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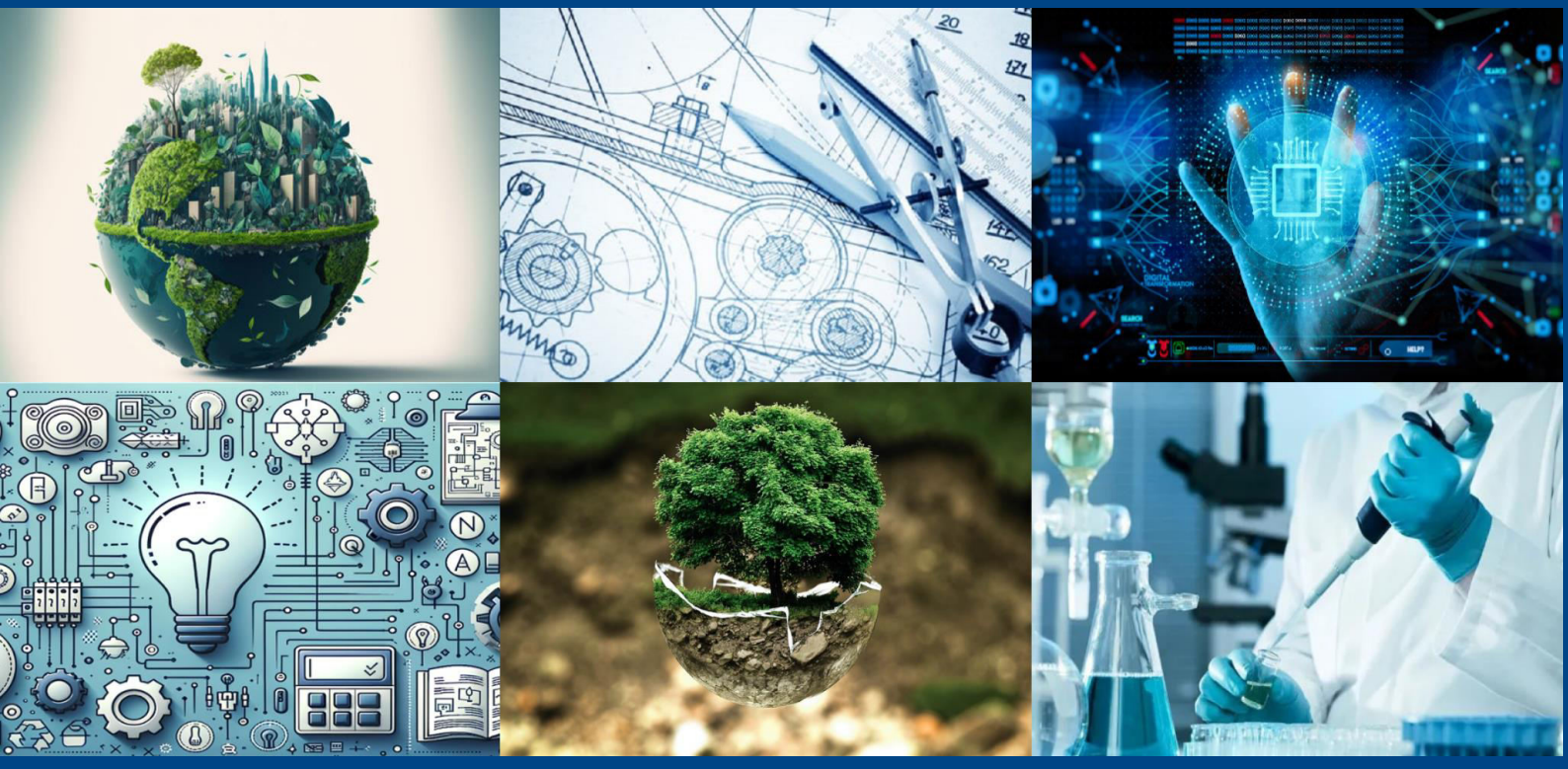

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Risk–Return Dynamics in Equity Investments: A Comparative ROI-Based Analysis

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ABSTRACT: Equity investment plays a vital role in wealth creation and capital market development. Investors continuously seek tools and techniques that help them evaluate the performance of equity investments effectively. Return on Investment (ROI) is one of the most widely used indicators for assessing investment efficiency, as it directly relates profit earned to the capital invested. This research article aims to analyze equity investments with specific reference to ROI by examining the risk-return characteristics of selected companies. The study uses secondary data collected from stock market sources and applies statistical tools such as mean return, variance, standard deviation, and coefficient of variation. The findings indicate that ROI varies significantly across companies and sectors, highlighting the importance of risk assessment, diversification, and informed decision-making. The study concludes that equity analysis based on ROI provides valuable insights for investors and contributes to rational portfolio construction.

KEYWORDS: Equity Analysis, Return on Investment, Risk and Return, Stock Market, Portfolio Management

I. INTRODUCTION

Equity markets are a crucial component of the financial system, enabling companies to raise capital while providing investors with opportunities for wealth creation. Equity investments, though potentially rewarding, are associated with varying degrees of risk due to market volatility, economic conditions, and company-specific factors. Therefore, systematic equity analysis becomes essential for evaluating investment opportunities and minimizing uncertainty.

Equity analysis involves examining financial statements, market trends, industry conditions, and macroeconomic factors to estimate the intrinsic value of stocks. Investors commonly use performance measures such as ROI to evaluate whether an investment has generated adequate returns relative to its cost. ROI serves as a simple yet powerful tool that enables comparison across different investments and time periods.

In recent years, increased market participation by retail investors and heightened volatility have further emphasized the need for sound equity analysis. This study focuses on evaluating equity investments using ROI as a core metric, supported by risk measures such as variance and standard deviation. By analyzing selected companies, the study aims to provide insights into the relationship between risk and return in equity investments.

II. REVIEW OF LITERATURE

Recent studies emphasize the growing importance of risk-adjusted performance evaluation in equity markets. Sheela (2025) analyzed mutual fund performance during 2020–2024 using risk-adjusted measures such as Sharpe Ratio, Treynor Ratio, and Jensen's Alpha. The study revealed that while some funds generated high raw returns, only a limited number sustained superior risk-adjusted performance. The findings highlight that Return on Investment (ROI) alone may not fully capture investment efficiency and must be supported by risk metrics for meaningful interpretation.

Similarly, recent empirical research conducted in 2024 on sectoral equity performance in India examined pharmaceutical, IT, banking, and steel companies using statistical tools such as mean return, variance, standard deviation, and coefficient of variation. These studies found significant variations in risk-return profiles across sectors and concluded that sector-specific economic conditions heavily influence short-term ROI. The research reinforced the importance of diversification and comparative risk analysis in equity evaluation.

Regulatory studies and market analyses published between 2023 and 2024 have also examined retail investor behavior and short-term trading outcomes in Indian stock markets. These reports observed increased participation of retail

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investors and highlighted that short-term speculative strategies often result in inconsistent returns. The findings stress that ROI should be evaluated cautiously, particularly over short time frames, and must be combined with volatility and risk assessment measures.

Malkiel (2019) in *A Random Walk Down Wall Street* argued that stock price movements are difficult to predict consistently due to market efficiency. The study suggests that short-term fluctuations may not reflect intrinsic value, thereby supporting the need for systematic risk-return analysis rather than relying solely on isolated return figures. Brealey, Myers, and Allen (2020) emphasized the role of financial management and valuation principles in investment decision-making. They explained that performance evaluation should incorporate both profitability and risk exposure, aligning with the concept of ROI-based equity analysis supported by statistical risk measures.

Bodie, Kane, and Marcus (2014) discussed investment performance measurement and identified ROI as a basic yet widely accepted indicator of investment efficiency. However, they stressed that ROI must be interpreted in relation to risk and market conditions to provide meaningful insights.Fabozzi (2013) examined equity valuation techniques and risk-return characteristics of financial instruments. The study highlighted that volatility significantly affects investment outcomes and recommended the use of statistical measures such as variance and standard deviation in portfolio evaluation. Damodaran (2012) provided comprehensive insights into investment valuation and return measurement. He emphasized that ROI is a useful performance metric but must be analyzed alongside risk factors, cash flow stability, and sectoral trends for effective investment decisions.

Reilly and Brown (2011) foc used on investment analysis and portfolio management, stressing the importance of systematic equity evaluation using both return and risk indicators. They highlighted diversification as a key strategy to reduce unsystematic risk.Ross, Westerfield, and Jordan (2016) explained the principles of corporate finance and investment risk measurement, emphasizing that higher returns are generally associated with higher risk, though the relationship may not always be proportional.

Fama (1970) introduced the Efficient Market Hypothesis, proposing that stock prices reflect all available information. According to this theory, consistent abnormal returns are difficult to achieve, reinforcing the importance of statistical evaluation of returns and risk.Jensen (1968) evaluated mutual fund performance and introduced risk-adjusted performance measures, demonstrating that portfolio returns must be compared relative to systematic risk exposure.

Sharpe (1964) developed the Capital Asset Pricing Model (CAPM), establishing a theoretical relationship between expected return and systematic risk. The model supports the idea that risk is a fundamental determinant of investment return.Treynor (1965) contributed to risk measurement by focusing on systematic risk and portfolio performance evaluation, strengthening the foundation of risk-return analysis.

Markowitz (1952) introduced Modern Portfolio Theory, which emphasized diversification and the trade-off between risk and return. His framework laid the foundation for quantitative equity analysis using variance and standard deviation.Graham and Dodd (1934) pioneered fundamental analysis, advocating the evaluation of intrinsic value through financial statement analysis. Their work forms the basis for systematic equity assessment and informed investment decision-making.

III. RESEARCH QUESTIONS

1. How effective is ROI in evaluating equity investment performance?
2. What is the relationship between risk and return in equity investments?
3. How do selected companies differ in terms of ROI and risk?
4. Can ROI-based analysis support better investment decisions?

IV. RESEARCH OBJECTIVES

1. To analyze equity investment performance using ROI.
2. To examine the risk-return relationship of selected companies.
3. To compare ROI across different equity investments.
4. To provide recommendations for investors based on the findings.

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V. HYPOTHESIS

H0: There is no significant relationship between risk and ROI in equity investments.
H1: There is a significant relationship between risk and ROI in equity investments.

VI. RESEARCH DESIGN

This section defines the research structure guiding the investigation and analysis of the study objectives.

1. Research Approach
The present study adopts a descriptive and analytical research approach. The descriptive component is used to systematically present and examine the performance of selected equity stocks. The analytical component is applied to evaluate the relationship between risk and return using statistical tools. This combined approach enables a structured comparison of equity investments based on ROI and associated risk measures.

2. Nature of Data
The study is based entirely on secondary data. The data has been collected from reliable stock market sources, including official stock exchange websites and published financial records. Secondary data ensures accuracy, consistency, and reliability in analyzing stock performance over the selected period.

3. Sample Selection
The sample consists of six listed companies selected from different sectors to ensure diversification and meaningful comparison. The selected companies represent industries such as:

- Pharmaceuticals
- Steel
- Automobile components
- Non-Banking Financial Services (NBFC)
- Agrochemicals

The inclusion of companies from varied sectors allows the study to examine sectoral influence on risk-return dynamics and investment performance.

4. Period of Study
The study covers a three-month period from January 2024 to March 2024. Daily stock price data during this period is used for analysis. The selected time frame enables short-term performance evaluation under prevailing market conditions.

5. Variables of the Study
The study considers the following key variables:

- **Daily Returns** – Calculated based on daily price movements.
- **Return on Investment (ROI)** – Percentage return calculated using opening and closing prices.
- **Average Return** – Mean of daily returns during the study period.
- **Variance** – Measures the dispersion of returns from the average.
- **Standard Deviation (Risk)** – Square root of variance; indicates volatility.

6. Tools and Techniques Used
The following statistical tools are applied for analysis:

- Mean
- Variance
- Standard Deviation
- Coefficient of Variation
- Comparative Analysis

These tools help in evaluating performance differences and understanding the risk-return relationship among selected stocks.

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7. Scope of the Study

The study focuses on short-term equity performance evaluation using ROI and risk metrics. It aims to provide insights for investors regarding investment efficiency, volatility, and diversification benefits.

8. Limitations of the Study

- The study is limited to six companies.
- The analysis covers only a three-month period.
- It relies solely on secondary data.
- External macroeconomic factors are not independently analyzed.

VII. DATA ANALYSIS AND INTERPRETATION

This section provides a comprehensive analysis and interpretation of the calculated statistical measures, including ROI, variance, standard deviation, and coefficient of variation, to evaluate the comparative performance, volatility, and risk–return relationship of the selected equity investments.

1. Alembic Pharma Ltd

Alembic Pharma Ltd emerged as the best-performing company among the selected firms during the study period. The company recorded a positive average return (ROI) of 0.3258%, indicating profitability despite market fluctuations. The variance of 6.1610 and standard deviation of 2.4821 suggest moderate volatility in stock prices. The coefficient of variation (7.6176) indicates that the company provided relatively better returns for the level of risk undertaken.

The pharmaceutical sector is generally defensive in nature, as demand for medicines remains stable irrespective of economic cycles. This stability contributed to Alembic Pharma's comparatively consistent performance. The stock is suitable for moderate risk investors seeking steady returns and capital preservation.

2. Exide Industries Ltd

Exide Industries Ltd recorded a negative average return of -0.5390%, indicating losses during the study period. However, the company exhibited lower risk, with a standard deviation of 1.8433, compared to some other firms. The negative coefficient of variation (-3.4193) reflects an unfavorable risk-return trade-off.

The underperformance can be attributed to fluctuations in the automobile sector, rising raw material costs, and competitive pressures. While the stock showed relatively controlled volatility, returns were insufficient to compensate for the risk. Exide Industries may be considered suitable for long-term investors who anticipate recovery in the automobile and energy storage sectors.

3. Jindal Steel & Power Ltd

Jindal Steel & Power Ltd exhibited an average return of -0.2892%, indicating moderate losses. The variance (5.0540) and standard deviation (2.2481) show high volatility, reflecting the cyclical nature of the steel industry. The coefficient of variation (-7.7720) highlights a high level of risk relative to returns.

Steel stocks are highly sensitive to global demand, commodity prices, and economic cycles. During the study period, fluctuations in raw material costs and global uncertainty affected performance. This stock is more suitable for aggressive investors who are willing to tolerate high risk in expectation of future gains.

4. Laurus Labs Ltd

Laurus Labs Ltd reported an average return of -0.1255%, with a variance of 2.8364 and standard deviation of 1.6841. While the risk level is comparatively lower, the coefficient of variation (-13.4156) is the highest among all selected companies, indicating very poor risk-adjusted returns.

The company faced sector-specific challenges, including pricing pressure and earnings uncertainty, which negatively impacted stock performance. Despite lower volatility, the returns did not justify the risk undertaken. Laurus Labs appears unattractive for short-term investors during the study period.

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5. Shriram Finance Ltd

Shriram Finance Ltd recorded a negative average return of -0.3671%, with a standard deviation of 1.7685, indicating moderate risk. The coefficient of variation (-4.8167) suggests inefficiency in the risk-return relationship.

The NBFC sector is sensitive to interest rate movements, regulatory changes, and liquidity conditions. Short-term volatility affected returns; however, Shriram Finance has strong fundamentals and a well-established business model. The stock may be suitable for long-term investors with moderate risk tolerance.

6. UPL Ltd

UPL Ltd showed the lowest average return of -0.5748%, reflecting weak performance during the study period. The risk level (1.7685) is moderate, but the negative coefficient of variation (-4.8167) indicates poor risk-adjusted returns.

Challenges in the agrochemical sector, global demand issues, and cost pressures contributed to underperformance. Although volatility was controlled, the stock failed to generate adequate returns. UPL Ltd appears less attractive for short-term investment based on ROI analysis.

VIII. COMPARATIVE ANALYSIS OF SELECTED COMPANIES

The comparative analysis reveals significant differences in risk-return profiles across the selected companies and sectors. Alembic Pharma Ltd stands out as the best performer, offering positive returns with manageable risk. This confirms the defensive nature of pharmaceutical stocks.

Laurus Labs Ltd recorded the worst risk-adjusted performance, as reflected by its extremely high coefficient of variation. Jindal Steel & Power Ltd showed high volatility, making it suitable only for high-risk investors. Exide Industries Ltd and Shriram Finance Ltd exhibited moderate risk but negative returns, indicating sectoral challenges.

Overall, the analysis confirms that:

- Higher risk does not always guarantee higher returns
- Sectoral factors strongly influence equity performance
- Diversification across industries is essential
- ROI must be evaluated along with risk measures

This comparative evaluation highlights the importance of systematic equity analysis in making informed investment decisions. In addition to individual performance differences, the comparative results highlight the significant impact of sectoral characteristics on equity returns. Defensive sectors such as pharmaceuticals demonstrated relatively stable performance, whereas cyclical sectors like steel exhibited higher volatility and inconsistent returns.

The analysis also indicates that stocks with moderate risk levels did not necessarily generate positive returns during the study period, reinforcing the idea that short-term market conditions and external economic factors play a crucial role in influencing ROI. Therefore, investors must evaluate sector trends, market sentiment, and macroeconomic indicators alongside statistical measures to make informed investment decisions.

Furthermore, the comparative evaluation demonstrates that negative ROI in several companies does not automatically indicate poor long-term potential but may reflect temporary market fluctuations during the selected study period. The presence of moderate standard deviation in some underperforming stocks suggests that volatility alone is not the sole determinant of returns. This observation reinforces the importance of adopting a balanced investment strategy that considers both statistical indicators and fundamental strength.

IX. DATA ANALYSIS AND INTERPRETATION

The following section presents the data analysis of selected companies using Return on Investment (ROI), risk, variance, and coefficient of variation. The analysis is based on daily stock price movements from January 2024 to March 2024. Statistical tools are applied to evaluate the performance and risk-return relationship of each company.

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Company Name	Average Return (ROI %)	Variance	Risk (Std. Deviation)	Coefficient of Variation
Alembic Pharma Ltd	0.3258	6.161	2.4821	7.6176
Exide Industries Ltd	-0.539	3.3978	1.8433	-3.4193
Jindal Steel & Power Ltd	-0.2892	5.054	2.2481	-7.772
Laurus Labs Ltd	-0.1255	2.8364	1.6841	-13.4156
Shriram Finance Ltd	-0.3671	3.1276	1.7685	-4.8167
UPL Ltd	-0.5748	3.1276	1.7685	-4.8167

Calculations Used

1. Return on Investment (ROI):

ROI = (Closing Price − Opening Price) / Opening Price × 100

2. Average Return:

Average Return = Sum of Daily Returns / Number of Trading Days

3. Variance:

Variance = Σ(Return − Average Return)² / N

4. Risk (Standard Deviation):

Risk = √Variance

5. Coefficient of Variation:

Coefficient of Variation = Risk / Average Return

Interpretation of Results

Alembic Pharma Ltd shows a positive average return with moderate risk, indicating stable performance. Exide Industries Ltd and Jindal Steel & Power Ltd show negative average returns, reflecting short-term volatility. Shriram Finance Ltd and UPL Ltd show moderate risk levels but negative returns, indicating sectoral and market-related fluctuations. Overall, the analysis highlights that higher risk does not always ensure higher returns and emphasizes the need for diversification and careful equity selection.

Laurus Labs Ltd exhibits the highest risk per unit of return, making it a high-risk investment during the study period. The analysis evaluates risk and return for selected companies. Average returns indicate profitability, while variance and standard deviation measure risk. The coefficient of variation helps compare risk per unit of return.

The results reveal that companies with higher volatility exhibit greater risk, while stable companies offer moderate but consistent returns. Negative ROI in certain stocks reflects short-term market fluctuations.

X. RESULTS AND DISCUSSION

The study shows that ROI varies significantly across companies. Some firms provide positive returns with moderate risk, while others experience negative returns due to volatility. The findings support the risk-return tradeoff theory, indicating that higher risk does not always guarantee higher returns.

Equity investments are influenced by sector performance, market sentiment, and economic conditions. Investors relying solely on ROI without considering risk may face potential losses.

XI. FINDINGS OF THE STUDY

1. ROI is an effective indicator of equity performance.
2. Risk and return are related but not proportional.
3. Volatile stocks exhibit uncertain ROI.
4. Diversification reduces overall investment risk.
5. Short-term ROI may differ from long-term performance.

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XII. CONCLUSION

The study confirms that the relationship between risk and return is present but not always directly proportional. While certain companies exhibited higher volatility, they did not necessarily generate higher returns, thereby challenging the common assumption that greater risk always results in greater profitability. Sectoral influence, market conditions, and short-term economic fluctuations played a major role in determining stock performance during the period of study.Among the selected companies, defensive sector stocks demonstrated relatively stable performance compared to cyclical sector stocks, which showed greater volatility. This highlights the importance of diversification across industries to minimize unsystematic risk. The comparative analysis further emphasizes that investors must adopt a balanced approach by combining ROI evaluation with statistical risk measures to achieve informed and rational investment decisions.Overall, the study reinforces the significance of systematic equity analysis in portfolio construction. By integrating ROI with risk indicators, investors can better understand investment efficiency, manage volatility, and enhance long-term financial stability.

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