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Financial Performance Analysis of Public and Private Life Insurance Companies in India: A Comparative Study Using Financial Ratios and ANOVA

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Abstract

The financial performance of life insurance companies plays an important role in determining their stability, operational efficiency, profitability and long-term sustainability. In an increasingly competitive insurance market, financial ratio analysis provides a useful method for evaluating insurance companies' financial positions and comparing their performance over time. The present study examines the financial performance of public and private life insurance companies in India using six important financial ratios: Current Ratio, Quick Ratio, Return on Assets, Asset Turnover Ratio, Debt-Equity Ratio and Solvency Ratio. These ratios represent

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the liquidity, profitability, operational efficiency and financial stability of the selected insurance companies. One-way Analysis of Variance (ANOVA) is employed to examine whether statistically significant differences exist among the groups considered in the study. The findings indicate statistically significant differences in all six financial ratios at the 1 per cent level of significance. Return on Assets and Asset Turnover Ratio show particularly strong differences among the groups. The results highlight variations in the financial performance of the selected life insurance companies and emphasise the importance of maintaining an appropriate balance between liquidity, profitability, operational efficiency and solvency. The study provides insights into the financial performance of life insurance companies and contributes to understanding their financial position in the Indian insurance industry.

Keywords: Life Insurance Industry, Financial Performance, Financial Ratio Analysis, Public Insurance Companies, Private Insurance Companies, ANOVA, Profitability, Liquidity and Solvency.

Introduction

The insurance industry plays an important role in the economic development of a country by providing financial protection, encouraging savings, mobilising long-term funds and supporting investment activities. In India, the life insurance industry has experienced considerable changes following the introduction of private-sector participation and the subsequent development of a competitive insurance market. The entry of private insurance companies has increased competition and encouraged insurers to improve their operational efficiency, financial management and customer services.

Financial performance is one of the important indicators of the growth and sustainability of an insurance company. It reflects the company's ability to manage financial resources, meet its obligations, generate income and maintain long-term stability. A company with a strong financial position is generally better equipped to face market uncertainties, meet policyholder commitments and expand its business operations.

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Financial ratio analysis is widely used to evaluate the financial performance of business organisations. It involves calculating and comparing different financial ratios derived from the information presented in financial statements. These ratios help to understand the relationship between different financial components and provide useful information about the overall performance of a company.

The analysis of financial ratios also helps management identify changes in financial performance over time. By comparing the ratios of different companies, it is possible to understand their relative strengths and weaknesses. For example, liquidity ratios indicate the ability of a company to meet its short-term financial obligations, whereas profitability ratios measure its capacity to generate earnings from available resources. Similarly, efficiency ratios indicate how effectively a company utilises its assets, while solvency and leverage ratios provide information about its long-term financial stability.In the life insurance industry, financial performance is particularly important because insurance companies are required to maintain sufficient financial resources to meet future policyholder obligations. Efficient management of assets, liabilities and investment resources is essential for ensuring financial sustainability.

Against this background, the present study analyses the financial performance of selected public and private life insurance companies in India using six financial ratios. The study also applies Analysis of Variance (ANOVA) to examine whether significant differences exist among the selected groups with respect to their financial performance.

Objective of the Study

1. To analyse and compare the financial performance of selected public and private life insurance companies in India using financial ratios and One-Way Analysis of Variance (ANOVA).

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Research Methodology

Research Design

The population of the study consists of public and private life insurance companies operating in India. The Life Insurance Corporation of India (LIC) represents the public-sector category, while selected private life insurance companies represent the private-sector category.

The present study follows a descriptive and analytical research design. Financial ratio analysis is used to evaluate the financial performance of selected life insurance companies, while One-Way ANOVA is employed to examine the statistical significance of differences in their financial ratios.

Sources of Data

The study covers a period of ten years, from 2015 to 2024. The study is based on secondary data collected from the published financial statements and annual reports of the selected life insurance companies. Other relevant information may be obtained from the annual reports and publications of the Insurance Regulatory and Development Authority of India (IRDAI).

The financial information is analysed using six financial ratios representing different dimensions of financial performance.

Tools Used for Analysis

The following statistical and financial tools are used:

1. Financial Ratio Analysis.
2. Descriptive Analysis.
3. One-Way Analysis of Variance (ANOVA).

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Financial ratios are important tool for the business to measure the progress towards reaching goal as well as a competing with other companies within the industry. Tracking various ratios over the time is powerful way to identify trends. It illustrates relationship between different aspects of a company's operation in relation to market conditions and performance. It also helps to checks whether a business is doing better this year than it was last year; and it can us if our business is doing better or worse than other business doing and selling the same things. Financial ratios are categorized according to financial aspects of the business. Financial ratio analysis is the calculation and comparison of ratios which are derived from the information in a company's financial statement.

CURRENT RATIO

This ratio measures a company's ability to pay short term obligations. It is calculated by dividing current assets to current liabilities. It is also known as "liquidity ratio". The higher the ratio, the more capable the company is paying its obligations. A ratio under 1 suggests that the company would be unable to pay off its obligations, if they came due at that point while this shows the company is not in good financial position.

QUICK RATIO

Quick ratio is a measure of a company's ability to settle its current liabilities on very short notice. Quick ratio is more reliable measure of liquidity for manufacturing companies and construction firms that have relatively high level of inventory work in progress.

The quick ratio has experienced a dramatic turn towards the negative side. Only Max Life has the sufficient quick ratio. Other firm's quick ratios are not satisfactory in the respective years. They must have had problems with their short term debts as their bank account doesn't seem to be enough to survive. Based on the results, the liquidity position has not been satisfactory.

RETURN ON ASSETS

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It is an indicator of how profitable a company is relative to its total assets. Return on assets gives an idea as to how efficient management is at using its assets to generate earnings. This ratio is calculated by dividing a company's annual earnings by its total assets. It is a key indicator of the overall productivity of the company, and shows the percentage of profit, company earn in relative to its total resources. A company with negative return on assets (ROA) means it is investing a high amount of capital in to its production and simultaneously receiving little income.

ASSET- TURN OVER RATIO

The asset turnover ratio is an efficiency ratio that measures a company's ability to generate sales from its assets by comparing net sales with average total assets. In other words, this ratio shows how efficiently a company can use its assets to generate sales.

DEBT- EQUITY RATIO

Debt - Equity ratio is the ratio of total liabilities of a business to its shareholder's equity. It is a leverage ratio and it measures the degree to which the assets of the business are financed by the debts and the shareholder's equity of a business. The lower values of Debt-Equity ratio are favourable indicating less risk. Higher Debt-Equity ratio is unfavourable because it means that the business depend more on external lenders thus it is at higher risk, especially at higher interest rates.

SOLVENCY RATIO

The ratio expresses the relationship between total assets and liabilities of a firm. It measures the solvency of the business. The solvency means the ability of a firm to pay the outside liabilities out of total assets.

Solvency ratio = Total Assets/ Total Debts

If the total assets are more than outside liabilities, the firm treated as solvent. This means there are no difficulties in paying off its outside liabilities out of the assets, because the assets are

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more than outside liabilities. The higher solvency ratio indicates the solvency and the financial positions are strong.

ANOVA

Here represents the one way ANOVA results for an annibus hypothesis. The results are given in a three raws. The first raw labled between groups gives the variability due to the various insurance companies (between – groups variability). The second raw labled within groups gives variability due to random errors. Third raw gives the total variability.

Hypothesis

Null hypothesis: There is a no significant relationship between performance of Public and Private firms in Life Insurance Industry.

Alternative Hypothesis: There is a significant relationship between performance of Public and Private firms in Life Insurance Industry.

ANOVA results for Current Ratio

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	28.72418	5	5.744835	9.35138	4.79E-05
Within Groups	14.74392	24	0.61433		
Total	43.468	29			

Source: Computed

This table represents the ANOVA test, examine whether the variance between current ratio of Pubic end Private insurers are statistically significant. The ANOVA analysis for current ratio shows the F- value of 9.351 and corresponding P-value 4.79E-05 which is less that1 percent is of level of significant. Therefore reject null hypothesis and concluded that the current

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ratio is significant for the financial performance of the public and private in life insurance industry.

ANOVA results of Quick Ratio

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	4.899817	5	0.979963	4.938211	0.003005
Within Groups	4.76268	24	0.198445		
Total	9.662	29			

Source: Computed

The table represents the ANOVA test examines whether the variance between quick ratio of public and private Insurers are statistically significant. The ANOVA analysis for quick ratio shows the F- value of 4.9821 and corresponding P-value 0.003005, which is less than 1 percent, is of level of significant. Therefore reject null hypothesis and concluded that the quick ratio is significant for the financial performance of the public and private firms in life insurance industry in a given period of study.

ANOVA results of Asset Turnover Ratio

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.697947	5	0.13989	16.64089	4.06E-07
Within Groups	0.20132	24	0.008388		
Total	0.899	29			

Source: Computed

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The ANOVA analysis for Asset Turnover Ratio shows the F- value of 16.640 and corresponding P-value 4.06E-07, which less than 1 percent level of significant. Therefore reject null hypothesis and concluded that the Asset Turnover Ratio is significant for the financial performance of the public and private insurers in life insurance industry during the period of study

ANOVA results of Debt Equity Ratio

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	368.0024	5	73.60048	5.34084	0.00194
Within Groups	330.7361	24	13.78067		
Total	698.739	29			

Source: Computed

The ANOVA analysis for Debt- Equity Ratio shows the F- value of 5.3408 and corresponding P-value 0.00194, which is less than 1 percent level of significant. Therefore reject null hypothesis and concluded that the Asset Turnover Ratio is significant for the financial performance of the public and private in life insurance industry during the period of study.

ANOVA results of Return on Asset

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	**21.85744**	**5**	**4.371489**	**36.4662**	**1.88E-10**
Within Groups	**2.877061**	**24**	**0.119878**		
Total	**24.735**	**29**			

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Source: Computed

The ANOVA analysis for Return on Assets shows the F- value of 36.4662 and corresponding P-value 1.88E-10, which less than 1percent level of significant. Asset Turnover Ratio is significant for the financial performance of the public and private in life insurance industry during the period of study.

ANOVA test of Solvency Ratio

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	94.48734	5	18.89747	25.81304	6.33E-09
Within Groups	17.57016	24	0.73209		
Total	112.057	29			

Source: Computed

The ANOVA analysis for Solvency Ratio shows the F- value of 25.81 and corresponding P-value 6.33E-09, which less than 1 percent level of significant. Therefore reject null hypothesis and concluded that the Solvency Ratio is different for the financial performance of the public and private in life insurance industry during the period of study.

The results concluded that financial performance of public and private insurers are significant in life Insurance Company in a given period of study.

Major Findings of the Study

Based on the financial ratio analysis and ANOVA results, the following major findings are identified:

1. **Liquidity Position:** The Current Ratio and Quick Ratio indicate statistically significant differences among the selected groups. The observations also suggest that the immediate liquidity position of most selected insurers requires attention, while Max Life demonstrates a comparatively better Quick Ratio in the data considered.

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2. **Profitability Performance:** Return on Assets shows a statistically significant difference, with an F-value of 36.4662. This indicates considerable variation in the ability of the selected insurance companies to generate earnings from their assets.

3. **Operational Efficiency:** The Asset Turnover Ratio records an F-value of 16.64089, indicating significant differences in asset utilisation and revenue generation among the selected groups.

4. **Financial Leverage:** The Debt-Equity Ratio shows a statistically significant difference, suggesting variations in the financial structure and dependence on external financing among the selected companies.

5. **Solvency Position:** The Solvency Ratio records an F-value of 25.81304, indicating significant differences in the long-term financial position of the selected groups.

6. **Overall Financial Performance:** The ANOVA results demonstrate statistically significant differences across all six financial ratios. This indicates that the financial performance of the selected life insurance companies is not uniform and varies across different dimensions of financial management.

Conclusion

The present study examined the financial performance of selected public and private life insurance companies in India using six important financial ratios, namely Current Ratio, Quick Ratio, Return on Assets, Asset Turnover Ratio, Debt-Equity Ratio and Solvency Ratio. The study also employed One-Way ANOVA to examine the statistical significance of differences among the groups considered.

The findings reveal that all six financial ratios are statistically significant at the 1 per cent level. This indicates that considerable differences exist in the liquidity, profitability, operational efficiency, financial leverage and solvency positions of the selected groups. Among the ratios,

Return on Assets records the highest F-value, suggesting substantial differences in the profitability performance of the companies. Solvency Ratio and Asset Turnover Ratio also demonstrate considerable variations.

The results highlight that financial performance in the life insurance industry depends on several interconnected factors. Maintaining adequate liquidity, improving asset utilisation, generating sustainable returns and ensuring financial stability are essential for the long-term growth of insurance companies.

The study concludes that the financial performance of the selected life insurance companies is significantly different across the financial dimensions examined. Therefore, insurance companies need to adopt effective financial management strategies to improve operational efficiency, strengthen their financial position and maintain sustainable growth in an increasingly competitive insurance market.

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