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W58&59&P71: Comparative Risk–Return Evaluation of Selected Investment Instruments in the Indian Financial Market

Dr. Khagesh Joshi
SKIPS University, Ahmedabad

Ms. Lekshmi Ezhava
Shree Narayan College of Commerce, Ahmedabad

Dr. Vaibhav Gallani
Shri K.K. Shastri Government Commerce College

Abstract: The rapid growth of financial markets in India has expanded investment opportunities for both retail and institutional investors. This study conducts a comparative security analysis of selected investment instruments including equity shares (Inter Globe Aviation), mutual funds (HDFC Flexi Cap Fund), gold, corporate bonds (Edelweiss Financial Services NCD 2025), and government-backed savings bonds (RBI Floating Rate Savings Bond 2020) using risk–return metrics based on the last 10 years of yearly data. The study uses secondary data collected from multiple financial market sources for the analysis of selected investment instruments including equity shares, mutual funds, gold, government bonds, and corporate bonds. Although different instruments originally had varying observation periods, the study recommends a standardized common sample period from 1 April 2020 to 30 September 2025 to ensure consistency and comparability in risk–return evaluation. Daily data frequency has been considered for equity prices, mutual fund NAVs, bond prices, and gold prices, while monthly data has been used for inflation (CPI) analysis. The study utilizes key financial metrics such as CAGR, Standard Deviation, Beta, Sharpe Ratio, Alpha, Treynor Ratio, Sortino Ratio, Yield to Maturity (YTM), Current Yield, Macaulay Duration, Modified Duration, and Inflation-Adjusted Returns. For calculation of the Sharpe Ratio, the average yield of the 91-Day Treasury Bill for FY2025, approximately 6.8%, has been considered as the risk-free rate.

The study also evaluates bond valuation and interest-rate sensitivity using Government of India 6.5% 2030, Government of India 7.09% 2054, and Electronica Finance 12.90% 2029 bonds. Financial tools such as YTM estimation, duration analysis, ±1% yield scenario testing, and inflation-adjusted return analysis are applied. The findings show that equities and mutual funds provide higher long-term returns, government securities offer stability with lower real returns, and corporate bonds generate higher yields with moderate credit risk, emphasizing the importance of diversification and duration management in portfolio construction.

Keywords: Security Analysis, Portfolio Management, Bond Valuation, Risk-Return Analysis, Indian Financial Market, Duration Analysis

1. Introduction

The financial system plays a vital role in economic development by mobilizing savings and efficiently allocating capital across productive sectors. The Indian Financial System consists of financial institutions, markets, instruments, and regulatory authorities that facilitate the flow of funds between savers and investors. With the increasing sophistication of financial markets, investors now have access to diverse investment avenues such as equities, mutual funds, government securities, corporate bonds, gold, and derivatives. Since each instrument carries different risk–return characteristics, liquidity, and market sensitivity, security analysis and portfolio diversification have

become essential for informed investment decisions. In recent years, India has witnessed substantial growth in retail participation, with demat accounts crossing 100 million and mutual fund assets under management exceeding ₹55 lakh crore. In this evolving financial environment, the present study undertakes a comparative security analysis of selected investment instruments along with bond valuation and risk–return assessment in the Indian financial market. The present study attempts to examine and compare the performance of different investment instruments available in the Indian financial market. The first research question focuses on understanding how investment avenues such as equity shares, mutual funds, gold, bonds, and fixed deposits differ in terms of returns, volatility, and risk-adjusted performance during the period 2020–2025. The second research question aims to analyze the impact of changes in interest rates on bond valuation, duration, and yield sensitivity in both government and corporate bonds. These questions help in evaluating the suitability of different financial instruments for various categories of investors.

Most existing studies in India analyze investment instruments such as equities, mutual funds, bonds, or gold separately rather than through a unified comparative framework. Limited research incorporates both traditional and market-linked instruments using common risk–return measures like Sharpe Ratio, Beta, duration, and inflation-adjusted returns. This study attempts to fill this gap by providing an integrated comparative analysis of major investment avenues available to Indian investors. The study contributes by offering an integrated comparative framework for evaluating major investment instruments available in India. It combines traditional return analysis with advanced risk-adjusted measures such as Sharpe Ratio, Beta, Duration, and Inflation-Adjusted Yield. The paper also links theoretical financial concepts with practical market applications using real Indian market data. Additionally, the inclusion of bond duration and scenario analysis enhances investor understanding of interest-rate risk and portfolio diversification strategies.

2. Literature Review

The theoretical foundation of security analysis originates from **Modern Portfolio Theory (Markowitz, 1952)**, which argues that investors can reduce portfolio risk through diversification across assets with different risk profiles.

Sharpe (1966) further introduced the **Sharpe Ratio**, which evaluates the excess return generated per unit of risk. Similarly, Treynor (1965) proposed the **Treynor Ratio**, which measures portfolio performance relative to systematic risk.

Empirical research in financial markets has identified several key insights:

- Equity investments generate higher long-term returns but involve higher volatility.
- Government securities provide stability but relatively lower returns after inflation adjustments.
- Gold acts as a hedge against economic uncertainty and inflation.
- Corporate bonds offer higher yields but carry credit risk.

Recent studies also emphasize the importance of **interest-rate risk management in bond investments**. Duration analysis is commonly used to estimate bond price sensitivity to changes in interest rates.

Despite extensive research on individual asset classes, limited studies integrate **multi-asset investment comparison with bond valuation modeling in the Indian financial context**. This study attempts to bridge this gap.

Association of Mutual Funds in India (2024) highlighted the rapid growth of mutual fund investments in India due to increasing financial awareness, SIP culture, and digital investment platforms. The study observed that equity-oriented mutual funds generated superior long-term returns compared to traditional savings instruments such as fixed deposits, although they carried comparatively higher market risk. It also emphasized that diversification through professionally managed mutual funds helps retail investors achieve better risk-adjusted returns over time.

The literature mainly studies individual investment instruments separately, with limited research providing a unified comparison using common risk–return and inflation-adjusted performance measures in the Indian context.

3. Research Objectives

The primary objectives of this research are:

1. To compare the returns of equity, mutual funds, gold, bonds, and fixed deposits using CAGR and annual returns.
2. To evaluate the risk characteristics of selected investment instruments using Standard Deviation, Beta, Sharpe Ratio, and Duration.
3. To analyze the impact of interest-rate changes on bond valuation using Yield to Maturity and Duration analysis.
4. To compare inflation-adjusted returns across selected investment instruments.
5. To rank investment instruments based on risk-adjusted returns.

4. Research Methodology

Research Design: The study adopts a **descriptive and analytical research approach** based on secondary financial market data.

Metric	Formula
CAGR	$(EV/BV)^{1/n}-1$
Sharpe Ratio	$(R_p - R_f)/\sigma_p$
Beta	Covariance/Variance
YTM	Discount rate equating PV of cash flows
Duration	Weighted average maturity of cash flows

The study is based on secondary data collected from reliable financial sources such as Reserve Bank of India, National Stock Exchange of India, Association of Mutual Funds in India, Ministry of Statistics and Programme Implementation, and market databases. A common sample period from 1 April 2020 to 30 September 2025 has been considered, wherever possible, to maintain consistency in comparison across instruments. The study evaluates selected investment instruments including equity shares, mutual funds, gold, government bonds, and corporate bonds using financial metrics such as CAGR, Standard Deviation, Beta, Sharpe Ratio, Yield to Maturity (YTM), Current Yield, Macaulay Duration, Modified Duration, and Inflation-Adjusted Returns. For beta calculation, NIFTY 50 has been used as the benchmark index. Bond valuation has been performed using present

value techniques and duration analysis to assess interest-rate sensitivity. The study assumes annual compounding, a constant inflation rate of 5%, reinvestment of coupon payments at prevailing yields, and ignores taxes and transaction costs for simplification. However, the study has certain limitations such as single-stock representation, exclusion of tax implications, liquidity considerations, and storage or transaction costs associated with gold investments.

5. Investment Instruments Selected

Asset Class	Instrument	Why Chosen	Identifier
Equity	Inter Globe Aviation	Representative high-growth Indian aviation stock	NSE: INDIGO
Mutual Fund	HDFC Flexi Cap Fund	Large diversified equity mutual fund	Direct Growth Plan
Commodity	Gold	Traditional inflation hedge	RBI Floating Rate Savings Bond 2020
Corporate Bond	Edelweiss NCD 2025	Corporate fixed-income instrument	ISIN to be added
Government Bond	RBI Floating Rate Savings Bond	Government-backed safe investment	Security Codes to be added

Gold prices sourced from India Bullion and Jewellers Association (IBJA) / MCX Spot Prices.

6. Risk–Return Comparison of Investment Instruments

The report evaluates the **risk–return characteristics of five investment instruments** commonly used by investors in India. The objective is to understand how these assets differ in terms of **returns, volatility, safety, and diversification benefits**. The instruments analyzed include:

1. Equity Shares – InterGlobe Aviation
2. HDFC Flexi Cap Mutual Fund
3. Gold
4. Edelweiss Financial Services NCD (2025)
5. RBI Floating Rate Savings Bonds (FRSB 2020)

The analysis includes **return history, risk metrics, portfolio composition, and comparative performance**.

Instrument	CAGR	SD	Beta	Sharpe
Equity	High	High	>1	Moderate
Mutual Fund	Moderate-High	Moderate	0.81	1.31
Gold	Moderate	Moderate	Low	Moderate
RBI Bond	Stable	Low	NA	Low
NCD	Moderate	Moderate	NA	Moderate

Equity and mutual funds generated superior long-term returns but also exhibited greater volatility. Gold demonstrated diversification benefits due to its lower correlation with equities. Government-backed bonds provided stability but lower real returns after adjusting for inflation.

1. Equity Shares – InterGlobe Aviation (Historical Returns)

Time Period	Stock Price (₹)	Absolute Return (%)	CAGR (%)
Since IPO (Nov 2015)	₹ 765	~640%	~24.5%
5-Year (Sept 2020 – Sept 2025)	₹1,250 → ₹5,674	~354%	~38.7%
1-Year (Sept 2024 – Sept 2025)	₹3,780 → ₹5,674	~50%	N/A

Note: CAGR calculated using the standard compound annual growth rate formula.

Key Observations

- Equity investments have the **highest potential return**.
- However, they also show **significant volatility and market risk**.
- Returns depend heavily on **market cycles, company performance, and macroeconomic conditions**.

Risk–Return Characteristics

- **Return potential:** Very high
- **Risk level:** High
- **Liquidity:** High
- **Suitable for:** Aggressive investors

Risk Return Profile

Metric	Value	Interpretation
1-Year Return	~50 %	Strong Short-Term Performance
5-Year CAGR	~38.7 %	Exceptional Long-Term Growth
Beta	0.88	Low Volatility Compared to Market
Dividend Yield	0.18%	Modest Income Generation
P/E Ratio	32.8	High Valuation relative to earning

2. HDFC Flexi Cap Fund – Risk–Return Assessment

Fund Overview

- **Scheme:** HDFC Flexi Cap Fund – Direct Growth
- **Type:** Equity Flexi Cap Fund
- **Inception:** January 1995
- **AUM:** ₹81,935.61 crore (Aug 2025)
- **Expense Ratio:** 0.70%
- Benchmark: NIFTY 500 / Flexi Cap TRI Benchmark.
- NAV data considered in DD/MM/YYYY format.

Return Analysis: The fund has generated strong historical returns across multiple investment horizons. SIP returns demonstrate the benefit of **systematic investing and compounding**.

Historical Return Performance of HDFC Flexi Cap Fund

Time Horizon	NAV at Start (₹)	Absolute Return (%)	Annualized Return (CAGR %)
1 Year	2,038.81 (Sep 24, 2025)	6.51	6.51
3 Years	1,837.50 (Sep 23, 2022)	22.89	6.98
5 Years	1,250.00 (Sep 24, 2020)	28.54	5.09
10 Years	1,000.00 (Sep 24, 2015)	18.91	1.79
Since Inception	100.00 (Jan 1, 1995)	—	18.88

Source: *HDFC Mutual Fund Factsheet (2025)*

Risk Metrics

Time Horizon	NAV at Start (₹)	Absolute Return (%)	Annualized Return (CAGR %)
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Portfolio Composition

- Equity Exposure: **88.6%**
- Large Cap: **60.83%**
- Mid Cap: **2.43%**
- Small Cap: **4.36%**
- Debt & Others: **11.4%**

Sector Allocation

- Private Banks – 28.65%
- Miscellaneous – 9.01%
- Automobiles – 7.56%
- Pharmaceuticals – 7.06%
- IT Services – 5.91%

Key Insight

The fund has **outperformed the Nifty 50 over long horizons** and remains one of the **top-performing flexi-cap funds in India**.

3. Gold – Risk–Return Analysis: Gold is a **traditional investment and store of value** in India.

Key Characteristics

- Does **not generate income**
- Returns arise from **price appreciation**
- Acts as **inflation hedge and safe-haven asset**
- Physical gold investments involve storage cost, insurance cost, and transaction spreads, which may reduce effective investor returns.
- Gold generally shows low or negative correlation with equities, making it an effective hedge during periods of stock market volatility.

Current Price

- ₹11,444 per gram (24K gold)
- ₹1,14,440 per 10 grams (Sept 2025)

Historical Returns

Period	Return
Last 5 years	~11.7% annualized
1978–2025 CAGR	~6.35%

Risk Characteristics

- Volatility lower than equities
- Higher volatility than government bonds
- Negative correlation with equities

Comparative Position

- Lower returns than equities
- Useful for **portfolio diversification**
- Highly liquid asset

4. Edelweiss Financial Services NCD (2025)

Edelweiss issued **secured non-convertible debentures worth ₹300 crore**.

Key Features - Fixed income instrument; Interest paid periodically and Principal returned at maturity

Bond	FV	Coupon Frequency	Maturity	Price Date
GOI 6.5%	₹ 1,000	Annual	2030	Sep-25
GOI 7.09%	₹ 1,000	Annual	2054	Sep-25
Electronica Finance	₹1,00,000	Annual	2029	Sep-25

Bond prices are assumed to represent clean prices excluding accrued interest.

*Although nominal returns on government securities appear attractive, real returns after adjusting for inflation remain relatively modest, emphasizing the importance of inflation-aware investment decisions***.**

Return Characteristics

- Yield: ~ **9.25%**
- Higher than bank fixed deposits

Risk Analysis: Moderate credit risk and Predictable income stream

Conclusion: Suitable for **income-seeking investors** who want stable returns with moderate risk.

5. RBI Floating Rate Savings Bonds (FRSB 2020)

Key Features - Government-backed security, Tenure: 7 years, and Floating interest rate linked to NSC rate

Current Coupon Rate: 8.05%

Investment Outcome: Investment of ₹10,000 grows to approximately **₹15,635 at maturity**.

Risk Characteristics: Extremely low credit risk, Stable income, and Suitable for conservative investors.

Comparative Analysis of Investment Instruments - Colour coding indicates **wealth creation potential rather than safety**.

Instrument	Return Potential	Risk Level
Equity	High	High
Mutual Funds	High	Moderate
Gold	Moderate	Moderate
NCD	Moderate	Moderate
RBI Bonds	Low	Very Low

Part B: Bond Valuation and Risk–Return Analysis

The second part evaluates **three bonds** to understand pricing, yield, duration, and sensitivity to interest rate changes. Selected bonds:

Bond	Type
GOI 6.5% 2030	Short-term government bond
GOI 7.09% 2054	Long-term government bond
Electronica Finance 12.90% 2029	Corporate bond

Part B: Bond Valuation and Risk–Return Analysis

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Selected bonds:

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Electronica Finance 12.90% 2029	Corporate bond

Bond Valuation: Bond prices were calculated using **Present Value of Cash Flows**.

$$BondPrice = \sum \frac{C}{(1+r)^t} + \frac{FV}{(1+r)^n}$$

Where: C = Coupon; r = Yield; FV = Face value; n = Time to maturity

Valuation Results

Bond	Price	Current Yield	YTM
GOI 6.5% 2030	₹ 1,021	6.37%	6%
GOI 7.09% 2054	₹ 1,231	5.76%	6.50%
Electronica 12.90% 2029	₹109,175	11.80%	10%

Risk–Return Metrics

Bond	Duration	Interest Rate Risk	Credit Risk
GOI 2030	4.6 yrs	Moderate	Minimal
GOI 2054	19–20 yrs	High	Minimal
Electronica 2029	3.6 yrs	Moderate	Moderate

Scenario Analysis (±1% Yield Change)

The long-term GOI bond is the **most sensitive to interest rate changes**.

Duration Analysis

Bond	Macaulay Duration	Modified Duration
GOI 2030	4.43 yrs	4.18 yrs
GOI 2054	13.70 yrs	12.86 yrs
Electronica	3.39 yrs	3.08 yrs

Higher duration means **greater sensitivity to interest rate changes**.

Inflation Adjusted Returns

Assuming **inflation of 5%**

Bond	Nominal YTM	Real Yield
GOI 2030	6.00%	0.95%
GOI 2054	6.50%	1.43%
Electronica	10%	4.76%

Corporate bonds provide **higher real returns but carry credit risk**.

7. Conclusion

The study conducted a comparative security analysis of five investment instruments within the Indian financial system and evaluated bond valuation using yield and duration analysis.

Key findings include:

- Equities and mutual funds generate the highest long-term returns.
- Gold provides diversification and protection during economic uncertainty.
- Government securities offer safety but lower real returns.

- Corporate bonds deliver higher yields but involve credit risk.
- Long-duration bonds are significantly affected by interest-rate fluctuations.

The results emphasize the importance of **diversified asset allocation and duration management** for effective portfolio construction.

Investor-Type Mapping

Investor Type	Suitable Instrument
Conservative	RBI Bonds, FDs
Moderate	Mutual Funds, NCDs
Aggressive	Equity Shares

The study highlights that diversification across different asset classes helps reduce overall portfolio risk, while long-duration bonds remain highly sensitive to interest-rate fluctuations. It also indicates that mutual funds offer comparatively better risk-adjusted returns for retail investors. Future research may include tax-adjusted return analysis, broader equity and sectoral diversification, application of Value-at-Risk (VaR) models, extension of the study period beyond five years, and comparison with international investment instruments.

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About SLU College

Shree Lalshankar Umiyashankar Arts and Harivadan & Padmaben Thakore Commerce College for Women, which was established in 1920 as an endeavour of Gujarat Stree Kelvani Mandal, has the proud privilege of being the first women's college in Ahmedabad. The college is recognised under Section 2 (f) and 12 (b) of UGC Act 17th June, 1972. The college runs various programmes in affiliation with Gujarat University such as - B.A., B.Com., and M.Com. The BS-BBA programme was added from the academic year 2025-2026. The college also runs several add-on programmes like Fashion Design and Computer Courses at the ICTC centre located at the SLU Campus.

College Website

www. slucollege.org

Aarsi Email Id

sluaarsi@gmail.com