

EVALUATING THE PERFORMANCE OF INSURANCE COMPANY INVESTMENT PORTFOLIOS

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Abstract— Investment portfolios play a critical role in the overall financial health and profitability of insurance companies. Given the capital-intensive nature of the insurance business, insurers rely heavily on investment income to support underwriting operations, meet policyholder obligations, and enhance shareholder value. In a highly competitive and regulated environment, the ability of an insurance company to manage its investment portfolio efficiently becomes a key differentiator. This article focuses on evaluating the performance of insurance company investment portfolios across different competitors, with the aim of understanding portfolios return, risk assessment, financial ratios via portfolio returns. By comparing four insurance company, the study seeks to identify variations in. The evaluation draws on both descriptive and analytical research designs to provide a clear picture of portfolio structure and performance, as well as deeper insights into the factors driving differences among competitors. The findings of this research will offer valuable implications for portfolio managers, institutional investors, and insurance regulators by highlighting best practices in investment management within the insurance sector. It will also contribute to the broader financial literature by offering a comparative performance analysis that reflects real-world portfolio strategies and outcomes.

Key words—Insurance, Portfolio, Finance, Risk Management.

I. INTRODUCTION

Insurance is a financial mechanism that provides risk management by offering protection against potential financial losses resulting from unforeseen events. It operates on the principle of pooling resources where policyholders pay premiums in exchange for coverage, thereby mitigating individual financial burdens. As a vital element of modern economies, insurance facilitates stability, promotes investment, and supports economic growth by enabling individuals and businesses to manage risks effectively. The objectives of this research paper are to evaluate the returns generated by insurance company investment portfolios, analyze the risk levels associated with different asset classes, compare to portfolio performance via financial ratios. Additionally, the study aims to evaluate portfolios return, risk assessment, financial ratios via portfolio returns.

II. REVIEW OF LITERATURE

Recent research underscores the evolving investment strategies of insurance companies, particularly in integrating Environmental, Social, and Governance (ESG) considerations and addressing emerging risks like cyber threats. In 2024, P. Nithya and C.D. Nandakumar proposed that health insurance firms allocate 20% of their portfolios to ESG-compliant equities. Utilizing the Black-Litterman model, their study demonstrated that such diversification can enhance profitability and stability for risk-averse insurers by evaluating 20 ESG leaders and creating four portfolios to assess their suitability. In the real of cyber risk, Hillairet and Lopez (2021) developed a framework to anticipate the impact of massive cyber-attacks on insurance portfolios. Their approach employs compartmental epidemiological models, akin to those used in infectious disease modeling, to simulate the spread of cyber incidents and assess the effectiveness of countermeasures. This methodology allows for Gaussian approximations and provides sharp confidence bounds for potential losses, offering insurers a tool to quantify and mitigate cyber risks. Additionally, Maja's 2022 study delves into the investment structures of insurance companies in Bosnia and Herzegovina, Croatia, Slovenia, and Serbia. The research emphasizes the importance of balancing return and risk, adhering to principles of security, liquidity, profitability, and stability. It also highlights the regulatory frameworks, particularly the Solvency regimes, that govern investment portfolios in these countries, ensuring that insurers maintain sufficient funds to cover potential claims. Collectively, these studies illustrate a shift in insurance investment strategies towards more diversified and risk-aware approaches, integrating ESG factors and advanced modeling techniques to navigate the complexities of modern financial and operational risks.

III. RESEARCH METHODOLOGY

The research methodology describes the systematic way to study the problem and reach objectives. It includes design, data collection, analysis, and interpretation methods, justified by research questions and data type. It ensures rigor, reliability, and validity. The research design of the study, investment portfolio evaluation looks at the performance, risk, and efficiency of portfolios over time. It uses both descriptive and analytical research designs for a complete understanding of the data and investment results. The descriptive research design collects and summarizes data on portfolio returns, asset allocations, and other performance metrics. It includes components like return profiles, risk indicators, performance benchmarking, and trend analysis. The analytical research design goes further by exploring reasons for portfolio performance, testing hypotheses, and assessing relationships between variables to determine statistical significance. secondary data, sourced from previously published annual reports and regulatory disclosures by the Insurance Regulatory and Development Authority (IRDA). The study compares the investment portfolio performance of four

public sector insurance companies, using reliable data from official sources. The data collection process involves downloading annual reports and disclosures, extracting and tabulating relevant information in Excel, computing performance indicators, and citing all sources to ensure transparency. The most suitable sampling method for this study is purposive sampling, also known as judgmental sampling, which is a type of non-probability sampling. This method is appropriate because the research specifically targets insurance companies with publicly available investment portfolio data. The chosen companies must disclose financial information, have similar operational characteristics, and possess relevance in scale, investment strategy, and risk profile for effective comparisons. For analysis of data, using two data analysis tools: Financial Ratio Analysis, Risk Analysis. The study period spans the past five years, focusing on data analysis to identify trends and patterns of consistency.

IV. ANALYSIS AND INTERPRETATION

4.1 Evaluation of Insurance Portfolio Returns

4.1.1 Return on Investment:

Return on Investment (ROI) is a financial metric used to evaluate the efficiency or profitability of an investment. It measures the gain or loss generated relative to the amount of money invested.

Table 4.1.1 Analysis of return from investment in last 5 years

S. No.	Company	Return on Investment %				
		2024	2023	2022	2021	2020
1	Oriental Insurance Company Ltd.	0.12	(14.44)	(11.48)	(64.18)	(41.92)
2	New India Assurance Company Ltd.	1.86	1.87	0.31	3.21	3.24
3	National Insurance Company Ltd.	(0.69)	(13.57)	(6.03)	(2.09)	(17.33)
4	United India Assurance Company Ltd.	(2.09)	(7.82)	(5.81)	(2.81)	(5.21)



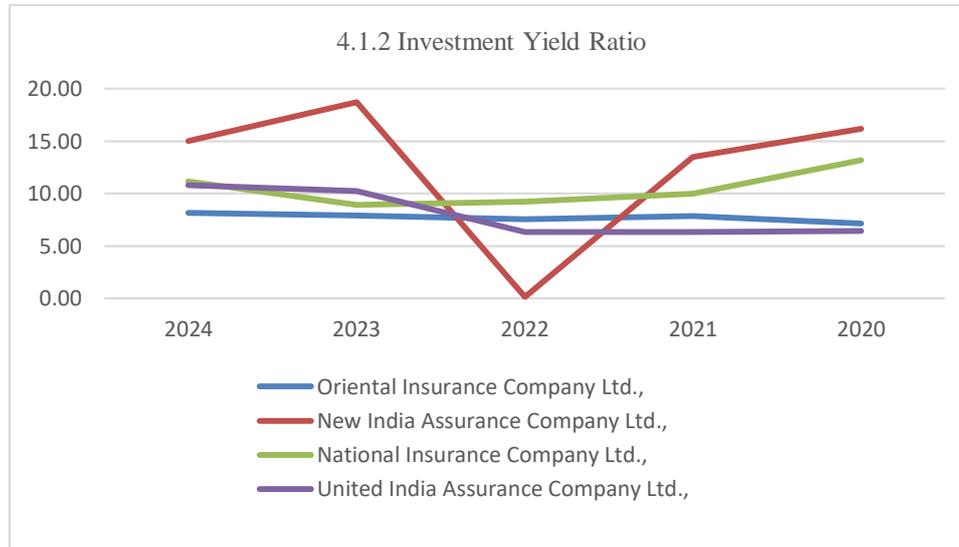
Interpretation: It is inferred from table 4.1.1 and graph 4.1.1, Oriental Insurance Company Ltd. faced severe losses in 2020 and 2021, with slight recovery in 2024, showing marginally positive ROI, but overall weak performance. New India Assurance Company Ltd. maintained consistently positive ROI, indicating stable and moderate returns. National Insurance Company Ltd. showed continued negative ROI, though losses lessened in 2024, suggesting slight improvement. United India Assurance Company Ltd. showed persistent negative ROI with less volatility, showing minimal signs of recovery. Best Performer goes to “New India Assurance Company Ltd.,” stands out with consistent positive ROI, indicating effective investment strategies and operational efficiency. Companies facing challenges Oriental Insurance, National Insurance, and United India Insurance have encountered persistent financial difficulties, primarily due to underwriting losses and capital constraints.

4.1.2 Investment Yield Ratio:

The investment yield ratio, also known as the return on investment (ROI) or yield on investment, measures the return generated by an investment relative to its cost. It helps investors evaluate the profitability of their investments.

Table 4.1.2 Analysis of investment yield in last 5 years

S. No.	Company	Investment Yield Ratio %				
		2024	2023	2022	2021	2020
1	Oriental Insurance Company Ltd.	8.19	7.92	7.56	7.87	7.15
2	New India Assurance Company Ltd.	15.04	18.74	0.13	13.49	16.17
3	National Insurance Company Ltd.	11.15	8.93	9.24	9.98	13.17
4	United India Assurance Company Ltd.	10.83	10.26	6.32	6.32	6.45



Interpretation: It is inferred from table 4.1.2 and graph 4.1.2, Oriental Insurance Co., shown a gradual increase from 7.15% (2023) to 8.19% (2024). New India Assurance Co., displays high volatility, peaking in 2023 (18.74%) and 2020 (16.17%). National Insurance Co. indicates fluctuating returns, with recovery starting in 2022 and rising to 11.15% in 2024. United India Assurance Co., shown stable performance with slight growth, ranging from 6.32% (2021) to 10.83% (2024).

4.2 Evaluating Risk Across Insurance Assets

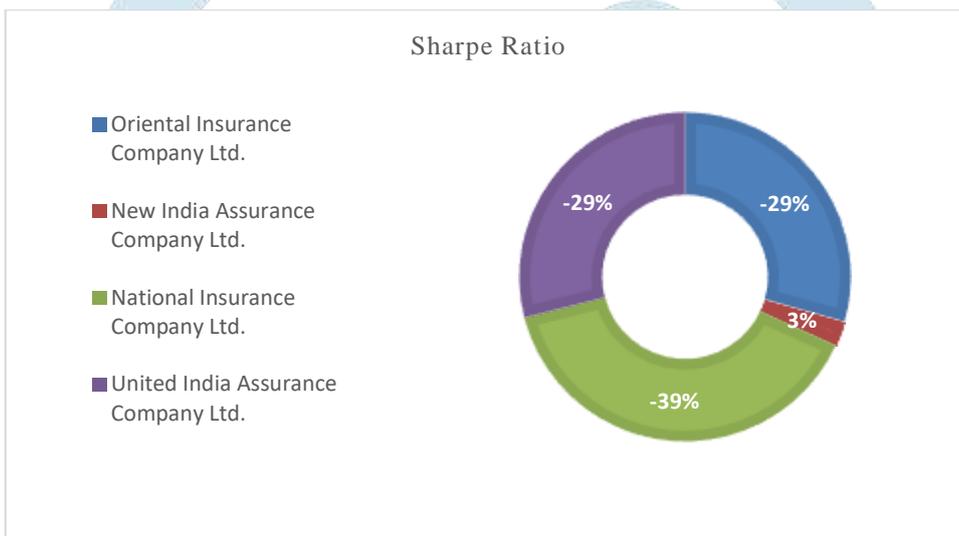
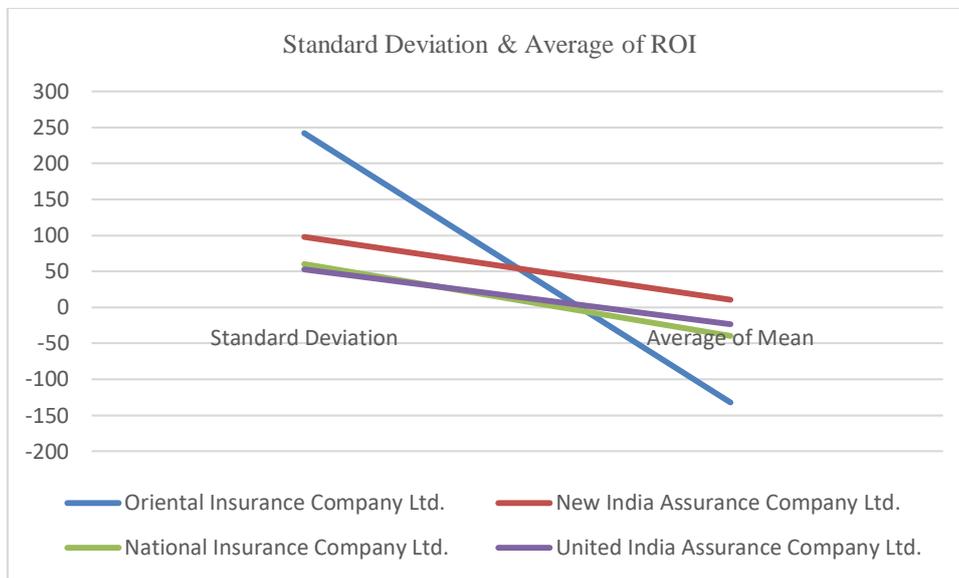
4.2.1 Standard Deviation & Sharpe Ratio

Standard deviation (σ) is a statistical measure that shows how much individual data points in a dataset differ from the mean (average) value.

Sharpe ratio indicates a financial metric that measures how much excess return an investment generates for each unit of risk it takes, helping investors assess the risk-adjusted performance of a portfolio or asset.

Table 4.2.1 Analysis of Standard Deviation & Sharpe Ratio in last 5 years

S. No.	Company	Standard Deviation	Average of mean	Sharpe Ratio
1	Oriental Insurance Company Ltd.	242	(132)	(0.57)
2	New India Assurance Company Ltd.	98	10	0.05
3	National Insurance Company Ltd.	60	(40)	(0.76)
4	United India Assurance Company Ltd.	53	(24)	(0.56)



Interpretation: It is inferred from Table 4.2.1 and above two graph, Oriental Insurance Co. shows high variability and a strongly negative average, indicating inconsistent and poor performance. New India Assurance Co. moderate variability with a slightly positive average, suggesting generally favorable but mixed results. National Insurance Co. is more consistent but has a negative average, reflecting mild underperformance. United India Assurance Co., indicates most consistent, with the least negative average, indicating stable but slightly below-average outcomes. Oriental Insurance Co. shows a negative Sharpe ratio, indicating underperformance versus risk-free returns. New India Assurance Co. indicates near-zero Sharpe ratio, suggesting minimal risk-adjusted returns. National Insurance Co. indicates worst in risk-adjusted performance, with high volatility and losses. United India Assurance Co. also underperformed relative to the risk taken.

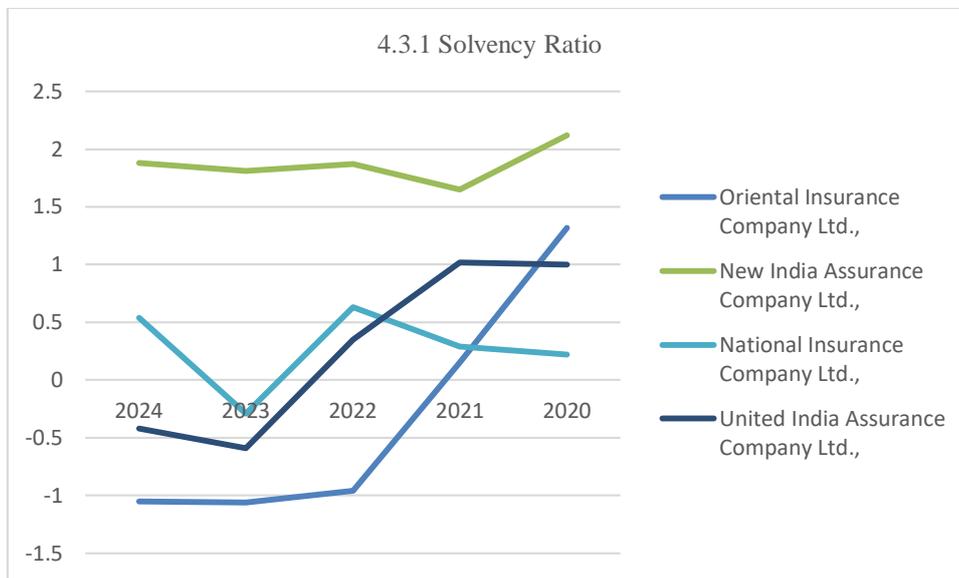
4.3 Evaluating Insurance Portfolios via Financial Ratios

4.3.1 Solvency Ratio

A solvency ratio is a financial metric that measures a company's ability to pay its long-term debts and obligations.

Table 4.3.1. Analysis of Solvency ratio in last 5 years

S. No.	Company	Solvency Ratio %				
		2024	2023	2022	2021	2020
1	Oriental Insurance Company Ltd.	(1.05)	(1.06)	(0.96)	0.15	1.32
2	New India Assurance Company Ltd.	1.88	1.81	1.87	1.65	2.12
3	National Insurance Company Ltd.	0.54	(0.29)	0.63	0.29	0.22
4	United India Assurance Company Ltd.	(0.42)	(0.59)	0.35	1.02	1



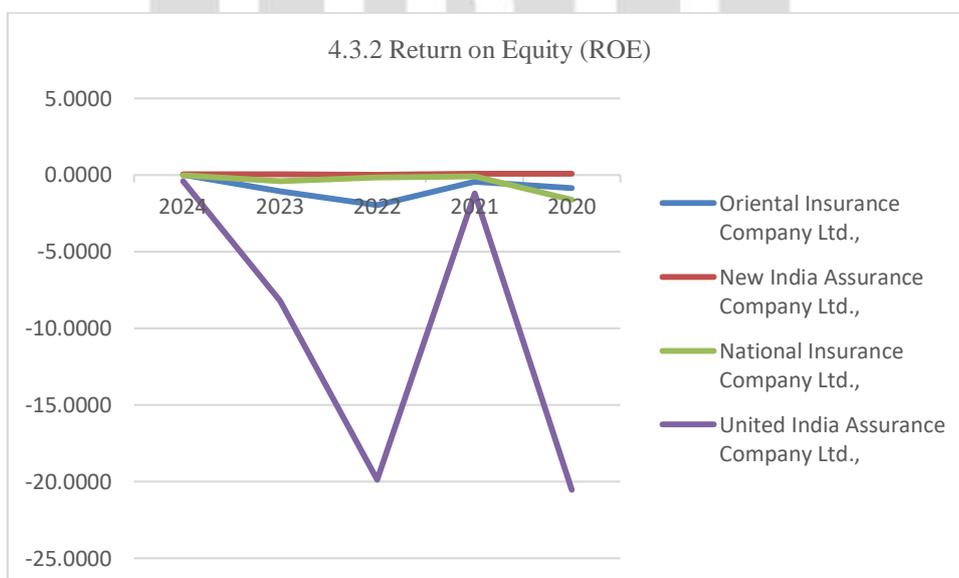
Interpretation: It is inferred from table 4.3.1 and graph 4.3.1, Oriental Insurance Co. shows poor solvency from 2022–2024, with liabilities exceeding assets. New India Assurance Co. maintains strong solvency, indicating solid financial health. National Insurance Co. has consistently weak solvency, especially in 2023, suggesting financial stress. United India Assurance Co. was stable in 2020–2021 but declined to negative solvency by 2023–2024, raising concern.

4.3.2 Return on Equity (ROE)

Return on Equity (ROE) is a financial ratio that measures a company’s profitability in relation to shareholders' equity. It shows how effectively a company is using the money invested by its shareholders to generate profits.

Table 4.3.2. Analysis of Return on Equity (ROI) in last 5 years

S. No.	Company	Return on equity (ROE) %				
		2024	2023	2022	2021	2020
1	Oriental Insurance Company Ltd.	0.0039	(1.05)	(1.98)	(0.43)	(0.84)
2	New India Assurance Company Ltd.	0.050	0.050	0.009	0.083	0.079
3	National Insurance Company Ltd.	(0.02)	(0.41)	(0.18)	(0.09)	(1.63)
4	United India Assurance Company Ltd.	(0.41)	(8.23)	(19.87)	(1.20)	(20.55)



Interpretation: It is inferred from Table 4.3.2 and Graph 4.3.2 that Oriental Insurance Co. demonstrates a gradual improvement in ROE, moving toward breakeven. New India Assurance Co. is the only company with consistently positive ROE, indicating stable financial strength. National Insurance Co., shows a reduction in losses, with ROE trending from deep negatives toward near-zero. United India Assurance Co., faced significant equity losses but shows signs of recovery despite some fluctuations.

4.4 Consolidated of data from analysis financial and ratios:

S. No.	Company	Year	Return on Investment (%)	Investment Yield Ratio (%)	Standard Deviation	Average Return	Sharpe Ratio	Solvency Ratio (%)	Return on Equity (%)
1	Oriental Insurance Company Ltd.,	2024	0.12	8.2	242	(132)	(0.57)	(1.05)	0.0039
		2023	(14.4)	7.9				(1.06)	(1.05)
		2022	(11.5)	7.5				(0.96)	(1.98)
		2021	(64.2)	7.9				0.15	(0.43)
		2020	(41.9)	7.1				1.32	(0.84)
2	New India Assurance Company Ltd.,	2024	1.86	15.04	98	10	0.05	1.88	0.05
		2023	1.87	18.74				1.81	0.05
		2022	0.31	0.13				1.87	0.009
		2021	3.21	13.49				1.65	0.08
		2020	3.24	16.17				2.12	0.07
3	National Insurance Company Ltd.,	2024	(0.69)	11.15	60	(40)	(0.76)	0.54	(0.02)
		2023	(13.5)	8.93				(0.29)	(0.41)
		2022	(6.03)	9.24				0.63	(0.18)
		2021	(2.09)	9.98				0.29	(0.09)
		2020	(17.3)	13.17				0.22	(1.63)
4	United India Assurance Company Ltd.,	2024	(2.09)	10.83	53	(24)	(0.56)	(0.42)	(0.41)
		2023	(7.82)	10.26				(0.59)	(8.23)
		2022	(5.81)	6.32				0.35	(19.97)
		2021	(2.81)	6.32				1.02	(1.2)
		2020	(5.21)	6.45				1.00	(20.55)

New India Assurance Company Ltd. demonstrates consistently positive returns on investment and equity, along with a stable solvency ratio above the regulatory requirement of 1.5%, indicating a relatively strong financial position. National Insurance Company Ltd. shown fluctuating returns, including negative figures in several years. Its solvency ratio dipped below zero in 2023 but recovered in 2024, reflecting some volatility in financial health. Oriental Insurance Company Ltd. reported a positive return on investment in 2024; however, it experienced significant negative returns in previous years. The company's solvency ratio has remained in negative territory since 2022, suggesting potential financial instability. United India Assurance Company Ltd. has reported consistently negative returns on investment and equity over the five-year period, with solvency ratios falling below zero in recent years, pointing to ongoing financial challenges.

4.5 Consolidated Position of four public sector companies:

S. No.	Company	Return on Investment	Investment Yield	Standard Deviation	Sharpe Ratio	Solvency Ratio	Return on Equity
1	Oriental Insurance Company Ltd.,	Most Volatile	Moderate Growth	Highest Risk	Under-performance	Critically Unstable	Recovering from losses
2	New India Assurance Company Ltd.,	Best Performer	Top Performer	Moderate Risk	Moderate Performance	Financially Stable	Consistently Profitable
3	National Insurance	Recovery Potential	Steady Performance	Lowest Risk	Under-Performance	Financially Weak	Weak Performance

	Company Ltd.,						
4	United India Assurance Company Ltd.,	Recovery Potential	Moderate Growth	Higher Risk	Under-Performance	Unstable & Deteriorating	Weak Performance

V. FINDINGS

5.1 Evaluation of insurance portfolio return

New India Assurance Co. shows consistently positive ROI and the highest investment yield (15.04%), making it the top performer. National and United India Assurance show signs of gradual recovery but still lag. Oriental Insurance had the weakest performance but shows improvement in 2024. Oriental Insurance also shows steady growth, indicating relative stability. New India Assurance is the most volatile due to a sharp drop in 2022. United India Assurance had the lowest yields, mostly under 7%, except in 2023–2024.

5.2 Evaluating Risk across Insurance assets

New India Assurance is the only company with a positive Sharpe Ratio (0.05), slightly outperforming risk-free assets. All others have negative Sharpe Ratios, indicating underperformance. National Insurance had the worst risk-adjusted return. These results support earlier findings of New India Assurance as the most consistent performer

5.3 Evaluating Insurance Portfolios via Financial Ratios

New India Assurance is the only company with consistently strong solvency and positive ROE, reflecting solid financial health. National Insurance shows weak solvency and is nearing breakeven ROE. Oriental Insurance is also recovering, with ROE close to breakeven. United India Assurance still struggles but shows slight improvement in 2024.

VI. SUGGESTION

The analysis suggests a need for strategic financial restructuring and improved risk management across underperforming insurance companies. Key recommendations include optimizing investment portfolios, enhancing underwriting and operational efficiency, and focusing on stable, income-generating assets to improve ROI and solvency. Companies showing consistent performance should leverage their strengths for market advantage and growth. Data-driven decision-making, customer experience improvements, and capital support are essential to drive recovery and profitability. For those facing severe challenges, urgent turnaround strategies—including asset reallocation, cost control, and potential mergers—are critical to restore financial health and long-term sustainability.

VII. CONCLUSION

In conclusion, New India Assurance Company Ltd., leads with the highest ROI (15.04% in 2024), positive Sharpe Ratio, strong solvency, and consistent ROE, reflecting solid financial management. Oriental Insurance shows stable recovery and improved ROE with lower volatility, indicating cautious optimism. United India Assurance remains weak with low yields and negative risk-adjusted returns, though recent trends suggest slight improvement. National Insurance struggles the most, with poor returns, weak solvency, and near-zero ROE despite early recovery signs. Overall, New India Assurance clearly outperforms, Oriental Insurance is recovering, while National and United India continue to face challenges.

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