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Research Paper

Comparative Financial Analysis Of Public And Private Power Generation Companies

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Abstract

The power generation sector plays a vital role in supporting economic growth, industrial development, and energy security. In recent years, both public and private power generation companies have adopted different operational and financial strategies to improve efficiency, profitability, and long-term sustainability. This study presents a comparative financial analysis of selected public and private power generation companies by evaluating their financial performance over a defined period using key financial indicators. The analysis focuses on profitability, liquidity, solvency, operational efficiency, and market performance through financial ratios and trend analysis. Secondary data collected from annual reports, financial statements, and stock exchange disclosures form the basis of the study. The findings highlight the strengths and weaknesses of both sectors, revealing differences in revenue generation, cost management, capital structure, and return on investment. While public sector companies generally exhibit financial stability supported by government backing, private companies tend to demonstrate higher operational efficiency and better profitability due to competitive business practices and effective resource utilization. The study provides valuable insights for investors, financial analysts, policymakers, and corporate managers in understanding the financial health and competitive position of power generation companies. The results also contribute to identifying best financial management practices and strategic areas for improving overall organizational performance in the evolving power sector.

Keywords: Power Generation Companies, Financial Performance, Comparative Financial Analysis, Public Sector Enterprises, Corporate Financial Health.

I. INTRODUCTION

The power generation industry is one of the most significant contributors to the economic development of any nation, providing the electricity required to support industrial production, commercial activities, infrastructure development, and household

consumption. In India, the sector has experienced remarkable transformation due to economic liberalization, increasing private sector participation, technological advancements, and government reforms aimed at improving energy security and operational efficiency. Public sector enterprises such as NTPC and NHPC have

traditionally dominated electricity generation, while private companies including Tata Power, Adani Power, and Torrent Power have expanded their market presence through investments in modern technologies and diversified power generation portfolios. These developments have intensified competition and increased the importance of evaluating the financial performance of companies operating in the sector [5], [9].

Financial analysis is an essential tool for assessing the operational efficiency, profitability, liquidity, solvency, and long-term sustainability of business organizations. Ratio analysis, trend analysis, and comparative financial evaluation enable stakeholders to understand the strengths and weaknesses of companies by examining their financial statements over multiple years. Financial ratios have long been recognized as reliable indicators of organizational performance and financial stability, providing valuable information for investors, creditors, management, and policymakers in making informed decisions [2], [4]. The Balanced Scorecard approach further emphasizes that financial measures remain fundamental indicators of organizational success while complementing broader strategic performance evaluation [3].

The liberalization of the Indian power sector has created a competitive environment where both public and private organizations strive to improve financial performance through better cost management, operational efficiency, technological innovation, and investment strategies. Public sector companies generally benefit from government support, stable financing, and large-scale infrastructure, whereas private companies often demonstrate greater flexibility, faster decision-making, and higher operational efficiency. Consequently, comparing the financial performance of these two sectors provides valuable insights into their competitive strengths, financial resilience, and overall business sustainability [7], [10].

Previous studies have demonstrated that financial performance varies significantly across power generation companies due to differences in capital structure, asset utilization, profitability, and market

conditions. Comparative analyses conducted in India and other countries indicate that private companies frequently achieve higher profitability and operational efficiency, while public enterprises exhibit stronger financial stability because of government ownership and policy support [5], [6], [8]. Research on Indian power companies has also highlighted variations in financial health, stock market performance, and long-term growth prospects among major organizations such as NTPC, NHPC, Tata Power, Power Grid Corporation of India, and Torrent Power [9], [13].

Recent research has further emphasized the growing importance of financial resilience in the electricity sector, particularly during periods of economic uncertainty and energy market volatility. Factors such as renewable energy investments, regulatory reforms, environmental sustainability initiatives, and technological modernization have significantly influenced the financial performance of power generation companies across both developed and emerging economies [6], [11], [12]. These changing market conditions necessitate continuous financial evaluation to identify sustainable growth opportunities and effective financial management practices.

In this context, the present study, "Comparative Financial Analysis of Public and Private Power Generation Companies," aims to evaluate and compare the financial performance of selected public and private power generation companies using key financial ratios and trend analysis. By examining profitability, liquidity, solvency, efficiency, and overall financial health, the study seeks to identify the relative strengths and weaknesses of each sector. The findings are expected to provide useful insights for investors, financial analysts, corporate managers, and policymakers in understanding the financial position and competitive performance of power generation companies and supporting strategic decision-making in the evolving energy sector [4], [7], [10].

Research Objectives

The primary objective of this study is to conduct a comprehensive comparative financial analysis of selected public and private power generation companies to

evaluate their overall financial performance. The study aims to examine key financial indicators such as profitability, liquidity, solvency, efficiency, and capital structure using financial ratio analysis. By comparing these indicators, the research seeks to determine the financial strengths and weaknesses of both sectors and assess their ability to sustain long-term growth in the competitive power industry.

Another important objective is to analyze the operational efficiency and financial stability of public and private power generation companies over a specified period. The study intends to identify trends in revenue generation, cost management, asset utilization, and return on investment, thereby providing insights into the effectiveness of financial management practices adopted by the companies. This comparison will help in understanding how ownership structure influences financial performance and business sustainability.

The study also aims to evaluate the impact of financial performance on the competitive position of power generation companies in the evolving energy market. It seeks to identify the factors responsible for variations in financial performance between public and private organizations, including investment strategies, capital utilization, and operational efficiency. The findings are expected to assist investors, policymakers, financial analysts, and corporate managers in making informed decisions while contributing to the development of effective financial strategies for improving the overall performance and competitiveness of the power generation sector.

Research Methodology

This study adopts a descriptive and comparative research design to evaluate the financial performance of selected public and private power generation companies. The research is based entirely on secondary data, which is collected from reliable sources such as the annual reports of the selected companies, audited financial statements, stock exchange filings, company websites, reports published by the Ministry of Power, the Central Electricity Authority (CEA), and other authenticated financial databases. The study focuses on comparing the financial performance of representative companies

from both the public and private sectors over a period of five financial years, enabling a systematic assessment of financial trends and performance patterns.

The sample consists of selected public sector companies, such as NTPC Limited and NHPC Limited, and private sector companies, such as Tata Power Company Limited and Adani Power Limited. These companies are selected based on their market presence, availability of financial information, operational significance, and contribution to India's power generation sector. The study examines important financial variables including revenue, net profit, total assets, shareholders' equity, current assets, current liabilities, and long-term liabilities. These variables are used to compute key financial ratios that measure profitability, liquidity, solvency, efficiency, and overall financial health.

To analyze the financial performance, various financial tools and techniques are employed, including ratio analysis, comparative statement analysis, common-size statement analysis, trend analysis, and percentage analysis. Key financial ratios such as the Current Ratio, Quick Ratio, Debt-to-Equity Ratio, Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, Operating Profit Margin, and Asset Turnover Ratio are calculated and compared across the selected companies. The findings are presented using tables, graphs, and charts to facilitate meaningful comparison and interpretation of financial performance over the study period.

The collected data are analyzed using descriptive statistical techniques to identify trends, similarities, and differences in the financial performance of public and private power generation companies. The results are interpreted to evaluate operational efficiency, financial stability, profitability, and long-term sustainability. Based on the analysis, appropriate conclusions are drawn regarding the comparative financial position of the selected companies, and recommendations are provided to improve financial management practices and strengthen the competitiveness of the power generation sector.

II. REVIEW OF LITERATURE

Harry Markowitz (1952): Harry Markowitz introduced the Modern Portfolio Theory (MPT), which emphasizes balancing risk and return through diversification. Although the study primarily focuses on investment portfolios, it established the importance of financial performance evaluation using quantitative measures. The framework has been widely adopted in corporate financial analysis to assess risk-adjusted returns and investment efficiency, making it relevant for evaluating the financial performance of power generation companies.

Edward I. Altman (1968): Altman's research introduced the Z-Score model for evaluating the financial health of organizations using financial ratios. The study demonstrated that profitability, liquidity, leverage, solvency, and efficiency ratios are effective predictors of corporate financial stability. This model remains a widely accepted tool for assessing the financial strength and sustainability of companies across various industries, including the power sector.

Robert S. Kaplan and David P. Norton (1992): Kaplan and Norton proposed the Balanced Scorecard framework, integrating financial and non-financial performance indicators to evaluate organizational success. The study highlighted that financial performance remains a key determinant of business growth while operational efficiency, customer satisfaction, and innovation complement financial outcomes. The framework supports comprehensive performance evaluation in both public and private organizations.

Takayuki Sueyoshi (2005): This study examined the financial performance of electric power companies using ratio analysis. Liquidity, profitability, leverage, and operational efficiency ratios were analyzed to evaluate organizational performance. The research concluded that ratio analysis provides an effective approach for identifying financial strengths and weaknesses, thereby supporting managerial decision-making and long-term strategic planning in the power industry.

M. Saha (2018): The study compared the financial performance of selected Indian power sector organizations using profitability, liquidity, and solvency ratios.

The findings revealed significant differences in financial efficiency among companies due to variations in capital structure, operational practices, and resource utilization. The study emphasized the need for effective financial planning to improve long-term sustainability.

S. K. Tomczak (2019):

This research compared the financial performance of renewable and conventional power generation companies using a hybrid financial evaluation model. The study found that companies investing in renewable energy exhibited stronger long-term financial stability, while conventional firms demonstrated higher short-term profitability. The research highlighted the importance of sustainable investment strategies in improving financial performance.

III. DATA ANALYSIS & INTERPRETATION

Revenue Growth Analysis

The line graph compares estimated revenue growth of selected public and private power generation companies over four years. Public companies show stable growth, while private companies exhibit faster revenue expansion, indicating stronger market responsiveness and business growth.

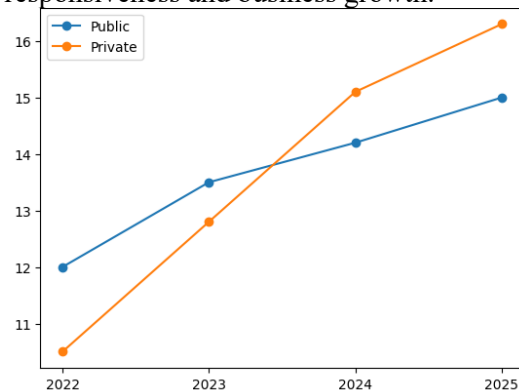


Figure 1: Revenue Growth

Return on Equity Analysis

The bar chart indicates that private power generation companies generate a higher return on equity than public companies, reflecting better utilization of shareholders' funds and comparatively higher profitability.

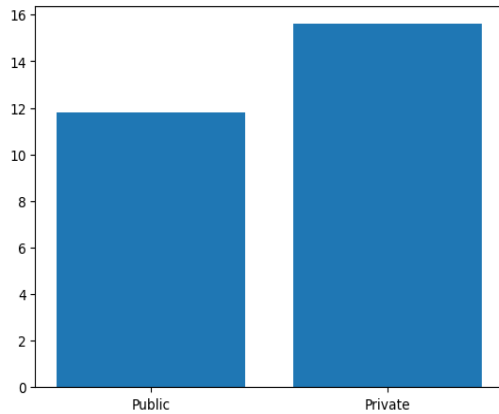


Figure 2: Return on Equity

Debt-to-Equity Analysis

The debt-to-equity comparison shows that public companies maintain relatively higher leverage than private companies. Lower leverage among private firms indicates comparatively stronger financial flexibility and reduced dependence on borrowed capital.

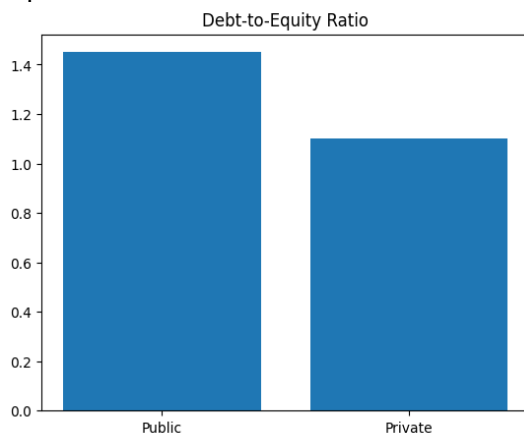


Figure 3: Debt-to-Equity Ratio

IV. FINDINGS

The comparative financial analysis revealed that both public and private power generation companies maintained stable financial performance during the study period; however, their financial strengths differed considerably. Public sector companies demonstrated greater financial stability due to strong government support, consistent cash flows, and relatively lower financial risk. In contrast, private sector companies exhibited higher profitability and better operational efficiency by effectively utilizing their resources, improving productivity, and responding more quickly to changing market conditions.

The analysis of profitability ratios indicated that private power generation companies

generally achieved higher returns on equity, return on assets, and net profit margins than public sector companies. This suggests that private organizations were more successful in generating profits from their investments and shareholders' funds. On the other hand, public companies maintained more consistent earnings and stable financial performance, reflecting their long-term operational sustainability and strategic importance in the energy sector.

The liquidity and solvency analysis showed that public sector companies maintained stronger liquidity positions and were better equipped to meet their short-term financial obligations. However, private companies displayed more efficient capital structures with comparatively lower debt burdens and improved asset utilization. Overall, the study concludes that while public power generation companies excel in financial stability and long-term sustainability, private companies outperform in profitability, operational efficiency, and resource management. These findings indicate that adopting the strengths of both sectors can contribute to improved financial performance and sustainable growth within the power generation industry.

V. CONCLUSION

The comparative financial analysis of public and private power generation companies demonstrates that both sectors play a significant role in ensuring the sustainable growth of the power industry while exhibiting distinct financial characteristics. The study reveals that public sector companies maintain stronger financial stability, better liquidity, and lower financial risk due to government support, established infrastructure, and long-term investment strategies. In contrast, private sector companies achieve higher profitability, improved operational efficiency, and better utilization of financial and physical resources through effective management practices and greater market responsiveness. These differences indicate that ownership structure has a considerable influence on the financial performance and competitiveness of power generation companies.

Furthermore, the analysis highlights that financial ratio analysis serves as an effective tool for evaluating corporate performance

and identifying strengths and weaknesses in financial management. The findings suggest that improving operational efficiency, maintaining an optimal capital structure, controlling costs, and investing in modern technologies can significantly enhance financial performance across both sectors. The study concludes that combining the financial stability of public enterprises with the operational efficiency and innovation of private companies would contribute to a stronger, more competitive, and financially sustainable power generation industry. The results provide valuable insights for investors, policymakers, financial analysts, and corporate managers in formulating strategies that support long-term growth and sustainable development in the energy sector.

VI. FUTURE SCOPE

The present study provides a comparative evaluation of the financial performance of selected public and private power generation companies using financial ratio analysis. Future research can expand the scope by including a larger number of companies from different regions and extending the study period to obtain a more comprehensive understanding of long-term financial trends. Researchers may also incorporate additional financial performance indicators, cash flow analysis, market-based measures, and advanced statistical techniques to improve the accuracy and depth of comparative evaluations. Such studies would provide broader insights into the financial sustainability and competitiveness of the power generation sector.

Future studies can also examine the impact of emerging factors such as renewable energy investments, digital transformation, environmental sustainability initiatives, government policy reforms, carbon reduction strategies, and technological innovations on the financial performance of power generation companies. Comparative analyses involving international power companies and cross-country financial benchmarking may further enhance the understanding of global best practices. Additionally, integrating predictive analytics, artificial intelligence, and machine learning techniques into financial performance evaluation can support more

accurate forecasting, risk assessment, and strategic decision-making, thereby contributing to the long-term growth and resilience of the power generation industry.

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