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Alternative Investments in India: A study of stability, growth, and volatility

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Abstract
This study investigates the performance of alternative investment options and their impact on India's financial market. The shift from traditional capital markets to alternatives such as gold, cryptocurrency, and REITs is driven by the search for diversification and better returns. This paper analyzes and compares the risk-return profiles of these instruments using quantitative data and statistical metrics like CAGR, Standard Deviation, Sharpe and Sortino Ratios. The results show significant differences in risk and performance among alternative investment avenues, highlighting their distinct role in portfolio management.

Keywords: Banking system, commercial banks, depositors, likert scale, bangladesh

Introduction

India's investment ecosystem is evolving rapidly with the increasing popularity of alternative investment avenues. Traditional instruments like equities and bonds, although well-regulated and widely used, no longer satisfy the needs of all types of investors. This has led to a growing interest in gold, cryptocurrency, REITs, and other structured financial products. These instruments offer varied risk-return combinations, influenced by market conditions, regulatory support, and investor awareness.

Literature Review

1. Henriques and Sadorsky (2018) [5] evaluate if bitcoin can replace gold in investment portfolios using multivariate GARCH models. Their findings show that bitcoin offers higher risk-adjusted returns and better diversification than gold across all tested models. Using data from 2011 to 2017, the study confirms bitcoin's portfolio advantage despite its volatility, and suggests future research on regulatory risks and extended timeframes.
2. Kudtarkar and Jesudasan (2025) examine the relationship between Indian REITs and the equity markets using daily data from July 2019 to October 2024. Using the Johansen Cointegration Test and Granger Causality framework, the study finds no long-term cointegration but confirms a short-term causal relationship between REITs and both the NIFTY 50 and NIFTY Realty indices. This segmentation suggests REITs can serve as a diversification and hedging tool within multi-asset portfolios. Risk-adjusted return analysis shows that mixed REIT-equity portfolios (particularly a 30:70 REIT to stock ratio) offer an optimal balance of return and risk. The study concludes with a recommendation for further research on the regulatory, behavioral, and macroeconomic factors influencing REIT performance in India.

Research design

Statement of the problem

Indian investors are increasingly venturing beyond traditional capital markets due to market volatility, inflation concerns, and evolving financial literacy. However, a clear understanding of performance, risk, and regulatory support for alternative assets remains limited. This study aims to bridge that gap by evaluating how these investments perform and how they contribute to financial diversification.

Objectives of the Study

To analyze and compare the risk-return performance and volatility of gold, cryptocurrency, and REITs using financial metrics.

Sample

The population is all public sector banks in India, and the sample is restricted to SBI, Bank of Baroda, and Union Bank of India

Duration

The research period is five years from 2020 to 2024

Tools used for Analysis

- CAGR (Compound Annual Growth Rate)
- Standard Deviation
- Sharpe Ratio
- Sortino Ratio

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Data Collection

Secondary Data

The data used in this research have been obtained from the subsequent sources:
RBI, SEBI, CoinMarketCap, and financial reports.

Data analysis and interpretations

Performance Analysis of Gold

Year	Gold Return	NIFTY 50 Return
2020	19.35%	16.88%
2021	-1.17%	27.28%
2022	2.55%	4.41%
2023	5.59%	23.04%
2024	28.96%	8.83%

Metric	Gold	NIFTY 50
CAGR (2020-2025)	10.81%	14.60%
Monthly Volatility	4.04%	5.46%
Annualized Volatility	14.00%	18.91%

Metric	Gold	NIFTY 50
Sharpe Ratio	0.32	0.44
Correlation with Gold	1	0.78
Risk-Free Return	6.33%	

Interpretation
The analysis reveals that Gold delivered a CAGR of 10.81% compared to NIFTY 50's higher CAGR of 14.60%, indicating better long-term growth from equities. However, gold exhibited lower monthly (4.04%) and annualized volatility (14.00%) than NIFTY 50 (5.46% and 18.91%, respectively), making it a more stable investment. The Sharpe Ratio of NIFTY 50 (0.44) was higher than gold's (0.32), suggesting equities provided superior risk-adjusted returns. Gold's correlation with NIFTY 50 was 0.78, indicating moderate co-movement and scope for diversification. Overall, while NIFTY 50 offered higher returns, gold remained a safer, less volatile asset suited for portfolio balance.

Performance Analysis of Cryptocurrency

Year	Bitcoin	Ethereum	XRP
2020	216.17%	317.23%	-6.49%
2021	54.41%	185.87%	71.27%
2022	-45.80%	-50.65%	-39.12%
2023	79.35%	46.47%	54.43%
2024	71.38%	50.14%	325.10%

Metric	Bitcoin	Ethereum	XRP
CAGR (2020-2024)	61.71%	85.68%	59.66%
Monthly Volatility	21.43%	25.53%	49.14%
Annualized Volatility	74.23%	88.44%	170.23%

Metric	Bitcoin	Ethereum	XRP
Sharpe Ratio (6% RFR)	0.75	0.90	0.31
Correlation with Bitcoin	1	0.90	0.75
Risk-Free Return	6.33%		

Metric	Bitcoin	Ethereum	XRP
Downside Deviation	0.08	0.10	0.13
Sortino Ratio (Downside Only)	6.98	8.01	4.25
Sharpe Ratio (Total Volatility)	0.75	0.90	0.31

Interpretation
The analysis reveals that Ethereum achieved the highest CAGR of 85.68%, followed by Bitcoin at 61.71% and XRP at 59.66%, highlighting Ethereum's dominance in long-term growth. XRP displayed the highest annualized volatility at 170.23%, making it the most unstable, whereas Bitcoin was comparatively less volatile at 74.23%. Ethereum also outperformed in terms of risk-adjusted returns with the highest Sharpe Ratio (0.90) and Sortino Ratio (8.01), suggesting efficient performance even when accounting for total and downside risk. Bitcoin followed with a Sharpe of 0.75 and Sortino of 6.98, showing strong returns with relatively less downside risk (0.08). XRP lagged in both ratios (Sharpe: 0.31, Sortino: 4.25) and had the highest downside deviation (0.13), indicating greater exposure to negative returns. Correlation-wise, Ethereum showed strong alignment with Bitcoin (0.90), while XRP showed moderate correlation (0.75), offering some diversification benefit. In summary, Ethereum offered the best risk-adjusted performance, Bitcoin delivered strong but volatile returns, and XRP remained the riskiest with inconsistent downside behavior.

Performance Analysis of REIT's

Year	Embassy	Brookfield	Mindspace
2022	-8.70%	-3.89%	-2.58%
2023	-1.12%	-19.48%	-2.21%
2024	2.88%	8.58%	12.37%

Metric	Embassy	Brookfield	Mindspace
Cagr (2020-2025)	0.13%	-2.93%	1.73%
Monthly volatility	4.09%	3.74%	3.94%
Annualized volatility	14.17%	12.94%	13.66%

Metric	Embassy	Brookfield	Mindspace
Sharpe ratio	-0.44	-0.72	-0.34
Correlation with nifty 50	0.30	-0.52	0.19
Risk-free return	6.33%	6.33%	6.33%

Interpretation
The analysis reveals that among the three REITs, Mindspace posted the highest CAGR at 1.73%, while Brookfield had a negative CAGR of -2.93%, indicating underperformance over the period. In terms of volatility, all three REITs exhibited relatively low annualized volatility (ranging from 12.94% to 14.17%), suggesting they are moderately stable instruments. However, all three reported negative Sharpe Ratios—Mindspace (-0.34), Embassy (-0.44), and Brookfield (-0.72)—indicating that none of them generated excess returns above the risk-free rate. Correlation with NIFTY 50 was low for all, with Brookfield showing a negative correlation (-0.52), implying REITs can still serve as diversification tools in equity-heavy portfolios. Despite low volatility, their risk-adjusted returns remain unattractive without capital appreciation.

Findings
- Gold remained the most stable asset, offering consistent returns (CAGR 10.81%) with low volatility (14%) and a moderate correlation (0.78) with NIFTY 50, reinforcing its role as a portfolio hedge.
- Ethereum delivered the highest risk-adjusted returns among all assets studied, with a Sharpe Ratio of 0.90 and Sortino Ratio of 8.01, making it the most efficient cryptocurrency despite high volatility.
- REITs exhibited low volatility but underperformed, with negative or low CAGRs and Sharpe Ratios below zero, indicating they failed to generate returns above the risk-free rate during the study period.

Conclusion
The study concludes that alternative investments offer diverse risk-return profiles, catering to different investor preferences. Cryptocurrencies, particularly Ethereum, demonstrated exceptional growth and the best risk-adjusted performance, though accompanied by significant volatility. Gold proved to be a stable, low-risk asset ideal for conservative investors seeking portfolio protection, while

REITs, despite their low volatility, underperformed in terms of returns and risk-adjusted metrics. Overall, incorporating a mix of these alternatives can enhance diversification, but investor decisions should be guided by risk tolerance, return expectations, and market conditions

Recommendations

- Investors seeking portfolio stability should consider allocating a portion to gold, as it offers consistent returns with low volatility and effective downside protection.
- For those with a higher risk appetite, Ethereum stands out as a high-growth cryptocurrency with superior risk-adjusted performance, making it a valuable addition to aggressive portfolios.
- Given the underperformance of REITs during the study period, investors should be cautious and prioritize thorough research and timing before including them in long-term investment strategies.

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