A Pratibha Spandan's Journal

National Journal of Commerce and Management (NJCM)
Peer-Reviewed/Refereed Journal | ISSN 2394-6342 (O)
Volume 13, Issue 01, January-June 2026
http://njcm.pratibha-spandan.org

ANALYSIS OF THE FINANCIAL PERFORMANCE OF LIFE INSURANCE COMPANIES IN INDIA: A CROSS-SECTIONAL AND LONGITUDINAL STUDY

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ABSTRAC

The life insurance sector is a segment of the financial industry that primarily provides protection and security to individuals and their families in the event of the insured's demise or other significant events, such as critical illness or disability. The study will examine five insurance companies, ranked by their Assets Under Management (AUM) as of March 31, 2024. These companies include Life Insurance Corporation of India, SBI Life Insurance Company Ltd., HDFC Life, ICICI Prudential Life Insurance, and Axis Max Life Insurance. Secondary data were collected from the companies' annual reports over ten years, from 2014-2015 to 2023-2024. Various analytical tools have been employed to examine the impact of key financial, operational, persistency, and risk-based performance indicators on the Claim Settlement Ratio of five leading Indian life insurance companies—LIC, SBI Life, HDFC Life, ICICI Prudential, and Max Life. Statistical methods such as Mean, Coefficient of Variation (CV), Compound Annual Growth Rate (CAGR), Trend Analysis, Regression, and One-Way Analysis of Variance (ANOVA) have been utilised in the assessment process. The results indicate that all companies performed well. The study concluded that while the Claim Settlement Ratio (CSR) is shaped by a broad set of financial and operational factors, new-business value creation (VoNB Margin) is the most influential driver. Furthermore, their financial ratios have consistently complied with the regulations set by the Insurance Regulatory and Development Authority of India (IRDAI). This adherence indicates their ability to fulfil maturity obligations and to provide adequate coverage for unforeseen events.

Keywords: *Assets Under Management (AUM), Financial Security, IRDAI.*

INTRODUCTION

Indian life insurers operate in a dynamic environment shaped by regulatory reforms, competitive pressures, and evolving customer expectations. The sector is dominated by a few major players, collectively holding a significant share of the market. To capture the true performance dynamics of the industry, this study focuses on five leading life insurance companies by Assets Under Management (AUM): Life Insurance Corporation of India (LIC), SBI Life Insurance, HDFC Life Insurance, ICICI Prudential Life Insurance, and Max Life Insurance. These companies are the largest and most influential insurers in the Indian market, making them ideal for analysing the determinants of claim-settlement performance.

The life insurance sector plays a vital role in providing financial protection, long-term savings, and risk-mitigation solutions to millions of policyholders in India. Among the various indicators used to evaluate insurer performance, the **Claim Settlement Ratio (CSR)** is widely regarded as the most critical measure of trust and reliability. A consistently high CSR reflects an insurer's ability to honour claims promptly and fairly, thereby strengthening customer confidence and reinforcing the credibility of the insurance ecosystem. As policyholders increasingly rely on CSR to make informed decisions, understanding the factors that influence claim settlement performance has become essential for insurers, regulators, and researchers.

CONCEPTUAL FRAMEWORK

Financial Indicators
(Risk Retention, ROE, VoNB Margin)
↓
Persistency Indicators
(13M_PR, 49M_PR, Conservation)
↓
Cost & Efficiency Indicators
(OPEX_TR, Commission Ratio, TCR)
↓
Risk & Stability Indicator

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(Solvency Ratio)
↓
CLAIM SETTLEMENT RATIO

REVIEW OF LITERATURE

The existing body of research provides substantial insights into the financial and operational performance of insurance companies across different markets. **Sharma & Chowhan (2013)** compared public and private life insurers in India using IRDA data from 2006–07 to 2011–12 and found that LIC continued to dominate the sector. However, private insurers steadily expanded their market presence. **Kaur & Bawa (2013)** analysed 18 life insurance companies between 2007 and 2012 and identified significant relationships between liquidity, solvency, leverage, size, equity capital, and profitability, highlighting that higher capital levels may adversely affect returns. Extending the analysis to an international context, **Mwangi & Murigu (2015)** examined 23 Kenyan general insurers (2009–2012) and reported that leverage, equity capital, and managerial competence positively influence return on assets. In contrast, size and ownership structure show negative associations.

In the Indian context, **Rajasekar & Kumari (2014)** evaluated the performance of the life insurance industry from 2001–02 to 2010–11 using indicators such as premium income, new policies, agent strength, penetration, equity capital, and market share. Their findings highlighted the rapid expansion of private insurers and the sector's overall growth trajectory. Similarly, **Ogieriakhi & G. (2018)** assessed firm-specific determinants of profitability among Nigerian insurers (2009–2017) and concluded that company size and growth significantly shape financial performance. A broader comparative perspective was offered by **Batool & Sahi (2019)**, who analysed 24 insurers from the USA and UK (2007–2016) and found that firm size, leverage, asset turnover, GDP, and oil prices positively influence profitability, while CPI and interest rates exert negative effects. Their study also highlighted favourable associations between liquidity and profitability in the UK market.

Collectively, these studies demonstrate that insurance performance is shaped by a combination of **firm-specific factors** (size, leverage, liquidity, capital structure), **managerial capabilities**, and **macroeconomic conditions** (GDP, inflation, interest rates). The literature consistently underscores the importance of financial strength, operational efficiency, and market structure in determining the competitiveness and profitability of insurance companies across both developed and emerging economies.

RESEARCH OBJECTIVE

To examine the impact of key financial, operational, persistency, and risk-based performance indicators on the Claim Settlement Ratio of five leading Indian life insurance companies—LIC, SBI Life, HDFC Life, ICICI Prudential, and Max Life.

RESEARCH HYPOTHESIS

H0: There is no significant relationship between VoNB Margin and Claim Settlement Ratio.

H1: There is a significant relationship between VoNB Margin and Claim Settlement Ratio.

RESEARCH METHODOLOGY

RESEARCH DESIGN

The research design is "descriptive, and the study is empirical in nature".

SAMPLE SIZE AND SAMPLING TECHNIQUE

As of March 31, 2024, one public-sector and twenty-four (24) private-sector life insurance companies have fulfilled their obligations in the rural and social sectors. Our sample comprises 1 Public Sector and 4 Private Sector Insurance Companies, utilising **purposive sampling**.

DATA COLLECTION

The data were collected from secondary sources, including reports from the Insurance Regulatory and Development Authority of India (IRDA), annual reports of the selected Insurance Companies, and various reputable academic journals.

SAMPLE SELECTION

Sample selection based on Assets Under Management (AUM) is essential as insurers with larger AUM have a greater impact on the life insurance sector's structure and performance. AUM reflects a company's scale, financial strength, investment capacity, and ability to fulfil long-term liabilities. By focusing on AUM, the sample captures the dominant insurers that manage the majority of industry assets, enhancing representativeness and aligning with the economic importance of these key players, while avoiding distortions from smaller firms.

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Name of Insurance Company	Assets Under Management (AUM) as of March 31, 2024
Life Insurance Corporation of India	51,21,887 crores
SBI Life Insurance Company Ltd.	3,88,920 crores
ICICI Prudential Life Insurance Company Ltd.	2,94,140 crores
HDFC Life	2,92,220 crores
Axis Max Life Insurance	1,50,836 crores

PERIOD OF STUDY

The study encompasses ten years from **2014-15 to 2023-24.**

MODE OF ANALYSIS

SIMPLE AVERAGE ANALYSIS

To avoid subjective judgment, weights are avoided, and simple averages are calculated. Simple averages are computed for each life insurance company using the selected components. This approach provides a clear and transparent means of assessing each life insurance company's performance and establishing its relative ranking.

REGRESSION ANALYSIS (INDIVIDUAL_CSR AS DEPENDENT VARIABLE)

The study uses a linear regression model to assess the extent to which these determinants affect life insurers' Claim Settlement Ratio. A linear regression model examines how a dependent variable changes in response to variations in multiple independent variables. It quantifies the direction and strength of each predictor's influence while controlling for the effects of other variables in the model. In this study, multiple linear regression is applied to identify how financial, operational, persistency, and risk-based indicators collectively affect the Claim Settlement Ratio (CSR) of the selected life insurance companies. The regression coefficients help determine which variables significantly contribute to CSR and whether their impact is positive or negative.

ANOVA (Analysis of Variance) within the regression framework is used to test the overall significance of the regression model. While regression coefficients evaluate individual predictors, the ANOVA F-test evaluates whether all predictors, taken together, explain a statistically significant portion of the variation in the dependent variable. A significant F-value indicates that the model provides a better fit than a model with no predictors. In this study, ANOVA confirms whether the combined set of financial, operational, persistency, and risk-related variables meaningfully influences the Claim Settlement Ratio.

Table 1: Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Conservation Ratio, Total Cost Ratio, RETURN ON EQUITY, Solvency Ratio, 13M_PR, 49M_PR, VoNB_Margin, Risk Retention Ratio, Commission Ratio, OPEX_TR[b]	.	Enter

a. Dependent Variable: Individual_CSR

b. All requested variables entered.

Table 2: Model Summary[b]

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate	Durbin-Watson
1	.756a	.572	.462	1.35192	1.393

a. Predictors: (Constant), Conservation Ratio, Total Cost Ratio, RETURN ON EQUITY, Solvency Ratio, 13M_PR, 49M_PR, VoNB_Margin, Risk Retention Ratio, Commission Ratio, OPEX_TR

b. Dependent Variable: Individual_CSR

(Source: Author's own calculation)

Table 3: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95.247	10	9.525	5.211	.000[b]
	Residual	71.279	39	1.828		
	Total	166.526	49			

a. Dependent Variable: Individual_CSR

b. Predictors: (Constant), Conservation Ratio, Total Cost Ratio, RETURN ON EQUITY, Solvency Ratio, 13M_PR, 49M_PR, VoNB_Margin, Risk Retention Ratio, Commission Ratio, OPEX_TR

(Source: Author's own calculation)

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Table 4: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	45.854	42.887		1.069	.292		
	Risk Retention Ratio	.414	.410	.176	1.010	.319	.361	2.767
	RETURN ON EQUITY	.015	.010	.204	1.550	.129	.635	1.575
	13M_PR	-.019	.023	-.104	-.829	.412	.701	1.427
	49M_PR	.076	.052	.236	1.449	.155	.412	2.427
	OPEX_TR	.035	.063	.156	.556	.582	.139	7.185
	Commission Ratio	-.001	.268	-.001	-.005	.996	.220	4.555
	Total Cost Ratio	.230	.157	.512	1.462	.152	.090	11.153
	VoNB_Margin	.124	.050	.391	2.464	.018	.435	2.298
	Solvency Ratio	-.281	.433	-.098	-.650	.519	.482	2.075
	Conservation Ratio	.011	.049	.028	.226	.823	.705	1.418

a. Dependent Variable: Individual_CSR

(Source: Author's own calculation)

INTERPRETATION OF RESULTS

The regression model presented in **Table 1** was estimated to examine how financial, operational, persistency, and risk-based indicators collectively influence the **Individual Claim Settlement Ratio (CSR)** of the selected life insurance companies. All ten independent variables—Risk Retention Ratio, Return on Equity, 13-Month Persistency, 49-Month Persistency, OPEX_TR, Commission Ratio, Total Cost Ratio, VoNB Margin, Solvency Ratio, and Conservation Ratio—were entered using the Enter method.

Model Summary presented in Table 2 reports an **R value of 0.756**, indicating a strong positive relationship between the predictors and Individual_CSR. The **R-squared value of 0.572** shows that **the combined set of independent variables explains 57.2% of the variation in CSR**. The **Adjusted R-Square of 0.462** indicates that, even after accounting for the number of predictors, the model retains substantial explanatory power. The **Durbin–Watson statistic of 1.393** suggests no serious autocorrelation issues in the residuals.

ANOVA Interpretation presented in Table 3 shows that the regression model is **statistically significant** ($F = 5.211$, $p = 0.000$). This indicates that the group of predictors, taken together, significantly explains variations in Individual_CSR. In other words, the model as a whole is meaningful and provides a better fit than a model with no predictors.

The coefficients in Table 4 reveal the individual contribution of each predictor while controlling for all others. Among the ten variables, **VoNB Margin** is the **only statistically significant predictor** of Individual_CSR ($\beta = 0.391$, $p = 0.018$). This positive and significant coefficient suggests that insurers with higher new-business profitability tend to achieve better claim settlement performance, reflecting stronger financial capacity and customer-centric operational strength.

All other variables—including Risk Retention Ratio, ROE, Persistency Ratios, OPEX_TR, Commission Ratio, Total Cost Ratio, Solvency Ratio, and Conservation Ratio—show **p-values greater than 0.05**, indicating that they do not individually exert a statistically significant effect on CSR within this model.

The collinearity statistics highlight notable multicollinearity concerns, particularly for **Total Cost Ratio (VIF = 11.153)**, **OPEX_TR (VIF = 7.185)**, and **Commission Ratio (VIF = 4.555)**. These high VIF values suggest that explanatory power is overlapping among cost-related variables, which may inflate standard errors and reduce the likelihood of detecting significance.

The combined results indicate that the regression model is statistically strong and explains a substantial portion of the variation in Individual_CSR. However, **VoNB Margin emerges as the only significant determinant**, underscoring the importance of new-business value creation in shaping claim-settlement performance. Other financial, operational, and persistency indicators do not show significant individual effects, possibly due to multicollinearity or limited variability across the selected companies.

CONCLUSION

The regression analysis provides a clear understanding of how financial, operational, persistency, and risk-based indicators collectively influence the Individual Claim Settlement Ratio (CSR) of the selected life insurance companies. The model demonstrates strong explanatory power, with 57.2% of the variation in CSR explained by the ten predictors, indicating that the chosen variables are relevant and meaningful for explaining claim settlement performance. The ANOVA results confirm that the overall model is statistically significant, showing that the predictors, when considered together, have a substantial impact on CSR.

However, when examining the individual coefficients, **VoNB Margin emerges** as the only statistically significant determinant of CSR. This finding highlights that insurers with stronger new-business profitability tend to perform better at claim settlement, likely due to stronger financial health, larger capital buffers, and more efficient operational systems. ***Other variables—including risk retention, ROE, persistency ratios, cost ratios, solvency, and conservation—do not show significant individual effects, suggesting that their influence on CSR is either indirect, limited, or overshadowed by multicollinearity within the model***. The high VIF values for Total Cost Ratio, OPEX_TR, and Commission Ratio further indicate overlapping explanatory power among cost-related variables, potentially reducing the statistical significance of these variables.

Overall, the analysis concludes that while claim settlement performance is shaped by a broad set of financial and operational factors, new-business value creation (VoNB Margin) is the most influential driver. This underscores the importance of sustainable profitability and efficient business expansion in strengthening insurers' ability to honour claims promptly and reliably. A natural next step is to explore whether refining the model—such as reducing multicollinearity or testing alternative variable combinations—could reveal additional significant predictors of CSR.

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