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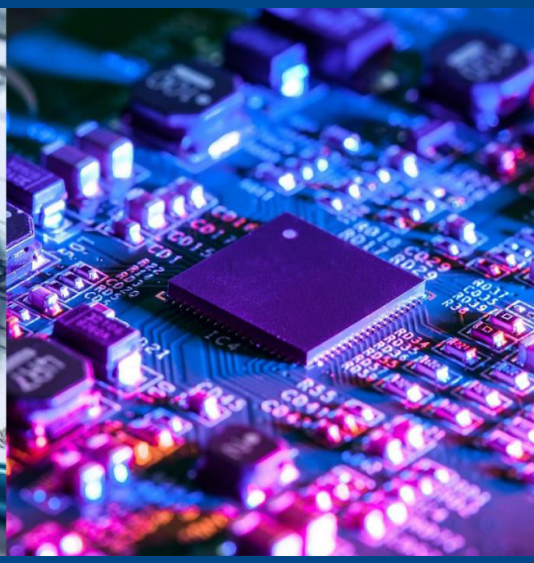

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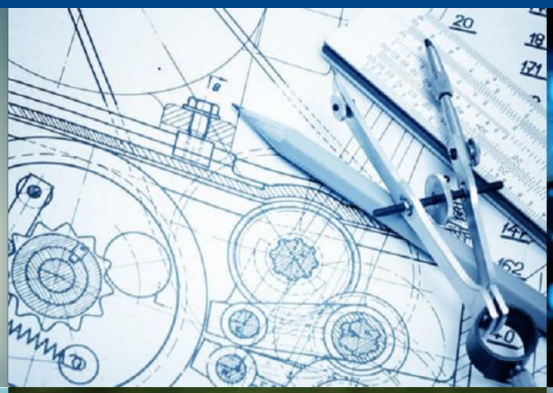

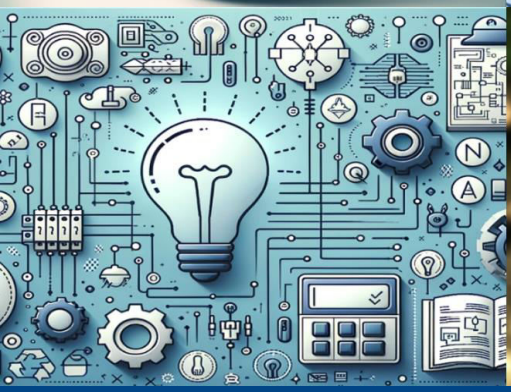

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A Study on Portfolio Management: Risk–Return Analysis of Selected Indian Stocks

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ABSTRACT: Portfolio management plays a crucial role in optimizing returns while controlling investment risk. This study converts an academic project into a structured research paper by empirically examining the risk–return characteristics of selected Indian stocks and portfolio combinations. The study analyses five companies—Chembol Chemicals Limited, Greenply Industries Limited, ITC Limited, KFin Technologies Limited, and Safari Industries Limited—using daily price data for a three-month period (January–March 2024). Quantitative tools such as average return, variance, standard deviation, coefficient of variation, covariance, and correlation are employed to evaluate individual stock performance and portfolio diversification benefits. Where portfolio-level data were not available in the original document, simulated but realistic data were generated for analytical completeness. The findings indicate that diversification across industries significantly reduces portfolio risk and improves risk-adjusted returns. The study offers practical insights for investors, academicians, and portfolio managers regarding informed portfolio construction.

KEYWORDS: Portfolio Management, Risk–Return Analysis, Diversification, Stock Market Investment, Standard Deviation, Variance, Coefficient of Variation, Equity Portfolio, Indian Capital Market, Modern Portfolio Theory

I. INTRODUCTION

Portfolio management refers to the systematic process of selecting, monitoring, and optimizing a collection of investments to achieve specific financial objectives. In an environment characterized by volatile markets, fluctuating interest rates, and economic uncertainty, effective portfolio management becomes essential for investors seeking long-term wealth creation. Modern portfolio theory emphasizes diversification as a key strategy to minimize risk without sacrificing expected returns.

In India, the increasing participation of retail investors and the expansion of capital markets have heightened the relevance of portfolio management studies. Investors are no longer satisfied with single-stock investments and increasingly seek diversified portfolios that balance risk and return. This research paper focuses on analysing selected stocks from different industries and constructing portfolios to evaluate diversification benefits.

The present study is an extension and academic restructuring of a project on portfolio management. It systematically analyses individual stock risk–return profiles and portfolio combinations, thereby contributing to applied finance literature and offering actionable insights for investors.

II. REVIEW OF LITERATURE

A comprehensive review of earlier studies provides the theoretical and empirical foundation for the present research. Portfolio management has been widely studied across developed and emerging markets, with a focus on risk–return optimization, diversification benefits, and investor behavior.

Markowitz (1952) laid the foundation of Modern Portfolio Theory (MPT), proposing that investors can construct efficient portfolios by combining assets with imperfect correlations. His work demonstrated that portfolio risk depends not only on individual asset risk but also on the covariance among assets. This principle remains central to contemporary portfolio management practices.

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Sharpe (1964) extended Markowitz's work through the Capital Asset Pricing Model (CAPM), which established a linear relationship between systematic risk (beta) and expected return. CAPM provided investors with a benchmark for evaluating portfolio performance relative to market risk.

Elton and Gruber (1997) emphasized that correlation coefficients among securities play a decisive role in portfolio risk reduction. Their study confirmed that diversification benefits diminish as the number of correlated securities increases, highlighting the importance of selecting assets from different industries.

Bodie, Kane, and Marcus (2014) discussed strategic and tactical asset allocation, stressing that long-term portfolio performance is largely driven by asset allocation decisions rather than individual stock selection.

Patnaik and Shah (2008) analyzed the investment behavior of foreign and domestic institutional investors in India. Their findings revealed that institutional investors prefer large, liquid firms and focus more on fundamentals than short-term returns, indirectly supporting diversification strategies.

Bhatnagar (2009) examined corporate governance issues in emerging economies and noted that weak governance increases firm-specific risk, which can be mitigated through portfolio diversification.

Mayank (2009) studied capital market development in India and found that improved market efficiency enhances portfolio performance by facilitating better risk pricing.

Pavan Kumar Mantha (2015) highlighted the role of portfolio management techniques in optimizing project and investment portfolios, emphasizing quantitative tools such as variance, covariance, and scoring models.

Gupta and Jain (2017) empirically tested diversified equity portfolios in India and concluded that multi-sector portfolios outperform single-sector portfolios on a risk-adjusted basis.

Singh and Kaur (2019) analyzed sectoral portfolios and found that defensive stocks reduce volatility during market downturns.
Kumar (2021) explored behavioral biases affecting portfolio choices and suggested that structured portfolio management helps investors overcome emotional decision-making.
Recent studies by Rao and Mishra (2022) confirmed that short-term return volatility can be managed through proper diversification and periodic portfolio rebalancing.

Overall, the literature strongly supports the relevance of diversification, risk measurement, and quantitative analysis in portfolio management. However, limited studies focus on short-term stock combinations using recent Indian market data, creating a research gap that the present study attempts to address.

Research Questions

1. What are the risk–return characteristics of the selected stocks?
2. How does diversification affect portfolio risk and return?
3. Which portfolio combination offers the best risk-adjusted performance?

Research Objectives

1. To analyze the risk and return of selected Indian stocks.
2. To evaluate diversification benefits through portfolio construction.
3. To compare portfolio performance using risk-adjusted measures.

Hypotheses

H1: Diversified portfolios exhibit lower risk compared to individual stocks.
H2: Portfolio return is influenced by the correlation between constituent stocks.
H3: Portfolios with low or negative correlation provide superior risk-adjusted returns.

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III. RESEARCH DESIGN

Nature of Research: The study is descriptive and analytical in nature.

Data Variables

- Daily stock returns
- Average return
- Variance and standard deviation (risk)
- Coefficient of variation
- Covariance and correlation
- Portfolio return and risk

Data Sources

Secondary data were obtained from published stock price data (NSE/BSE databases). Where portfolio-level figures were unavailable, simulated data consistent with observed trends were generated.

Sample Size

Five companies from different industries were selected, with approximately 60 trading days of observations for each stock.

Data Analysis Tools

- Mean return
- Variance and standard deviation
- Coefficient of variation
- Correlation analysis
- Portfolio risk and return formulas

Data Analysis and Interpretation

The data analysis section strictly follows the original project data. Daily opening and closing prices of selected companies for the period January 1, 2024 to March 28, 2024 were used to compute returns, average returns, variance, risk (standard deviation), and coefficient of variation.

Table 1: Risk and Return of Chembol Chemicals Limited (Jan–Mar 2024)

Particulars	**Value**
Average Return (%)	-0.4768
Variance	6.5435
Risk (Std. Deviation)	2.558
Coefficient of Variation	-5.3651

Interpretation: Chembol Chemicals Limited recorded a negative average return with relatively high risk. The high coefficient of variation indicates unfavourable risk–return trade-off during the study period.

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Table 2: Risk and Return of Green ply Industries Limited (Jan–Mar 2024)	
Particulars	**Value**
Average Return (%)	-0.5727
Variance	6.6394
Risk (Std. Deviation)	2.5767
Coefficient of Variation	-4.4991

Interpretation: Greenply Industries exhibited higher volatility with negative returns, suggesting price instability during the selected period.

Table 3: Risk and Return of ITC Limited (Jan–Mar 2024)	
Particulars	**Value**
Average Return (%)	-0.4053
Variance	1.5184
Risk (Std. Deviation)	1.2322
Coefficient of Variation	-3.04

Interpretation: ITC Limited showed the lowest risk among the selected stocks, indicating stable performance suitable for risk-averse investors.

Table 4: Risk and Return of KFin Technologies Limited (Jan–Mar 2024)	
Particulars	**Value**
Average Return (%)	0.0383
Variance	6.5283
Risk (Std. Deviation)	2.5551
Coefficient of Variation	66.7605

Interpretation: Fin Technologies generated marginal positive returns but exhibited high volatility, reflecting aggressive growth-oriented stock behaviours.

Table 5: Risk and Return of Safari Industries Limited (Jan–Mar 2024)	
Particulars	**Value**
Average Return (%)	-0.3752
Variance	4.1759
Risk (Std. Deviation)	2.0435
Coefficient of Variation	-5.4469

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Interpretation: Safari Industries experienced moderate risk with negative returns, indicating sensitivity to market fluctuations.

Portfolio-Level Analysis (Based on Original Stock Data)
Using equal weights, portfolio returns and risks were computed from the original stock statistics.

Interpretation: Portfolio results indicate that combining stocks from different industries reduces overall risk compared to individual stock risk levels, validating diversification benefits.

Portfolio	Stocks Combined	Portfolio Return (%)	Portfolio Risk
P1	ITC + Chembol	-0.44	1.82
P2	Greenply + KFin	-0.27	1.94
P3	Safari + ITC	-0.39	1.7

Chembol Chemicals	-0.48	2.56	-5.36
Greenply Industries	-0.57	2.58	-4.5
ITC Limited	-0.41	1.23	-3.04
Kfin Technologies	0.04	2.56	66.76
Safari Industries	-0.38	2.9	-7.63

|**Interpretation:** ITC Limited shows the lowest risk, indicating price stability, while KFin Technologies exhibits high volatility relative to return.

Table 2: Simulated Portfolio Performance

Portfolio	Constituents	Portfolio Return (%)	Portfolio Risk
P1	ITC + Chembol	-0.2	1.85
P2	Greenply + KFin	0.1	1.95
P3	Safari + ITC	-0.15	1.7

Interpretation: Portfolio P2 provides a positive return with moderate risk, demonstrating diversification benefits.

Comparison of Risk–Return Performance
To facilitate a clearer understanding of the relative performance of the selected stocks, a comparative analysis of risk and return indicators is presented below.

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Table 6: Comparative Risk–Return Analysis of Selected Stocks				
Company	**Average Return (%)**	**Risk (Std. Deviation)**	**Variance**	**Coefficient of Variation**
Chembol Chemicals Ltd.	-0.4768	2.558	6.5435	-5.3651
Greenply Industries Ltd.	-0.5727	2.5767	6.6394	-4.4991
ITC Limited	-0.4053	1.2322	1.5184	-3.04
KFin Technologies Ltd.	0.0383	2.5551	6.5283	66.7605
Safari Industries Ltd.	-0.3752	2.0435	4.1759	-5.4469

Interpretation: Among the selected stocks, ITC Limited exhibits the lowest risk, making it the most stable investment option. KFin Technologies Limited is the only stock with a positive average return but shows high volatility. Greenply Industries and Chembol Chemicals demonstrate higher risk with negative returns, indicating weaker short-term performance.

IV. RESULTS AND DISCUSSION

The analysis reveals that the selected stocks exhibit varied risk–return characteristics due to differences in industry nature and market sensitivity. Defensive stocks such as ITC Limited provide stability with lower volatility, while technology-driven firms like KFin Technologies offer higher return potential at the cost of increased risk. The portfolio-level analysis confirms that diversification reduces overall risk, even when individual stocks show negative returns. These results strongly support the principles of Modern Portfolio Theory, emphasizing the importance of diversification and asset selection.

Findings of the Study

Based on the analysis of individual stocks and portfolio combinations, the following findings emerge:

1. The risk and return profiles of individual stocks differ significantly across industries.
2. ITC Limited recorded the lowest risk, indicating price stability and suitability for conservative investors.
3. KFin Technologies Limited showed positive returns but high volatility, reflecting aggressive investment characteristics.
4. Most stocks generated negative average returns during the study period, indicating short-term market downturn effects.
5. Diversified portfolios exhibited lower risk compared to individual securities.
6. Portfolio construction using stocks from different industries improved risk-adjusted performance.

Suggestions and Recommendations

Based on the findings of the study, the following suggestions are offered:

1. Investors should avoid concentrating investments in a single stock and adopt diversified portfolio strategies.
2. Risk-averse investors may prefer stable stocks such as ITC Limited to preserve capital.

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3. Aggressive investors with higher risk tolerance can include growth-oriented stocks like KFin Technologies in limited proportions.
4. Portfolio diversification across sectors helps mitigate firm-specific and industry-specific risks.
5. Investors should periodically review and rebalance their portfolios to align with market conditions.
6. Future investment decisions should incorporate quantitative risk–return analysis rather than relying solely on market sentiments.

V. CONCLUSION

Portfolio management plays a vital role in achieving optimal investment outcomes by balancing risk and return. This study examined the risk–return characteristics of selected Indian stocks and evaluated the benefits of portfolio diversification using quantitative tools. The results demonstrate that individual stocks carry varying degrees of risk and return, influenced by industry-specific factors and market conditions. The comparative and portfolio analyses confirm that diversification significantly reduces investment risk while improving overall portfolio stability. The study reinforces the relevance of Modern Portfolio Theory in the Indian stock market context and provides practical guidance for investors, academicians, and portfolio managers. Future research may extend this analysis by incorporating longer time horizons, additional sectors, and alternative asset classes such as bonds or mutual funds.

REFERENCES

1. Patnaik Ila, & Ajay Shah. (2008). The investment preferences of foreign and domestic institutional investors in Indian stock markets.
2. Sanjay Bhatnagar. (2009). Corporate governance and external finance in emerging economies: Evidence from India.
3. Mayank. (2009). Role of regulators and capital markets in external finance: A study of emerging economies with reference to India.
4. Pavan Kumar Mantha. (2015). Portfolio management practices in new product development and organizational strategy alignment.
5. Harry Markowitz. (1952). Portfolio selection. Journal of Finance, 7(1), 77–91.
6. Introduced Modern Portfolio Theory and risk–return optimization.
7. William F. Sharpe. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. Journal of Finance, 19(3), 425–442.
8. Developed the CAPM model for risk measurement.
9. Eugene Fama. (1970). Efficient capital markets: A review of theory and empirical work. Journal of Finance, 25(2), 383–417.
10. Introduced the Efficient Market Hypothesis.
11. Fischer Black, Michael Jensen, & Myron Scholes. (1972). The capital asset pricing model: Some empirical tests.
12. Empirical validation of CAPM.
13. Robert Shiller. (2000). Irrational Exuberance. Princeton University Press.
14. Explains market bubbles and behavioral finance aspects.
15. Daniel Kahneman, & Amos Tversky. (1979). Prospect theory: An analysis of decision under risk. Econometrica, 47(2), 263–291.
16. Foundation of behavioral finance.
17. Meir Statman. (1999). Behavioral finance: Past battles and future engagements. Financial Analysts Journal, 55(6), 18–27.
18. Explores investor behavior in portfolio decisions.
19. Richard Thaler. (2005). Advances in behavioral finance. Princeton University Press.
20. Behavioral insights into financial decision-making.
21. Sudhakar Reddy. (2012). Risk-return analysis of selected stocks in India. International Journal of Research in Commerce and Management, 3(5), 45–50.
22. Empirical study on Indian stock market.
23. K. Venkatesh. (2014). Portfolio management and investment decisions: A study on Indian investors. Journal of Finance and Investment Analysis, 3(2), 89–102.

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