above a risk-free rate. It reflects how much additional return an investor receives for taking on extra risk compared to a risk-free investment (e.g., government bonds).

Calculations

The risk-free rate in this case is 7.37%. But as our data is weekly we need to get weekly risk-free rate: (7.37%/52) = 0.14%

- Excess Return (REITs & InVITs) = 4.48% - 0.14% = 4.33%
- Excess Return (Nifty) = 32.79% - 0.14% = 32.65%

Interpretation

Excess return shows that REITs & InVITs delivered an excess return of 4.33%, while the Nifty achieved a higher excess return of 32.65%. This indicates that the Nifty outperformed REITs & InVITs in terms of raw returns above the risk-free rate.

However, when adjusting for risk using the Sharpe Ratio, a more detailed picture emerges.

Sharpe Ratio

Definition

The Sharpe ratio is defined as “a measure of risk-adjusted return. It indicates how much excess return is received per unit of risk (standard deviation). A higher Sharpe ratio means better risk-adjusted performance.”

Sharpe Ratio = (Rp-Rf)/ Std.dev

Interpretation

The Sharpe Ratio was lower for REITs & InVITs at 0.023 compared to the Nifty's 0.125. This suggests that Nifty offers higher overall returns as well as better risk-adjusted performance, hence, supporting our hypothesis that Nifty provides better returns.

Step 5: Overall Analysis

REITs & InVITs

- REITs & InVITs exhibited lower volatility and more stable returns over the period.
- They offered worse risk-adjusted performance with a lower Sharpe Ratio, making them attractive to risk-seeking or aggressive investors.

Nifty Index

- The Nifty provided higher raw returns but at the cost of significantly greater volatility.
- The higher Sharpe Ratio indicates that Nifty provides better risk-adjusted returns as compared to REITs & InVITs.

Portfolio Diversification

The moderate correlation between REITs & InVITs and the Nifty suggests that combining both in a portfolio would provide diversification benefits. Investors seeking a balanced approach could use REITs & InVITs to offset the Nifty's volatility, smoothing returns without sacrificing too much potential upside.

Step 6: Conclusion

Hypothesis Test Result

We accept the null hypothesis because the Sharpe Ratio was higher for Nifty compared to that of REITs & InVITs. This indicates that Nifty offers higher overall returns as well as better risk-adjusted performance.

Final Interpretation

A diversified portfolio combining both REITs & InVITs and Nifty investments could balance risk and return. This blend allows investors to manage volatility without sacrificing too much return, offering a well-rounded strategy for long-term growth.

7. CONCLUSION

The study concludes that while alternative investments such as Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InVITs) have demonstrated significant growth in India, their performance relative to traditional investments, such as the Nifty 50, has been mixed. REITs and InVITs have provided stable income streams through dividends and have emerged as attractive options for investors seeking exposure to real estate and infrastructure sectors. However, they have not consistently outperformed equities, and their future growth remains closely tied to India’s regulatory landscape and the continued development of the country's infrastructure and real estate markets.

Despite growing investor interest in these alternative vehicles, REITs and InVITs have not definitively surpassed traditional investments over the past decade. While they offer diversification and a unique exposure to the real estate and infrastructure sectors, their returns have often been influenced by market volatility and regulatory shifts. REITs, for example, have shown potential for long-term capital appreciation but have struggled to deliver superior returns compared to equities. Similarly, InVITs, while providing stable dividends, face challenges related to infrastructure development cycles and policy changes, making it difficult for them to consistently outperform the broader equity market.

The analysis shows that although REITs and InVITs play a critical role in modern portfolios by offering an alternative risk-return profile, their outperformance is not guaranteed. Much depends on market dynamics, regulatory stability, and continued infrastructure growth. Looking ahead, India’s projected economic expansion and ongoing reforms in the real estate and infrastructure sectors are expected to create favourable conditions for REITs and InVITs. However, uncertainties such as global economic fluctuations, inflationary pressures, and sector-specific challenges in real estate may pose risks to the sustained outperformance of these vehicles.

While REITs and InVITs have shown potential for income generation and diversification, they have not consistently outperformed equities over the past decade therefore completely rejecting our main hypothesis. However, with continued regulatory reforms and economic growth, these investment vehicles are likely to play an increasingly important role in India’s financial markets.

8.1 Limitations

8.1.1 Lack of Data

The analysis of alternative investments in India, such as Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InVITs), is limited by a lack of comprehensive long-term data. This is especially true for REITs and InVITs, introduced in 2014. Consequently, assessing whether these vehicles consistently outperform traditional investments is challenging, as evaluations may be influenced more by short-term trends than by long-term patterns.

8.1.2 Regulatory Environment Changes

The evolving regulatory environment in India poses a significant challenge for alternative investments. Changes to SEBI guidelines, taxation policies, or foreign investment rules can greatly impact performance. For instance, while REITs and InVITs were introduced in 2014, subsequent modifications in tax treatment and investor guidelines may affect their appeal. As Agarwal et al. (2004) note, "policy shifts, such as the 2016 demonetization, have not been fully understood," highlighting the risks that regulatory changes present to investment performance. This dynamic regulatory landscape complicates the forecasting of returns and management of portfolio risk in alternative investments.

8.1.3 Macroeconomic Volatility Impact

The performance of REITs and InVITs is highly sensitive to macroeconomic conditions such as GDP growth, inflation, and interest rates. Given the economic fluctuations in India, especially with major policy changes (e.g., demonetization and GST implementation), the available data may not adequately reflect performance over a stable economic cycle. This introduces limitations in making long-term forecasts based on past data.

8.2 Future Scope

8.2.1 Regulatory Environment

The evolving regulatory landscape for AIFs in India should be considered, and its impact on the growth and attractiveness of REITs and InVITs could be assessed. Future studies could focus on how new policies or government interventions might affect investor confidence.

8.2.2 Sector-Specific Performance

A more detailed exploration of the sector-specific drivers behind the performance of REITs and InVITs is necessary. As these instruments are heavily influenced by the performance of the real estate and infrastructure sectors, future studies could assess the impact of government initiatives, such as infrastructure funding or urban development projects, on the returns of these assets.

8.2.3 Sustainability and ESG Factors

Investigating the influence of environmental, social, and governance (ESG) criteria on REITs and InVITs performance will reflect the growing importance of sustainable investing. This research can help assess how ESG considerations affect investor perceptions.

8.2.4 Role of Technology

Examining the impact of fintech and digital platforms on the accessibility and attractiveness of REITs and InVITs for retail investors is required to reveal how technological advancements are shaping the investment landscape.

8.2.5 Comparative International Analysis

Comparative studies with REITs and InVITs in other emerging markets could highlight whether India's growth is part of a larger global trend. This would contextualise India's alternative investment landscape within a broader framework.

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