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A Study On Risk And Return Analysis In Gypelite India Pvt.Ltd

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Abstract: This paper evaluates the risk and return characteristics of Gypelite India Pvt. Ltd., a leading manufacturer in the gypsum-based construction materials sector. Using financial data from 2015 to 2024, the study assesses key metrics such as Net Profit, EPS, ROA, and ROE. Quantitative tools like standard deviation, correlation, and ratio analysis were employed. The findings indicate strong positive correlations among profitability metrics, with notable volatility observed in net profits and returns. Strategic recommendations for cost optimization and risk management are provided to enhance long-term performance.

Index Terms - Risk, Return, Financial Ratios, Standard Deviation, Correlation, Gypelite, Investment Analysis.

I.INTRODUCTION

Risk and return are central to financial decision-making. This paper explores their dynamics within Gypelite India Pvt. Ltd., a company operating in the gypsum-based construction materials sector. The goal is to understand how risk and return move together and guide investment choices. . The relationship between risk and return is often direct—higher risk investments tend to offer higher potential returns, while lower-risk investments provide stable but modest returns.

Understanding risk and return analysis is crucial for investors, portfolio managers, and financial analysts as it helps them make informed choices, optimize portfolio performance.

II. LITERATURE REVIEW

Various studies have addressed risk-return analysis across sectors. Authors like Dr. S. Sathyapriya and Florin Aliu emphasized the trade-off principle and diversification benefits. Others explored sector-specific performance metrics, revealing that correlations vary across industries.

III. OBJECTIVE

- To evaluate the profitability and return performance of Gypelite India Pvt.
- To assess the financial risk of the company through analysis of financial ratios
- To analyze the volatility of key performance indicators (Net Profit, EPS, ROA, ROE) over the 5-year period to identify risk patterns.
- To examine the relationship (correlation) between profitability and return indicators to understand how they move together and contribute to investment risk-return decisions..

IV. NEED OF STUDY

- To identify and categorize various financial risks affecting the company's investment decisions.
- To assess the potential returns from different investment options and financial instruments.
- To analyze the correlation between risk levels and expected returns to guide optimal investment choices.
- To provide actionable strategies for minimizing risks while maximizing returns for the company.

V. SCOPE OF STUDY

- This project focuses on analyzing the risk and return characteristics of selected investment options over a specific period. The analysis will be conducted using historical data, applying quantitative techniques like variance, standard deviation, beta analysis, and correlation coefficients. The study will also explore external factors such as market trends, inflation, and interest rates that influence investment performance.
- The scope is limited to specific asset classes, including equities, bonds, and mutual funds, based on the availability of data. The findings will be applicable primarily to the selected market but can provide general insights into risk and return dynamics across similar contexts.

VI. LIMITATION OF STUDY

- Limited availability of accurate and updated financial data.
- Unpredictable economic conditions and sudden market fluctuations.
- The analysis may be limited to a specific period, restricting long-term insights.
- Political, social, or global events may create risks that are difficult to quantify.

VII. RESEARCH METHODOLOGY

The study adopts an analytical research design using secondary data from 2020-2024. Key tools include financial ratios (ROA, ROE, EPS), standard deviation for volatility, and Pearson correlation to measure relationships between financial indicators.

VIII. RESEARCH METHODOLOGY

6.1 Objective 1: Evaluate profitability and return performance

Tools:

- **Return on Equity (ROE)** = Net Profit / Shareholders' Equity
- **Return on Assets (ROA)** = Net Profit / Total Assets
- **Earnings Per Share (EPS)** = Net Profit / Number of Shares
- **Net Profit Margin** = Net Profit / Revenue

Year	Net Profit (₹ Cr)	EPS (₹)	evenue (₹ Cr)	Total Assets (₹ Cr)	uity (₹ Cr)	ROA (%)	ROE (%)	ofit Margin (%)
2020	4	2.23	676	492	193 (18+175)	0.81%	2.07%	0.59%
2021	36	20.22	862	489	224 (18+206)	7.36%	16.07%	4.18%
2022	16	9.02	960	518	235 (18+217)	3.09%	6.81%	1.67%
2023	52	28.9	1,057	503	286 (18+268)	10.34%	18.18%	4.92%

2024	7	4.13	931	536	292 (18+274)	1.31%	2.40%	0.75%

6.2 Objective 2: Assess financial risk using ratios

Tools:

- **Debt-to-Equity Ratio** = Total Debt / Equity
- **Interest Coverage Ratio** = EBIT / Interest Expense
- **Current Ratio** = Current Assets / Current Liabilities
- **Leverage Ratio** = Total Liabilities / Total Assets

Year	Total Debt (₹ Cr)	Equity (₹ Cr)	EBIT (₹ Cr)	Interest (₹ Cr)	Current Assets (₹ Cr)	Current Liabilities (₹ Cr)	Debt-to-Equity Ratio	Interest Coverage Ratio	Current Ratio
2020	170.45	193	18	24	322	129	0.88	0.75	2.5
2021	29.38	224	65	17	322	235	0.13	3.82	1.37
2022	53.31	235	40	14	348	230	0.23	2.86	1.51
2023	5	286	87	7	336	212	0.02	12.43	1.58
2024	4	292	24	7	338	240	0.01	3.43	1.41

6.3 Objective 3: Analyze volatility in performance indicators

Tools:

Standard Deviation of:

- Net Profit
- EPS
- ROA
- ROE

Metric	Mean	Median	Standard Deviation
Net Profit	23	16	18.31
EPS	12.9	9.02	10.15
ROA (%)	4.58	3.09	3.69
ROE (%)	9.11	6.81	6.79

6.4 Objective 4: Correlation between profitability indicators

Step 1: Extract the Data

- Net Profit
- EPS (Earnings Per Share)
- ROA (%)
- ROE (%)

Step 2: Create a Table (DataFrame)

We organized the data into rows and columns (like Excel), which allowed us to process it using tools like Python or Excel.

Step 3: Use the Correlation Formula

To measure the strength and direction of the relationship between variables, we use the Pearson correlation coefficient formula: r = \frac{\text{Cov}(X, Y)}{\sigma_X \cdot \sigma_Y}
Where:

- r = correlation coefficient
- Cov(X,Y) = covariance of variables X and Y
- \sigma_X, \sigma_Y = standard deviation of X and Y

But instead of calculating it manually, we used software to compute this.

Step 4: Use Python to Calculate Correlation

Using a programming tool (Python), we applied the .corr() function, which computes pairwise correlation between the variables.

Step 5: Generate a Heatmap

To visualize the strength of correlation, a color-codedheatmap was created:

- Dark red = strong positive correlation (close to +1)
- Dark blue = strong negative correlation (close to -1)

Step 6: Interpret the Results

From the matrix:

- Net Profit and EPS: 0.9999 (very strong positive)
- ROA and ROE: 0.9919 (very strong positive)
- All correlations > 0.98 → metrics move together in the same direction

Matrix	Net Profit	EPS	ROA	ROE
Net Profit	1	1	1	0.98
EPS	1	1	1	0.98
ROA	1	1	1	0.99
ROE	0.98	0.98	0.99	1

IX. FINDING

- Profitability performance was inconsistent across the 5 years, with 2023 being the peak year for Net Profit, ROE, and EPS.
- The company significantly reduced its debt after 2020, leading to a drop in financial leverage and risk.
- Interest Coverage Ratio improved from a low 0.75 in 2020 to a strong 12.43 in 2023, reflecting enhanced debt-servicing ability.
- Volatility analysis showed high standard deviation in Net Profit and EPS, indicating unstable earnings and potential investment risk.
- Correlation analysis revealed very strong positive relationships between Net Profit, EPS, ROA, and ROE, suggesting high internal financial consistency.
- Liquidity, as reflected in the current ratio, remained healthy throughout, indicating good short-term financial stability.

X. SUGGESTION

- Implement tighter cost controls and margin management to reduce profit volatility and achieve consistent year-on-year earnings.
- Maintain a balanced debt-to-equity ratio by avoiding over-reliance on debt or complete under-leverage, ensuring financial flexibility.
- Channel internal profits into capacity expansion, research and development, and diversification instead of increasing short-term liabilities.
- Identify and invest in gypsum products or markets that offer better margins to boost overall profitability.
- Use predictive analytics and financial planning tools to anticipate risks and plan for demand or supply shifts.
- Regularly assess financial and operational risks, including interest rate and credit risks, and build mitigation strategies.
- Use demand forecasting and inventory optimization techniques to reduce holding costs and improve working capital efficiency.
- Evaluate the performance of fixed assets periodically and lease or scrap underutilized machinery to enhance return on assets.
- Increase financial transparency through regular disclosures and strengthen corporate governance to prepare for future investment or listing opportunities.
- Collaborate with suppliers, distributors, or regional industry players to expand market presence and reduce operational risks.

XI. CONCLUSION

The study concludes that while Gypelite has shown signs of financial growth, risk factors like inconsistent margins must be addressed. A balanced approach to risk management and investment can support long-term profitability and stability.

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