Are Smart Beta Investing Strategies Profitable in Indian Equity Market? – A Comparative Study

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ABSTRACT

This study investigates the efficacy of Smart Beta investing strategies in the Indian equity market by comparing their performance to traditional market-capitalization-weighted index over a five-year period from 2019 to 2024. We focus on various Smart Beta approaches, including equal weight, dividend opportunities, low volatility, and quality factors, to analyze risk-adjusted returns using metrics such as CAGR, Sharpe Ratio, Treynor Ratio, Beta, and Jensen's Alpha.
Our findings reveal that most Smart Beta indices demonstrate better risk-adjusted performance compared to the benchmark Nifty 50 Index. Several indices exhibit positive Jensen's Alpha, indicating potential excess returns, while generally displaying lower beta values, which suggests reduced exposure to market risk.

This research contributes to the growing literature on factor investing in emerging markets, with a specific focus on the Indian context. Our results challenge the efficient market hypothesis by showing that Smart Beta strategies can enhance risk-adjusted returns. These findings provide valuable insights for investors and fund managers aiming to optimize portfolio performance and achieve improved diversification in the Indian equity market.

Keywords: Smart Beta Investing, Indian Equity Market, Jensen's Alpha, Beta, Risk-Adjusted Returns, Diversification, Compounded Annual Growth Rate

INTRODUCTION

"Factors are the language of investing that everyone should be speaking. Smart Beta is the vehicle to deliver factor investing."
- Dr Andrew Ang, Head of BlackRock's Factor-Based Strategies Group

In the ever-evolving financial markets, investors constantly seek strategies that provide superior returns while managing risk effectively. Smart Beta investing has emerged as a hybrid approach, blending elements of both passive and active investment strategies. This methodology aims to enhance returns (Jensen's Alpha), mitigate risk, and improve portfolio diversification by applying alternative weighting methods to traditional market-capitalization-weighted indices.

Smart Beta strategies focus on leveraging 'factors'—specific characteristics of securities associated with higher returns. By systematically targeting these factors, such as value or low volatility, Smart Beta approaches aim to exploit market inefficiencies that traditional cap-weighted indices may overlook. For instance, rather than simply investing in the largest companies by market capitalization, a Smart Beta strategy might prioritize undervalued stocks or those with lower volatility.

The appeal of Smart Beta lies in its potential to combine the best of both passive and active management: the systematic, rules-based structure of passive investing with the performance-seeking characteristics of active management. This challenges the conventional Efficient Market Hypothesis by suggesting that markets may not always price assets correctly and that these inefficiencies can be systematically exploited.

In emerging markets like India, Smart Beta strategies offer particular promise. The Indian equity market, with its rapid growth, sector diversity, and evolving regulatory framework, provides a fertile ground for factor-based investing. As the market matures, the ability to target specific factors may offer investors a significant advantage.

This study evaluates the efficacy of Smart Beta strategies in the Indian market from 2019 to 2024. By comparing the performance of various Smart Beta indices against the traditional Nifty 50 index, we seek to determine if these factor-based approaches deliver superior risk-adjusted returns in the Indian context.

As India continues to attract global capital and its markets expand, understanding the potential of Smart Beta strategies becomes increasingly relevant. This study adds to the growing body of literature on factor investing in emerging markets and offers practical insights for both portfolio managers and individual investors.

LITERATURE REVIEW

Raju, Rajan, and Krishnan (2022) examined factor investing in India, evaluating factor indices against academic frameworks using factor regressions, return style analysis, and tracking errors. Their study highlights that Indian factor indices partially reflect academic factors, with multi-factor and complex indices often exhibiting uneven or absent exposures.

Agarwalla, Jacob, and Varma (2013) extended the Fama-French three-factor model to the Indian equity market by incorporating the momentum factor. They addressed critical challenges like illiquidity and survivorship bias while offering a comprehensive analysis of average annual returns for factors such as momentum (21.9%) and value (15.3%). Their research also emphasized the importance of designing portfolios to mitigate biases, making a valuable contribution to factor modeling in emerging markets.

Silvasti et al. (2020) explored multi-factor smart beta portfolios in the Nordic equity market, demonstrating that integrating factors in portfolio construction yields superior returns compared to mixing approaches. Their findings challenge the efficient market hypothesis, providing insights into smart beta's applicability in efficient markets.

Eliassen and Dahlgren (2017) focused on fundamental smart beta strategies, demonstrating their consistent Jensen's Alpha generation in the Swedish equity market.

Arnott et al. (2016) critically analyzed the sustainability of factor returns in smart beta strategies, warning of a potential "smart beta crash" due to performance-chasing behavior.

Chen and Chi (2018) studied Chinese mutual funds, identifying size-factor timing as a key driver of Jensen's Alpha and highlighting the role of private information in outperforming market benchmarks.

In the Indian context, Monga et al. (2022) demonstrated that smart beta strategies outperform traditional benchmarks like the S&P BSE 500, particularly during varying market conditions.

Atodaria (2020) extended the Fama-French factor analysis in India, proposing long-only portfolios to overcome short-selling and liquidity constraints, showcasing their superior performance against traditional indices.

Sivaprakash (2015) compared smart beta with traditional beta strategies, emphasizing risk-adjusted returns and the mixed performance of factor-based strategies due to implementation challenges.

Nazaire et al. (2020) analyzed beta diversification in the U.S. market, emphasizing systematic risk factors like size, value, and momentum as key drivers of performance.

Hassanzadeh et al. (2019) compared smart beta and traditional beta strategies by focusing on financial metrics like the Sharpe ratio, which measures risk-adjusted performance. Their study highlighted the advantages of factor-based portfolios in achieving superior risk-adjusted returns but raised concerns about higher fees and diminishing long-term returns.

Hsu (2022) introduced machine learning models like linear ridge and gradient boosting to enhance portfolio optimization, demonstrating superior returns and stability compared to traditional approaches.

Di Renzo (2020) advocated for blending multiple smart beta factors to optimize diversification, while Tan et al. (2023) highlighted the potential of ESG-integrated smart beta strategies in Asia-Pacific markets, noting their outperformance relative to traditional benchmarks.

Dopfel and Lester (2018) emphasized the importance of blending multiple factors to optimize diversification and address challenges such as higher fees and inconsistent returns.

Foundational contributions by Fama and French (2014) introduced a five-factor model, extending the framework to include profitability and investment factors.

Similarly, foundational metrics like the Treynor Ratio (Treynor, 1965), Jensen's Alpha (Jensen, 1968), and Sharpe Ratio (Sharpe, 1966) continue to influence the evaluation of smart beta strategies and their risk-adjusted returns.

Joshipura (2022) emphasized the evolution of smart beta investing as a middle ground between passive and active management, highlighting the ability of factor-based strategies to capture anomalies like size and value premiums effectively.

RESEARCH OBJECTIVES

1. To evaluate the performance of various Smart Beta indices in the Indian equity market over the five-year period from 2019 to 2024.
2. To compare the risk-adjusted returns of Smart Beta strategies with the traditional Nifty 50 index using metrics such as CAGR, Sharpe Ratio, Treynor Ratio, Beta, and Jensen's Alpha.
3. To explore the potential of Smart Beta strategies to offer better portfolio diversification and lower market risk exposure compared to traditional cap-weighted indices.
4. To contribute to the literature on factor investing in emerging markets, specifically within the Indian context, and provide insights for investors and portfolio managers.

RESEARCH GAP

Despite the valuable insights provided by this study on Smart Beta indices in the Indian market, several research gaps remain. The five-year period (2019–2024) is relatively short, limiting the understanding of long-term market cycles. Sector-specific performance within the Indian economy has not been explored, nor has the impact of macroeconomic factors like inflation or GDP growth on Smart Beta returns. Additionally, there is a lack of international comparisons and studies integrating ESG factors. Future research could also delve into investor behavior and explore customized Smart Beta indices for specific financial goals.

HYPOTHESIS

H0: Smart Beta indices in India do not deliver superior risk-adjusted returns compared to the traditional market-cap-weighted Nifty 50 index over the five-year period from 2019 to 2024.

METHODOLOGY

1.   Data Collection

Data was sourced from the NSE website, covering five years from September 25, 2019, to September 27, 2024. The indices selected for analysis include:

- Nifty 200 Quality 30
- Nifty 100 Quality 30
- Nifty 50 Equal Weight
- Nifty Dividend Opportunities 50
- Nifty 100 Low Volatility 30
- Nifty 50 Value 20
- Nifty 50 (Traditional Market-Cap-Weighted Index)

Each index was chosen based on the specific factor it represents.

2. Performance Metrics

● **CAGR** (Compounded Annual Growth Rate) measures the mean annual growth rate of an investment over a specified period.

$$CAGR = (\frac{FV}{PV})^{1/N} - 1$$

Where,

FV: Final value of the investment

PV: Initial value of the investment

N: Number of years

● **Sharpe ratio** compares the return of an investment over its risk (volatility).

$$Sharpe\ Ratio = \frac{(CAGR - Rf)}{\delta}$$

Where,

CAGR: Compounded Annual Growth Rate

Rf: Risk-free rate of return

δ: Standard deviation of the investment's return

● **Treynor's ratio** measures returns earned more than the risk-free rate per unit of market risk (beta).

$$Treynor's\ ratio = \frac{(CAGR - Rf)}{\beta}$$

Where,

CAGR: Compounded Annual Growth Rate

Rf: Risk-free rate of return

β: Beta of the index

● **Beta** measures the volatility or systematic risk of a security or portfolio about the market.

$$\beta = \frac{Covariance(Ri, Rm)}{Variance\ (Rm)}$$

Where,

Ri: Return on investment

Rm: Return on market

● **Jensen's Alpha** represents the excess return of an investment relative to the return of a benchmark index.

$$Jensen's\ Alpha = Ri - [(Rf + \beta \times (Rm - Rf)]$$

Where,

Ri: Actual return on the investment

Rf: Risk-free rate

Rm: Market return

DATA ANALYSIS AND FINDINGS

I) **The traditional Nifty 50 Index serves as the benchmark:**

Rf	7.37%
Standard Deviation	0.189512367
Variance	0.00014252
Covariance	0.00014252
CAGR	18.01%
Beta	1.00
Alpha	0.00%
Sharpe Ratio	0.56149
Treynors Ratio	0.106409

Table 1: Performance of Nifty 50

Sharpe Ratio (0.5615): A Sharpe Ratio below 1 suggests moderate risk-adjusted returns, with room for improvement in compensating for the risk taken.

Treynor's Ratio (0.1064): A low Treynor's Ratio indicates inefficiency in managing systematic risk.

Beta (1.00): A beta of 1 confirms the Nifty 50 Index mirrors the market's volatility and risk, acting as a benchmark.

Jensen's Alpha (0.00%): With a Jensen's Alpha of 0%, the Nifty 50 Index does not provide excess returns beyond what is expected from its market risk exposure.

II) **Smart Beta Indices Performance**

i)   Nifty 50 Equal Weight

Rf	7.37%
Standard Deviation	0.185294484
Covariance	0.000133501
CAGR	23.34%
Beta	0.94
Alpha	6.01%
Sharpe Ratio	0.862051846
Treynors Ratio	0.170524768

Table 2: Performance of Nifty 50 Equal Weight Index

CAGR (Compounded Annual Growth Rate): Reports the highest CAGR of **23.34%**, indicating robust annual growth and the best overall performance among all analyzed indices.

Sharpe and Treynor Ratios: Demonstrates superior risk-adjusted returns with a Sharpe Ratio of **0.8621** and a Treynor Ratio of **0.1705**, showcasing efficient compensation for the risk taken.

Beta: A Beta of **0.94** implies slightly lower volatility compared to the benchmark, reducing sensitivity to market movements.

Jensen's Alpha: Delivers a significant Jensen's Alpha of **6.01%**, reflecting substantial excess returns beyond the benchmark.

ii)   Nifty Dividend Opportunities 50

Rf	7.37%
Standard Deviation	0.176671694
Covariance	0.0001177
CAGR	22.26%
Beta	0.83
Alpha	6.11%
Sharpe Ratio	0.843299758
Treynors Ratio	0.180404213

Table 3: Performance of Nifty Dividend Opportunities 50 index

CAGR: Achieves a strong CAGR of **22.26%**, reflecting substantial annual growth driven by dividend-paying stocks.
Sharpe and Treynor Ratios: Provides exceptional risk-adjusted returns with a Sharpe Ratio of **0.8433** and the highest Treynor Ratio of **0.1804**, highlighting effective management of systematic risk.
Beta: A relatively low Beta of **0.83** signifies limited exposure to market volatility, ensuring more stable performance during market downturns.
Jensen's Alpha: Records an impressive Jensen's Alpha of **6.11%**, underscoring its ability to outperform the benchmark by a wide margin.

iii)   Nifty 100 Low Volatility 30

Rf	7.37%
Standard Deviation	0.156084394
Covariance	0.000107441
CAGR	19.80%
Beta	0.75
Alpha	4.41%
Sharpe Ratio	0.79678441
Treynors Ratio	0.164969418

Table 4: Performance of Nifty 100 Low Volatility 30 index

CAGR: Delivers consistent growth with a CAGR of **19.80%**, emphasizing stability and lower market risk.
Sharpe and Treynor Ratios: Displays balanced risk-adjusted returns with a Sharpe Ratio of **0.7968** and a Treynor Ratio of **0.1650**, confirming the strategy's focus on minimizing risk while maintaining steady returns.
Beta: The lowest Beta of **0.75** among all indices underscores its resilience to market fluctuations and superior downside protection.
Jensen's Alpha: Generates a Jensen's Alpha of **4.41%**, highlighting its ability to add value above the benchmark return.

iv)   Nifty 100 Quality 30

Rf	7.37%
Standard Deviation	0.16611747
Covariance	0.00011354
CAGR	18.36%
Beta	0.80
Alpha	2.52%
Sharpe Ratio	0.66216949
Treynors Ratio	0.13807372

Table 5: Performance of Nifty 100 Quality 30 index

CAGR: Achieves a CAGR of **18.36%**, focusing on high-quality stocks that deliver consistent long-term returns.
Sharpe and Treynor Ratios: Risk-adjusted returns are solid, with a Sharpe Ratio of **0.6622** and a Treynor Ratio of **0.1381**, reflecting moderate efficiency in risk management.
Beta: A Beta of **0.80** indicates lower sensitivity to market volatility, enhancing the stability of this quality-focused index.
Jensen's Alpha: Produces a Jensen's Alpha of **2.52%**, indicating its ability to generate modest excess returns over the benchmark.

v)   Nifty 200 Quality 30

Rf	7.37%
Standard Deviation	0.16330261
Covariance	0.00010569
CAGR	19.28%
Beta	0.74
Alpha	4.0192%
Sharpe Ratio	0.72935054
Treynors Ratio	0.1606048

Table 6: Performance of Nifty 200 Quality 30 index

CAGR: Maintains steady growth with a CAGR of **19.28%**, reflecting a focus on fundamentally sound companies.
Sharpe and Treynor Ratios: Delivers respectable risk-adjusted returns with a Sharpe Ratio of **0.7294** and a Treynor Ratio of **0.1606**, highlighting efficient performance.
Beta: The lowest Beta of **0.74** demonstrates its minimized market risk exposure and strong defensive characteristics.
Jensen's Alpha: Yields a Jensen's Alpha of **4.02%**, showcasing its ability to deliver additional returns beyond the benchmark.

vi)   Nifty 50 Value 20

Rf	7.365%
Standard Deviation	0.17742
Covariance	0.00011682
CAGR	22.41%
Beta	0.82
Alpha	6.33%
Sharpe Ratio	0.848189847
Treynors Ratio	0.18358207

Table 7: Performance of Nifty 50 Value 20 index

CAGR: Delivers a strong CAGR of **22.41%**, driven by a focus on undervalued stocks with high return potential.

Sharpe and Treynor Ratios: Provides outstanding risk-adjusted returns with a Sharpe Ratio of **0.8482** and a Treynor Ratio of **0.1836**, the highest among all indices.

Beta: A Beta of **0.82** reflects reduced market risk compared to the benchmark, making it an attractive option for value-focused investors.

Jensen's Alpha: Reports the highest Jensen's Alpha of **6.33%**, emphasizing its superior performance in generating excess returns over the benchmark.

III)   Overall Performance Comparison of Six Strategic Indices Against the Benchmark Nifty 50

Index	CAGR	Rf	Standard Deviation	Beta	Sharpe Ratio	Treynors Ratio	Alpha
Nifty 50 Equal weight	23.34%	7.365%	0.1853	0.94	0.8621	0.1705	6.01%
Nifty Dividend Opportunity 50	22.26%	7.365%	0.1767	0.83	0.8433	0.1804	6.11%
Nifty 100 Low Volatility 30	19.80%	7.365%	0.1561	0.75	0.7968	0.1650	4.41%
Nifty 100 Quality 30	18.36%	7.365%	0.1661	0.80	0.6622	0.1381	2.52%
Nifty 200 Quality 30	19.28%	7.365%	0.1633	0.74	0.7294	0.1606	4.02%
Nifty 50 Value 20	22.41%	7.365%	0.1774	0.82	0.8482	0.1836	6.33%
Nifty 50 (Benchmark)	18.01%	7.365%	0.1895	1.00	0.5615	0.1064	0.00%

Table 8: Overall Performance Comparison of Six Strategic Indices Against the Benchmark Nifty 50

CAGR Performance:
- The Nifty 50 Equal Weight index exhibited the highest CAGR at 23.34%, followed closely by the Nifty 50 Value 20 at 22.41%. Both significantly outperform the Nifty 50 benchmark, which stands at 18.01%.
- The Nifty Dividend Opportunity 50 also performed well, with a CAGR of 22.26%.

Risk Metrics:
- The Standard Deviation for Smart Beta indices is generally lower than that of the Nifty 50, indicating reduced volatility.
- The Beta values of Smart Beta indices (ranging from 0.74 to 0.94) suggest lower systematic risk compared to the Nifty 50 (Beta of 1.00).

Risk-Adjusted Returns:
- Sharpe Ratios for all Smart Beta indices are higher than that of the Nifty 50, indicating better risk-adjusted performance. The Nifty 50 Equal Weight has the highest Sharpe Ratio of 0.8621.
- Treynor Ratios also favor Smart Beta indices, with the Nifty Dividend Opportunity 50 showing the highest ratio at 0.1804.

Jensen's Alpha Generation:
- All Smart Beta indices produced positive Jensen's Alpha, with the Nifty 50 Value 20 achieving the highest at 6.33%, while the Nifty 50 benchmark's Jensen's Alpha is 0.00%, indicating no excess return over the benchmark.

IV) FINDINGS

The analysis of Smart Beta strategies reveals their consistent outperformance relative to the traditional Nifty 50 index across key metrics such as CAGR, Sharpe Ratio, Treynor Ratio, and Jensen's Alpha. This superior performance is particularly evident in the Nifty 50 Equal Weight Index, which reported the highest CAGR of 23.34% and a robust Jensen's Alpha of 6.01%, far surpassing the Nifty 50's CAGR of 18.01% and neutral Jensen's Alpha of 0%.

A key takeaway is that Smart Beta indices consistently deliver better risk-adjusted returns. All analyzed indices exhibit higher Sharpe Ratios than the Nifty 50's 0.5615, indicating greater efficiency in generating returns for the level of risk assumed. Similarly, Smart Beta indices demonstrate stronger management of systematic risk, as shown by their higher Treynor Ratios in comparison to the Nifty 50's 0.1064.

Reduced Beta values across Smart Beta indices suggest lower market sensitivity and enhanced downside protection compared to the traditional Nifty 50, which has a Beta of 1. For instance, the Nifty 100 Low Volatility 30 (Beta:

0.75) and Nifty Dividend Opportunities 50 (Beta: 0.83) indicate better risk insulation, making them more resilient during market downturns—an advantage absent in the Nifty 50.

A clear benefit emerges from the Equal-Weight strategy, which mitigates concentration risk by spreading investments more evenly across all stocks. The Nifty 50 Equal Weight Index's CAGR of 23.34% and its enhanced risk-adjusted returns illustrate that a less concentrated portfolio can achieve higher growth and diversification, outperforming the market-cap-weighted Nifty 50.

Strategy-Specific Insights:

Dividend Opportunities Strategy: The Nifty Dividend Opportunities 50 index effectively balances income generation with growth, reporting a CAGR of 22.26% and a Treynor Ratio of 0.1804. Its Beta of 0.83 suggests enhanced safety during turbulent market phases.

Low Volatility Strategy: The Nifty 100 Low Volatility 30 index provides stable returns (CAGR: 19.80%) and the lowest Beta (0.75) among the analyzed indices, showcasing superior protection against market fluctuations.

Value Strategy: The Nifty 50 Value 20 index delivers high growth (CAGR: 22.41%) while minimizing risk through a lower Beta (0.82) and a Sharpe Ratio of 0.8482, making it a solid choice for investors seeking long-term value.

Quality Strategies: Both the Nifty 100 Quality 30 and Nifty 200 Quality 30 indices stand out for their focus on fundamentally sound companies. With Betas of 0.80 and 0.74, respectively, and consistent positive Jensen's Alpha (2.52% and 4.02%), these indices are reliable options for lower-volatility, long-term growth.

Overall, Smart Beta strategies demonstrate superior performance by offering better risk-adjusted returns, lower volatility, and higher growth potential compared to the traditional Nifty 50 index.

This analysis provides compelling evidence to reject the null hypothesis (H0) in favor of the alternative (H1), confirming that Smart Beta indices outperform traditional market-cap indices in terms of risk-adjusted returns.

CONCLUSION

This research on Smart Beta indices within the Indian equity market offers compelling evidence of their effectiveness and potential advantages over traditional market-cap-weighted indices like the Nifty 50. Over the five-year period from 2019 to 2024, Smart Beta indices consistently outperformed across multiple key metrics, including CAGR, Sharpe Ratio, Treynor Ratio, Beta, and Jensen's Alpha.

The study highlights the distinct advantages of Smart Beta strategies, particularly in their ability to consistently generate excess returns while providing enhanced risk management. Notably, strategies like the Nifty 50 Equal Weight and Nifty Dividend Opportunities 50 demonstrated exceptional performance, with superior CAGRs and positive Jensen's Alpha values, further solidifying the role of factor-based investing in achieving better portfolio outcomes.

A key differentiator of Smart Beta indices lies in their lower Beta values, signaling reduced market risk exposure and better downside protection during volatile market conditions. By incorporating factors like equal weighting, dividend growth, low volatility, and quality, Smart Beta strategies provide a nuanced and systematic approach to portfolio construction that traditional passive strategies may lack.

The rejection of the null hypothesis strengthens the conclusion that Smart Beta indices in India deliver superior risk-adjusted returns compared to traditional market-cap-weighted indices. This result offers a counter-narrative to the Efficient Market Hypothesis, suggesting that systematic factor investing can exploit market inefficiencies to achieve better returns.

In conclusion, this study makes a significant contribution to the growing literature on factor investing, particularly in emerging markets. It offers valuable insights for investors, fund managers, and policymakers in the Indian context, underscoring the potential for Smart Beta indices to reshape the landscape of systematic equity investing. Looking forward, Smart Beta strategies are poised to play a critical role in the continued evolution of the Indian equity market, providing more sophisticated tools for portfolio optimization and risk management.

LIMITATIONS AND FUTURE SCOPE

LIMITATIONS

1. **Factor Exposure and Overlap:** The research assumes that the selected Smart Beta indices are distinct in their factor exposures (e.g., low volatility, value, quality). However, in reality, there may be considerable overlap in the factors that drive returns across different Smart Beta strategies. This overlap could reduce the diversification benefits expected from combining multiple Smart Beta strategies, limiting the study's conclusions on portfolio optimization.

2. **Influence of Unique Market Conditions**: The study period may have been significantly influenced by unique market circumstances, including the global COVID-19 pandemic. These extraordinary conditions could have impacted the performance of both Smart Beta and traditional strategies. While the analysis incorporates a real-world scenario to evaluate how Smart Beta strategies respond under stress, findings from this period may not reflect typical market conditions or longer-term trends. Future studies should consider a broader timeframe to encompass more standard market cycles.

3. **Unclear Performance in Extreme Market Conditions:** While some Smart Beta indices, such as Low Volatility, are designed to perform well during downturns, the research does not fully examine how these indices behave under extreme market conditions like financial crises, periods of hyperinflation, or prolonged recessions.

FUTURE SCOPE

1. **Extended Analysis**: Future studies should extend the analysis beyond the 2019–2024 period to encompass multiple market cycles. This would facilitate a more robust understanding of the long-term performance of Smart Beta strategies, as they can vary significantly across different market phases. A longer timeframe would also enable researchers to evaluate how these strategies perform under various economic conditions, yielding more generalizable insights.

2. **Comparative Market Analysis**: Expanding the research to compare Smart Beta performance across different markets—both emerging and developed—would provide valuable comparative insights. Additionally, conducting sector-specific analyses within the Indian economy could reveal which sectors benefit most from particular Smart Beta strategies. This approach would help investors better understand the contexts in which Smart Beta strategies excel and how market dynamics differ across regions and industries.

3. **Comparative Analysis with Global Smart Beta Strategies:** Future research could compare the performance of Indian Smart Beta indices with their global counterparts in developed and other emerging markets. Such an analysis would provide insights into how local market conditions, regulatory environments, and economic factors impact the effectiveness of Smart Beta strategies across regions.

4. **ESG Integration:** With the rising prominence of sustainable investing, incorporating Environmental, Social, and Governance (ESG) factors into Smart Beta strategies represents a promising area for exploration. Future studies could evaluate whether ESG-integrated indices not only align with ethical investing standards but also provide superior risk-adjusted returns compared to traditional Smart Beta strategies. Additionally, assessing the resilience of ESG-based indices during periods of economic uncertainty would offer valuable insights for investors seeking sustainable growth. This evolving trend could complement Smart Beta strategies, creating an opportunity for investors to align financial goals with sustainability objectives.

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