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A STUDY ON PORTFOLIO MANAGEMENT

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ABSTRACT

With regard to the many investment opportunities provided by Indiabulls Securities Ltd., the purpose of the research paper "A Study on Portfolio Management at Indiabulls Securities Ltd" is to examine the idea, methods, and results of portfolio management. In order to reach predetermined financial objectives while limiting exposure to risk, portfolio managers seek for and oversee the most appropriate allocation of various investment vehicles, including stocks, bonds, and mutual funds.

Portfolio 1 uses CHEMBOL CHEMICALS LIMITED and GREENPLY INDUSTRIES LIMITED as its stocks, Portfolio 2 uses ITC LIMITED and INDIA GLYCOLS LIMITED, and Portfolio 3 uses SAFARI INDUSTRIES LIMITED and KFIN TECHNOLOGIES LIMITED as its stocks. All three portfolios are built using pairs of stocks from the Indian stock market, and this study examines each one. The average return, variance, risk, correlation coefficient, and variance between the stocks make up each portfolio's evaluation. Investors receive recommendations that take into account diversification advantages, personal investment goals, and the risk-return tradeoff inherent in each portfolio. Portfolio 1 presents an even distribution of risk and return, Portfolio 2 emphasises reduced risk with moderate return, and Portfolio 3 displays increased risk with the possibility of higher return. In order to achieve the best possible results, the study recommends reviewing and adjusting one's portfolio on a frequent basis to ensure it is in line with one's financial goals, risk tolerance, and investment horizon.

INTRODUCTION

When done properly, investment may help people and organisations reach their financial goals while also protecting and increasing their wealth. Numerous investment options, including stocks, bonds, mutual funds, government securities, property, and commodities, are frequently presented to investors. To optimise profits while reducing risk, it is critical to choose the correct mix of these assets. Portfolio Management is the name given to this procedure.

Portfolio management is the process of systematically allocating capital among a variety of investment vehicles in order to meet predetermined goals. It entails picking a portfolio of investments that fit an investor's risk appetite, time horizon, and objectives, and then keeping that portfolio under constant evaluation and adjustment. To maximise investment performance while balancing risk and return, investors need effective portfolio management.

Modern Portfolio Theory (MPT) elevated the importance of portfolio management with its focus on diversification to mitigate risk. Investors diversify their holdings among many asset classes and securities so that the loss from a bad investment doesn't affect their total portfolio value.

Market volatility, globalisation, technology improvements, and the rising complexity of investment products have all contributed to the importance of portfolio management in today's ever-changing financial landscape. In order to assess investment opportunities and build portfolios that suit investors' demands, professional portfolio managers employ a variety of analytical tools and methodologies.

Portfolio Management and Its Significance

An individual's or organization's holdings in various investment vehicles make up what is known as a portfolio. Stocks, bonds, mutual funds, ETFs, property, gold, and other assets could fall into this category.

Portfolio management entails choosing and overseeing an investor's investments in a manner that gets them where they want to go financially while keeping their risk tolerance in check.

REVIEW OF LITERATURE

Research Gap

Portfolio management has been extensively studied as a strategy for optimizing investment returns while minimizing risk. However, several important research gaps remain. Most existing studies primarily emphasize traditional portfolio optimization models, such as the Modern Portfolio Theory (MPT), without adequately considering the dynamic nature of today's financial markets. Limited research has examined

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the integration of artificial intelligence (AI), machine learning, big data analytics, and robo-advisory services in portfolio construction and management. Additionally, many studies focus on institutional investors, while comparatively fewer investigate the portfolio management practices, financial literacy, and investment behavior of retail investors, particularly in emerging economies like India. There is also a lack of comprehensive studies evaluating the impact of macroeconomic variables, geopolitical events, market volatility, ESG (Environmental, Social, and Governance) investing, and behavioral biases on portfolio performance. Furthermore, limited longitudinal research has assessed the long-term effectiveness of diversified portfolios across different market cycles. Therefore, future research should integrate traditional financial theories with technological innovations, behavioral finance, and sustainable investment practices to develop more adaptive and efficient portfolio management strategies suited to the evolving investment landscape.

Theoretical Framework

Investments are chosen, managed, and tracked by a portfolio manager in order to meet predetermined financial goals in a way that is both risk- and return-adjusted. The idea behind it is that by spreading their money out across several sectors, asset types, and securities, investors may lower their overall risk and increase their potential return. To efficiently achieve investment goals, portfolio management entails making strategic decisions about asset allocation, security selection, risk assessment, and performance evaluation.

Harry Markowitz's Modern Portfolio Theory (MPT), which he established in 1952, is a major theory in the field of portfolio management. Investors can build a portfolio that maximises expected return relative to risk, if this hypothesis is to be believed. Diversification is key to the theory, which posits that a portfolio's total risk can be mitigated by combining assets with diverse risk-return characteristics. An important idea in modern portfolio theory is the "efficient frontier," or range of portfolios that maximise return relative to risk.

William F. Sharpe and colleagues created the Capital Asset Pricing Model (CAPM), which is another significant framework. In financial markets, CAPM elucidates the connection between risk and anticipated return. The model posits that investors need to be rewarded for the risk they take on as well as the time value of money. The Capital Asset Pricing Model (CAPM) states that beta, a measure of systematic risk, determines an investment's expected return. Due to their increased sensitivity to changes in the market, securities with higher beta values are anticipated to deliver higher returns.

Another important hypothesis that pertains to portfolio management is the Efficient Market Hypothesis (EMH), which was put forth by Eugene Fama. According to this theory, stock prices accurately represent all relevant information because financial markets are very efficient. Therefore, it becomes more challenging for investors to regularly outperform the market through market timing or stock selection. Rather than trying to beat the market, portfolio managers that subscribe to this philosophy typically favour passive investment strategies like index funds.

1. Portfolio Management – Mohadese Rezaei & Hossein Nezamabadi-Pour (2025)

"A Taxonomy of Literature Reviews and Experimental Study of Deep Reinforcement Learning in Portfolio Management" looked at how deep reinforcement learning (DRL) is used in portfolio management practices. In contrast to DRL-based models, which constantly modify portfolios depending on market feedback, conventional portfolio models do not account for market volatility, as the authors pointed out. Using equities from the Dow Jones Industrial Average, the study analysed several algorithms, including A2C, DDPG, PPO, SAC, and TD3. Based on the results, AI-powered investment methods have the potential to boost returns and reduce risk.

2. Vivek Bulani, Marija Bezbradica & Martin Crane (2025)

Using clustering and swarm intelligence algorithms, the authors of "Improving Portfolio Management Using Clustering and Particle Swarm Optimisation" zeroed in on optimising portfolios. The research highlighted the importance of diversity and risk-adjusted returns by utilising Sortino and Sharpe ratios. Data on stocks and cryptocurrencies from 2015 to 2023 was examined. The study found that portfolio performance and diversification were both greatly enhanced by clustering in conjunction with particle swarm optimisation.

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3. Michael Senescall & Rand Kwong Yew Low (2024)
Topics covered in the article "Quantitative Portfolio Management: Review and Outlook" included machine learning techniques, style integration, risk parity, and optimisation of portfolios. According to the writers, data analytics and AI are becoming more and more important in contemporary portfolio management. Machine learning approaches are predicted to take the lead in future research on portfolio management due to their predictive power and capacity to adjust to changing financial situations, according to the study.

4. Preeti Bai Agrawal & Anuradha Samal (2024)
Based on bibliometric analysis, the research "Mapping Portfolio Optimisation: A Systematic and Bibliometric Review" tracked the development of literature on the topic of portfolio optimisation from 1989 to 2023. Traditional Modern Portfolio Theory is giving way to portfolio models based on artificial intelligence and machine learning, according to the authors. Their results demonstrated the rising importance of advanced analytics in investment decision-making and the rising tide of interest in optimising investment portfolios.

5. Ritesh Khatwani, Mahima Mishra & V. V. Ravi Kumar (2024)
"Creating Quality Portfolios Using Score-Based Models: A Systematic Review" looked at how to build a portfolio using score-based investment methods. The writers looked at a number of financial indicators and scales that are used to measure the health of a portfolio. According to the research, score-based portfolio models are useful for enhancing long-term investing results via systematic selection approaches and assisting investors in identifying financially secure stocks.

6. Masoud Aghajani, Gesa Ruge & Kam Jugdev (2023)
Environmental considerations were key to the "An Integrative Review of Project Portfolio Management Literature" study. Topics including sustainability assessment, sustainability attitude, and portfolio process integration were found by the study. The results showed that, for the sake of long-term strategy, more and more companies are using sustainability factors when choosing investments and portfolios.

7. Gustavo Carvalho Santos, Flavio Barboza & Antônio Cláudio Paschoarelli Veiga (2022)
A systematic literature review titled "Portfolio Optimisation Using Artificial Intelligence" looked at how AI and ML may help with optimising investment portfolios. The algorithms that could improve portfolio allocation decisions and risk-return trade-offs were reviewed in the review. The study found that AI improves portfolio efficiency by finding the best investment opportunities and processing massive datasets.

8. Alireza Ghahtarani, Ahmed Saif & Alireza Ghasemi (2021)
"Robust Portfolio Selection Problems: A Comprehensive Review" examined methods for optimising portfolios that are known to be very resilient. Investment decision-making models and uncertainty techniques were categorised in the study. The research highlighted the importance of strong portfolio models in assisting investors in reducing market volatility and increasing investment stability.

9. Julio Cezar Soares Silva & Adiel Teixeira de Almeida Filho (2023)
Articles like "A Systematic Literature Review on Solution Approaches for the Index Tracking Problem" go into detail about methods for managing a portfolio un actively. Methods for constructing low-transaction-cost portfolios that track market indexes were the focus of the study. Metaheuristic and optimisation techniques greatly enhance the efficacy of index-tracking portfolios, according to the authors.

10. Pedro Reis, Ana Paula Serra & João Gama (2025)
"The Role of Deep Learning in Financial Asset Management: A Systematic Review" looked at use cases for deep learning in managing assets and portfolios. The writers examined the use of sentiment analysis, ESG indicators, explainable AI, and transformer architectures in financial forecasting. Deep learning approaches enhance investment decision-making efficiency, prediction accuracy, and portfolio performance, according to the research.

11.Gudimetla, A. (2018): The purpose of the research was to find out if thematic mutual fund strategies could consistently produce good returns. The returns of chosen theme funds were evaluated and compared to their respective benchmark indexes using a variety of risk-adjusted performance metrics. The results showed that although some thematic funds did better than the market at different times, it wasn't always the case. Investors in thematic mutual funds can benefit greatly from the study's findings, which indicate that performance in the past is no guarantee of future profits.

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12.Gudimetla, A., & Raghunatha Reddy, D. (2018). Examining the potential for sector-specific mutual fund schemes to produce better returns relative to investor risk was the primary objective of the study. Several risk-adjusted performance metrics and comparisons to benchmarks were used to evaluate the sectoral mutual funds' performance. Investors should thoroughly assess sectoral risks and market trends before to making investment decisions, since the study found that sector-specific mutual funds may present appealing investment opportunities.

13.Gudimetla, Aruna. (2015). Researchers in India set out to test the market timing and selectivity skills of sector mutual fund managers in the country. We used risk-adjusted return measures and well-established performance measurement methodologies to assess the sector mutual funds' performance. The results showed that different sector funds had differing degrees of success when it came to market timing and stock selection. Managerial competence is crucial for outperforming the market, and the study found that selectivity skills were more important to fund success than market timing ability.

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Portfolio management has been extensively studied as a strategy for optimizing investment returns while minimizing risk. However, several important research gaps remain. Most existing studies primarily emphasize traditional portfolio optimization models, such as the Modern Portfolio Theory (MPT), without adequately considering the dynamic nature of today's financial markets. Limited research has examined the integration of artificial intelligence (AI), machine learning, big data analytics, and robo-advisory services in portfolio construction and management. Additionally, many studies focus on institutional investors, while comparatively fewer investigate the portfolio management practices, financial literacy, and investment behavior of retail investors, particularly in emerging economies like India. There is also a lack of comprehensive studies evaluating the impact of macroeconomic variables, geopolitical events, market volatility, ESG (Environmental, Social, and Governance) investing, and behavioral biases on portfolio performance. Furthermore, limited longitudinal research has assessed the long-term effectiveness of diversified portfolios across different market cycles. Therefore, future research should integrate traditional financial theories with technological innovations, behavioral finance, and sustainable investment practices to develop more adaptive and efficient portfolio management strategies suited to the evolving investment landscape.

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Rather than trying to beat the market, portfolio managers that subscribe to this philosophy typically favour passive investment strategies like index funds.

OBJECTIVES OF THE STUDY

- - In order to assess the risk-reward relationships between various portfolio combinations.
- The goal is to evaluate the diversity advantages provided by every portfolio.
- In order to assess the degree of association between stocks in every portfolio.
- In order to help investors choose investment portfolios that are suitable for their risk appetite and long-term goal.

DATA ANALYSIS AND INTERPRETATION

STATEMENT SHOWING THE RISK AND RETURN OF CHEMBOL CHEMICALS LIMITED

Date	Open	Close	Return	Avg Returns	Differences	D^2
28-Mar-25	473.60	480.00	1.3333	-0.4768	1.8101	3.2766
27-Mar-25	491.85	471.20	-4.3825	-0.4768	-3.9056	15.2540
26-Mar-25	494.30	484.80	-1.9596	-0.4768	-1.4828	2.1986
22-Mar-25	470.30	494.30	4.8554	-0.4768	5.3321	28.4318
21-Mar-25	472.40	470.20	-0.4679	-0.4768	0.0089	0.0001
20-Mar-25	479.70	470.05	-2.0530	-0.4768	-1.5762	2.4843
19-Mar-25	463.90	477.60	2.8685	-0.4768	3.3453	11.1910
18-Mar-25	470.10	461.55	-1.8525	-0.4768	-1.3757	1.8925
15-Mar-25	472.70	465.70	-1.5031	-0.4768	-1.0263	1.0533
14-Mar-25	447.00	470.45	4.9846	-0.4768	5.4614	29.8267
13-Mar-25	463.10	447.05	-3.5902	-0.4768	-3.1134	9.6933
12-Mar-25	479.00	460.80	-3.9497	-0.4768	-3.4729	12.0608
11-Mar-25	488.10	481.60	-1.3497	-0.4768	-0.8729	0.7619
07-Mar-25	485.05	481.85	-0.6641	-0.4768	-0.1873	0.0351
06-Mar-25	496.00	483.05	-2.6809	-0.4768	-2.2041	4.8580
05-Mar-25	497.00	495.80	-0.2520	-0.4768	0.2348	0.0551
04-Mar-25	502.80	500.45	-0.4696	-0.4768	0.0072	0.0001
02-Mar-25	507.40	507.90	0.0984	-0.4768	0.5752	0.3309
01-Mar-25	505.20	500.85	-0.8685	-0.4768	-0.3917	0.1535
29-Feb-25	501.00	505.25	0.8412	-0.4768	1.3180	1.7370
28-Feb-25	521.00	504.35	-3.3013	-0.4768	-2.8255	7.9777
27-Feb-25	531.00	522.10	-1.7047	-0.4768	-1.2279	1.5076
26-Feb-25	532.55	528.40	-0.7854	-0.4768	-0.3086	0.0952
23-Feb-25	495.00	528.00	6.2500	-0.4768	6.7268	45.2597
22-Feb-25	495.25	494.90	-0.0707	-0.4768	0.4061	0.1649
21-Feb-25	506.65	495.25	-2.3019	-0.4768	-1.8251	3.3309
20-Feb-25	514.40	511.70	-0.5277	-0.4768	-0.0509	0.0026
19-Feb-25	513.80	511.80	-0.3908	-0.4768	0.0860	0.0074
16-Feb-25	497.90	511.25	2.6112	-0.4768	3.0880	9.5360

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15-Feb-25	495.10	496.25	0.2317	-0.4768	0.7085	0.5020
14-Feb-25	494.90	502.75	1.5614	-0.4768	2.0382	4.1543
13-Feb-25	485.75	497.40	2.3422	-0.4768	2.8190	7.9466
12-Feb-25	502.00	480.00	-4.5833	-0.4768	-4.1065	16.8637
09-Feb-25	511.65	510.65	-0.1958	-0.4768	0.2810	0.0789
08-Feb-25	490.00	504.10	2.7971	-0.4768	3.2739	10.7181
07-Feb-25	510.00	488.50	-4.4012	-0.4768	-3.9254	15.4012
06-Feb-25	523.00	508.65	-2.8212	-0.4768	-2.3444	5.4962
05-Feb-25	532.60	527.70	-0.9286	-0.4768	-0.4518	0.2041
02-Feb-25	523.05	529.70	1.2554	-0.4768	1.7322	3.0006
01-Feb-25	538.10	520.35	-3.4112	-0.4768	-2.9344	8.6105
31-Jan-25	538.35	535.40	-0.5510	-0.4768	-0.0742	0.0055
30-Jan-25	546.10	533.00	-2.4578	-0.4768	-1.9810	3.9253
29-Jan-25	561.55	545.85	-2.8762	-0.4768	-2.3995	5.7574
25-Jan-25	585.00	562.05	-4.0833	-0.4768	-3.6065	13.0067
25-Jan-25	550.00	569.75	3.4664	-0.4768	3.9432	15.5490
23-Jan-25	560.40	547.55	-2.3468	-0.4768	-1.8700	3.4970
20-Jan-25	571.90	557.65	-2.5554	-0.4768	-2.0786	4.3205
19-Jan-25	576.00	564.55	-2.0282	-0.4768	-1.5514	2.4068
18-Jan-25	561.35	570.05	1.5262	-0.4768	2.0030	4.0119
17-Jan-25	564.00	556.10	-1.4206	-0.4768	-0.9438	0.8908
16-Jan-25	580.80	567.05	-2.4258	-0.4768	-1.9480	3.7949
15-Jan-25	590.00	580.80	-1.5840	-0.4768	-1.1072	1.2260
12-Jan-25	584.80	585.95	0.1963	-0.4768	0.6731	0.4530
11-Jan-25	593.80	584.70	-1.5564	-0.4768	-1.0796	1.1655
10-Jan-25	600.00	585.15	-2.5378	-0.4768	-2.0610	4.2578
09-Jan-25	604.30	605.00	0.1157	-0.4768	0.5925	0.3511
08-Jan-25	604.95	599.60	-0.8923	-0.4768	-0.4155	0.1726
05-Jan-25	583.60	605.40	3.6009	-0.4768	4.0777	16.6278
04-Jan-25	571.70	573.50	0.3139	-0.4768	0.7907	0.6251
03-Jan-25	546.30	571.30	4.3760	-0.4768	4.8528	23.5494
02-Jan-25	557.00	550.75	-1.1348	-0.4768	-0.6580	0.4330
01-Jan-25	530.00	556.25	4.7191	-0.4768	5.1959	26.9973
						399.1561

Variance = ∑D^2/(n-1)
= 399.1561/61
= 6.5435
Risk = √variance
= √6.5435
= 2.5580
Coefficient of Variance = Risk / Avg Returns
= 2.5580/-0.4768

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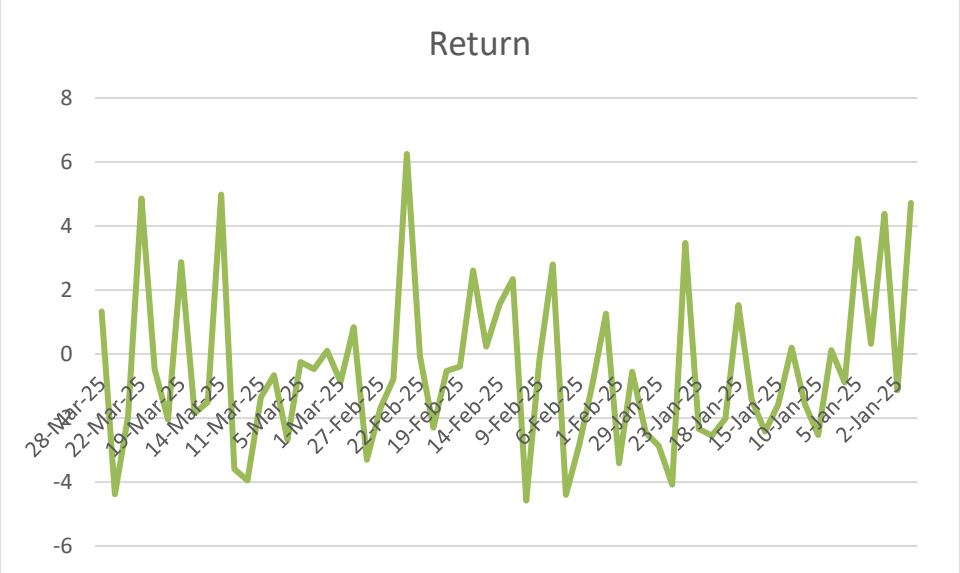
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= -5.3651

Graphical Representation



INTERPRETATION

Everything mentioned above is CHEMBOL CHEMICALS LIMITED's risk and return for the three months beginning on January 1, 2025, and ending on March 28, 2025. With a variance of 6.5435, a risk of 2.5580,00, and a coefficient of variance of -53651, the company's average return is -0.4768.

It is recommended that the investor purchase the stock for 447.05 on March 13, 2025, and sell it at 605.40 on January 5, 2025.

FINDINGS

- With a variance of 6.5435, a risk of 2.5580,00, and a coefficient of variance of -53651, CHEMBOL CHEMICALS LIMITED has an average return of -0.4768. With a return average of -0.5727, variance of 6.6394, risk of 2.5767, and coefficient of variance of -4.4991, GREENPLY INDUSTRIES LIMITED is a risky investment. When these two variables are combined, the resulting correlation coefficient is 0.459267629. The return on the portfolio is -0.52575634, while the risk is 2.1929.

- The average return, variance, risk, and coefficient of variation for ITC LIMITED are -0.4053, 1.5184, 1.2322, and -3.0400, respectively. There is a correlation coefficient of 0.3396 between the following variables: average return(-0.3971), variance(5.4296), risk(2.3301), and coefficient of variance (-5.8685) for INDIA GLYCOLS LIMITED. There is a portfolio risk of 1.4913 and a return of -0.4011.

- The SAFARI INDUSTRIES LIMITED features a coefficient of variance of -5.4469, a risk of 2.0435 and an average return of -0.3752. The variance is 4.1759. With a coefficient of variation of 66.7605, an average return of 0.0383, and a variance of 6.5283, KFIN TECHNOLOGIES LIMITED carries a risk of 2.5551. When these two variables are combined, the resulting correlation coefficient is 0.4758. With a portfolio risk of 2.2209 and returns of -0.2067

SUGGESTIONS

Here are some recommendations for investors thinking about these portfolios based on the data that is available:

Portfolio 1 provides a respectable return with a small amount of risk. The diversification benefits of this portfolio make it a potential option for investors looking for a balanced approach.

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There is the least amount of danger associated with Portfolio 2. Despite the somewhat lower return, this portfolio offers consistency, making it a good choice for investors approaching retirement age or with a cautious risk appetite.
The third portfolio carries the most risk but also the greatest possible profit. This portfolio may appeal to investors who are willing to take more risks in pursuit of aggressive growth, but they should be aware that it is more volatile than average.
Think about the trade-off between risk and return that fits your investing goals and comfort level. You should evaluate your risk tolerance before making a decision because riskier portfolios usually have higher returns.
Remember that each portfolio's equities have their own unique correlation coefficient. Because equities with lower correlations are less likely to move in tandem, diversity is better.

CONCLUSION

We see a range of risk-return profiles suited to different investor tastes and goals when we look at the offered portfolio combinations. Combining CHEMBOL CHEMICALS LIMITED with GREENPLY INDUSTRIES LIMITED creates Portfolio 1, which provides an even distribution of risk and reward. Those looking for a moderately risk-free investment with moderate growth potential should consider it, since its correlation coefficient suggests some diversification benefits. With a focus on lower risk and modest return, Portfolio 2 brings together ITC LIMITED and INDIA GLYCOLS LIMITED. For conservative investors seeking portfolio stability, this option is a good fit because the correlation coefficient indicates some degree of diversity.
The third portfolio, which includes the merger of SAFARI INDUSTRIES LIMITED and KFIN TECHNOLOGIES LIMITED, shows a greater degree of risk with the possibility of greater reward. This investment opportunity is attractive to risk-takers looking for rapid development since, despite its increased volatility, the correlation coefficient suggests diversification benefits.Investors should consider their personal financial objectives, level of comfort with risk, and time horizon when making their pick. To keep up with changing market dynamics and individual goals, it is vital to review and alter the selected portfolio on a regular basis. The intricacies of building and managing a portfolio can be overwhelming without the customised insights and advice that a financial advisor can give.

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